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Assessing the Sustainability of the Olembé Social Housing Project in Yaoundé, Cameroon*

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ABSTRACT
Cameroon is experiencing rapid urbanization, which has led to increased demand for social housing and a significant rise in real estate development, especially in the capital city, Yaoundé. This growth highlights the critical need to address housing shortages by adopting sustainable development approaches that are economically accessible, socially inclusive, and environmentally responsible. This study critically examines how sustainability principles are reflected in social housing developments in Yaoundé, focusing specifically on the project in Olembé, a neighborhood located in the north of the city. Through an assessment of economic, social, and environmental dimensions with a SWOT analysis, the study identifies key challenges of the project such as limited affordability and inequitable access to the housings, insufficient infrastructure, and high resource consumption during the buildings' lifecycle. Simultaneously, it acknowledges the project's potential benefits, including its strategic proximity to Yaoundé's city center and major infrastructure such as the nearby stadium. Consequently, this study provides a nuanced understanding of the complexities involved in embedding sustainability into social housing policies in Cameroon's rapidly urbanizing context.
Keywords: Social housing, Architecture, Built environment, Sustainability, SWOT, Cameroon

1. INTRODUCTION

In recent years, Cameroon has experienced rapid urbanization, a phenomenon that has brought significant changes to its social and economic landscape. The increasing concentration of population in urban areas, particularly in the capital city of Yaoundé, has created a pressing demand for adequate housing solutions (Djatcheu Kamgain & Mounvera, 2022). This surge in urban population growth has propelled a substantial expansion in real estate development projects aimed at addressing the urgent need for social housing. These developments represent a critical response to the housing shortage faced by many residents, reflecting broader demographic and economic shifts within the country (Djatcheu Kamgain & Mounvera, 2022; Mouchili & Mougoué, 2023). In response to the housing shortage, the Government of Cameroon launched a national program in 2009 to construct 10,000 social housing units and develop 50,000 serviced plots across the country (MINHDU, 2024b). Construction work commenced shortly after the program's announcement, beginning in the Olembé neighborhood of Yaoundé.

In light of growing urban challenges worldwide, sustainability has become an increasingly central theme in discussions on construction and urban development. Rooted in the landmark Our Common Future, also known as Brundtland Report, sustainability encompasses three interconnected dimensions: economic viability, social inclusivity, and environmental responsibility (World Commission on Environment and Development, 1987).

These dimensions collectively form a framework that challenges the construction sector to balance growth with economic feasibility, equitable social outcomes, and responsible use of resources. This foundational model has since been reinforced by global initiatives such as the United Nations' Sustainable Development Goals, particularly Goal 11, which emphasizes the importance of fostering inclusive, safe, resilient, and sustainable cities (United Nations, 2015, p. 21). Within this context, social housing plays a vital role in advancing sustainable urban development by addressing the needs of vulnerable populations and aligning with key principles of global sustainability goals.

Building on this global framework, the Government of Cameroon has developed an urban strategy to address rapid urbanization and rising housing demand. Reflecting the three pillars of sustainable development and the aims of SDG 11, the strategy promotes economically viable, socially inclusive and environmentally sustainable urban growth to improve living conditions nationwide (Republic of Cameroon, 2024, pp. 149–155). This strategic direction also reinforces the importance of integrating sustainability principles into social housing initiatives as a practical means of meeting both national needs and international commitments.

To evaluate the practical application of sustainability principles, this study examines social housing initiatives in Cameroon, with a particular focus on the Olembé Project in the capital city of Yaoundé. It explores how economic accessibility, social inclusion, infrastructural adequacy, and environmental responsibility are integrated into the planning and implementation of this long-term development. Through a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of these interconnected pillars, the study aims to reveal the project's structural strengths and limitations, identify emerging opportunities and risks, and contribute to a more comprehensive perspective on sustainable social housing in the context of Cameroon's rapidly urbanizing landscape.

2. METHODOLOGY

This research employs a case-based research approach to assess the sustainability of social housing projects in Yaoundé, with a specific focus on the Olembé Project. The analysis is structured in two main parts. First, a theoretical framework is developed, outlining key principles of sustainable social housing and tracing the evolution of social housing policies in Cameroon. In the case study analysis, the Olembé Project is first described with particular attention to critical aspects such as housing affordability and accessibility for low-income populations; the degree of social inclusion and the adequacy of supporting infrastructure and public services; and the environmental impact of the housing units across their life cycle. Data is drawn from governmental documents, scholarly literature, and media coverage, allowing for a multi-perspective analysis of the project. Following this descriptive overview, a SWOT analysis is employed to systematically evaluate the project's performance across the three core dimensions of sustainability: economic, social, and environmental. The SWOT framework serves to structure the empirical findings and facilitate a critical interpretation of the project's achievements and ongoing challenges.

The Olembé Project was selected based on its relevance and potential impact. As one of the earliest government-supported initiatives following the 2009 announcement of the construct of social housing units across Cameroon, Olembé reflects the state's ongoing strategies to address the urban housing crisis. The project has already attracted scholarly attention, which provides a valuable basis for examining it through the multiple dimensions of sustainability; in addition, official reports and press sources offer further insight into its planning and implementation. The initiative has been underway for nearly two decades, with a number of units already completed and handed over to residents, while the construction of additional phases continues. This prolonged development process provides a valuable opportunity to examine both the implementation and evolution of sustainability practices within a long-term public housing project.

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3. THEORETICAL FRAMEWORK

3.1 Sustainable Social Housing

Social housing denotes non-profit housing offered at below-market rates, primarily intended for low-income households that lack the financial means to purchase a house (Granath Hansson & Lundgren, 2018). Its production and quality are regulated by the state, as are the social landlords, which may include local authorities, housing associations, cooperatives, and other organizations (Power, 1993, p. 3). It provides long-term accommodation through a targeted distribution system and relies on subsidies to ensure affordability. Formally, social housing is a system offering long-term housing to financially limited households by means of allocation mechanisms and financial support.

The origins of social housing can be traced back to the 19th century in Europe, emerging as a response to the challenges posed by the Industrial Revolution, including rapid urban growth, overcrowding, and poor living conditions for the working class (Whitehead, 2017, p. 14). By the early 20th century, social housing had become a central component of welfare policy, particularly in post-war Europe, in countries such as Britain, France, and Germany, where it aimed to tackle housing shortages and foster social cohesion (Malpass, 2005; Power, 1993).

In recent decades, however, the discourse around social housing has increasingly intersected with the concept of sustainability. This shift reflects a broader global concern that emerged in the late 20th century, driven by growing awareness of economic instability, social inequality, and environmental concern. The economic, social and environmental dimensions of sustainability were formally introduced in the Brundtland Report, emphasizing the multifaceted nature of the sustainable development, which is described as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987). This three-pillar model was further reinforced through the United Nations' 2030 Agenda for Sustainable Development, which established 17 Sustainable Development Goals (SGDs) to guide actions for providing "peace and prosperity for people and the planet" (United Nations, 2015). In particular, the 11th goal (SGD 11) "Cities and human settlements inclusive, safe, resilient and sustainable", directly addresses the critical need for sustainable housing by promoting access to affordable, safe, and adequate housing and upgrading slums while reducing the environmental impact of the cities (United Nations, 2015, p. 21).

In this respect, the notion of sustainable social housing has come to the forefront, integrating economic, social, and environmental dimensions to address the complex challenges of contemporary urban living. Economically, social housing balances affordability for low-income groups while supporting local economies by creating jobs in construction and related sectors (Centre for Economics and Business Research, 2024). Socially, sustainable housing seeks to ensure equitable access to decent living conditions with proper infrastructure, foster social diversity, and strengthen community cohesion. This involves combating spatial segregation, encouraging resident participation in the design and management of their environments, and supporting inclusive urban development (Dempsey et al., 2011). Environmentally, it aims to minimize the ecological footprint of housing projects throughout their life cycle by promoting the use of ecological materials, bioclimatic design principles, renewable energy sources, and technologies that enhance energy and water efficiency (Carvalho et al., 2019). Broader societal benefits include reduced homelessness, improved employment outcomes, and better public health indicators (Centre for Economics and Business Research, 2024). Through the integration of these three pillars, sustainable social housing emerges as a strategic response to both global sustainability goals and local housing challenges. It addresses the needs of vulnerable populations while minimizing ecological impact and fostering inclusive, resilient communities. By prioritizing both people and the environment, such projects contribute to

the fight against poverty and social exclusion, support the preservation of natural resources, and promote balanced urban development aimed at long-term well-being.

This holistic approach is gaining relevance not only in developed countries but also in rapidly urbanizing regions such as Sub-Saharan Africa, where the pressures of population growth, poverty, informal settlements, and insecure land tenure create complex housing challenges (UN-Habitat, 2011). In these contexts, access to affordable land and housing is central to sustainable urban development and improving the living conditions of disadvantaged populations (UN-Habitat, 2011).

Sub-Saharan Africa is facing an escalating housing crisis, driven by rapid population growth, accelerating urbanization, and persistent socio-economic disparities (Tipple, 1994). The academic focus has already been on housing problems and social housing projects in some countries like South Africa and Nigeria (Goodlad, 1996; Gunter, 2013; Ihuah et al., 2014; Mohit & Iyanda, 2016). Furthermore, recent scholarship has begun to evaluate social housing projects in these countries through the lens of sustainability, emphasizing the need to align housing strategies with environmental, social, and economic objectives (Goebel, 2007; Ross et al., 2010; Ihuah & Fortune, 2013; Amoah, 2023).

Cameroon, similarly, is grappling with the pressures of a steadily growing population, which has led to a rising demand for adequate, affordable housing (Atangana Tabi et al., 2020). In response, social housing initiatives targeting low-income households have been implemented to address the housing deficit (Atangana Tabi et al., 2020). These efforts will be discussed in more detail in the following section.

3.2 Social Housing Policy in Cameroon

The Republic of Cameroon, located in Central Africa and part of Sub-Saharan Africa, is characterized by its ecological diversity, abundant natural resources, and growing economic potential. The country shares borders with Nigeria to the west, Chad to the northeast, the Central African Republic to the east, and Equatorial Guinea, Gabon and the Republic of the Congo to the south (Figure 1). Its strategic location and diverse landscapes, including coastal plains, mountainous regions and dense forests, contribute to its economic and environmental significance in the region.

In recent decades, the country has experienced notable urban transformation, driven by sustained population growth, rural-to-urban migration, and worsening poverty (The World Bank, 2025). Economic stagnation, limited job opportunities, internal conflict, and natural disasters have further intensified migration to urban areas, placing increasing pressure on cities to meet rising demands for housing, employment, and basic services (The World Bank, 2025). In response, sustainable social housing projects are becoming vital solutions to the housing crisis, promoting equitable and environmentally responsible urban development.

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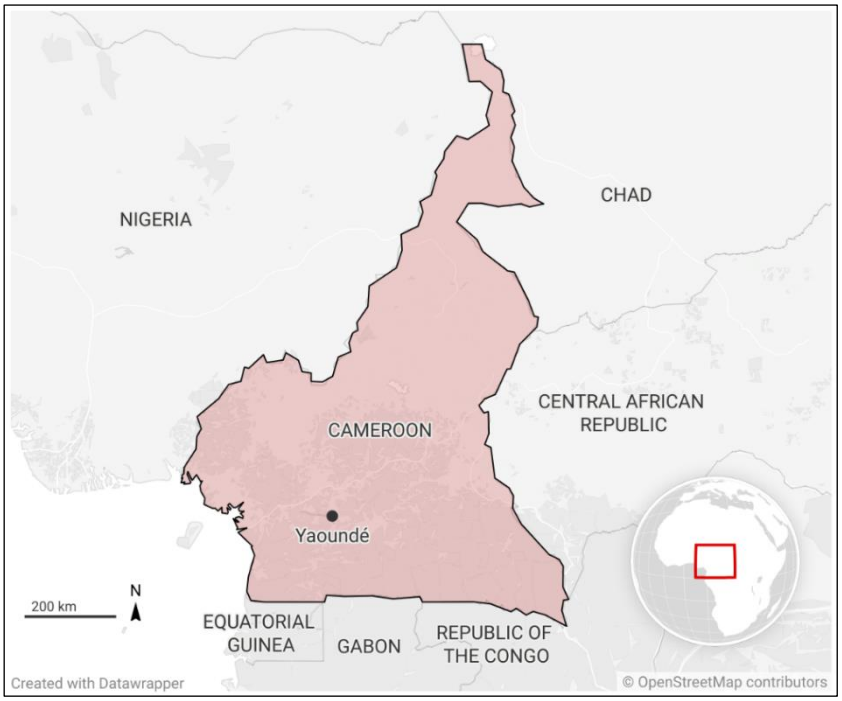

Figure 1. Map of Cameroon and the location of Yaoundé (by the authors)

According to the Center for Affordable Housing Finance in Africa's (CAHF) 2024 Annual Report, Cameroon's total population is approximately 28.6 million, with an overall annual increase of 2.59% and an urban growth rate of 3.56% (CAHF, 2024). About 60% of the population live in urban areas, making Cameroon one of the most urbanized countries in the sub-region (Republic of Cameroon, 2024, pp. 149–155). The rapid urbanization is driving a growing demand for accessible and affordable housing and infrastructure, which is essential to foster more inclusive and sustainable economic development.

Building on growing urbanization trends and pressing housing needs, the Government of Cameroon has outlined a comprehensive urban development strategy to confront the challenges of rapid modern urban expansion (Republic of Cameroon, 2024, pp. 149–155). Aligned with the three pillars of sustainable development and the objectives of SDG 11, the strategy promotes economic viability, social inclusion, and environmental sustainability to foster resilient, inclusive cities. A core component is the expansion of affordable housing, recognized as a key mechanism for enhancing living conditions and supporting equitable urban growth. To improve access for low-income populations, the government aims to lower ownership costs by addressing inefficiencies and removing regulatory barriers (Republic of Cameroon, 2024, p. 154). In this respect, effective governance remains essential to ensuring the coherence, implementation, and long-term sustainability of these development policies (Republic of Cameroon, 2024, pp. 149–155).

The successful realization of this urban development strategy relies on the active involvement of a broad range of stakeholders operating across multiple levels (Republic of Cameroon, 2024, pp. 8–9). Key government bodies include the Presidency, the Prime Minister's Office, and relevant ministries such as the Ministry of State Property, Surveys, and Land Tenure (MINDCAF), the Ministry of Housing and Urban Development (MINHDU), the Ministry of the Economy, Planning and Regional Development (MINEPAT), and the Ministry of Public Works (MINTP) which coordinate policy and planning. These institutions are supported by public agencies like the Cameroon Mortgage Bank (CFC), the Real Estate Company of Cameroon (SIC), and Urban and Rural Lands Development and Equipment Authority (MAETUR). Decentralized local authorities manage urban development on the ground, while international partners, including the World Bank, African Development Bank, French Development Agency, and regional institutions like the Development Bank of the

Central African States (BDEAC), provide technical and financial assistance. Academic institutions contribute through research and training, and civil society organizations engage in advocacy and community support. National and international private sectors, encompassing construction firms, real estate developers, energy providers, and ICT companies, plays a key role in implementing projects and delivering essential services.

To support the effective participation of these diverse actors and ensure consistency in implementation, Cameroon's housing development is supported by a comprehensive legislative and regulatory system (Republic of Cameroon, 2024, pp. 48–49). These notably include the Law No. 97/003 of January 10, 1997, relating to real estate development (MINHDU, 1997), the Law No. 2004/003 of April 21, 2004, governing urban planning (MINHDU, 2004) and the Decree No. 0009/MINHDU of August 21, 2008, establishing the standards for social housing (MINHDU, 2008).

In response to the growing housing demand, the Government of Cameroon has taken an active role in initiating large-scale housing projects aimed at addressing the national deficit. Since its establishment in 1952, SIC has been producing affordable housing for sale and rent; however, it has not been able to meet the growing demand (Njouonang Djomo & Nanfack Tchatchouang, 2022, p. 155). According to CAHF, the country faces a housing deficit estimated between 1.8 and 2 million units, with an annual demand of approximately 300,000 units. However, only about 150,000 units are added each year, leaving half of the demand unmet (CAHF, 2024). To address this persistent shortfall, the government launched a national program in 2009 aimed at constructing 10,000 social housing units and developing 50,000 serviced plots across 22 localities (MINHDU, 2024b). Special attention was given to the ten regional capitals, with 4,500 units reserved for Yaoundé and Douala, the country's two largest urban centers (MINHDU, 2024b). This initiative is spearheaded by MINHDU and SIC, the country's principal housing providers (CAHF, 2024). By March 2023, 25% of the first phase had been completed, with 4,000 units delivered, whereas the second phase aims to add 9,000 more units by 2026, with additional projects planned in partnership with new stakeholders (CAHF, 2024). In parallel, local authorities and financial institutions are also collaborating on housing development programs in secondary cities; however, the supply continues to fall short of the rising demand.

4. THE CASE STUDY

4.1 Social Housings in Olembé

Yaoundé, the capital of Cameroon, has an estimated population of 4.85 million as of 2025, marking a 3.67% increase from the previous year (Macrotrends, 2025). The city has long struggled with uncontrolled urbanization, particularly following the economic crises of the 1990s (Voundi et al., 2018). Continued demographic growth and accelerated urban expansion have resulted in a severe housing shortage and increasing pressure on the city's infrastructure (Djatcheu Kamgain & Mounvera, 2022; Mouchili & Mougoué, 2023). The lack of adequate and affordable housing has deepened social inequalities and contributed to widespread urban precariousness, as many residents are compelled to construct their own dwellings in informal settlements, often under unsafe and unsanitary conditions (Djatcheu Kamgain & Mounvera, 2022; Mouchili & Mougoué, 2023).

In response to these conditions, the Cameroonian government initiated urban restructuring programs starting in 2009, building on earlier urban master plans (Voundi et al., 2018). Nearly half of the 10,000 social housing units proposed under this initiative were allocated to the cities of Yaoundé and Douala. One of the designated sites in Yaoundé is the Olembé neighborhood, which is the focus of this case study. Located on the northern outskirts of the capital (Figure 2), Olembé was identified as a strategic area for planned urban expansion and government-led housing initiatives. Construction activities are ongoing; some units already completed and handed over to their owners, while the construction of additional units has been announced.

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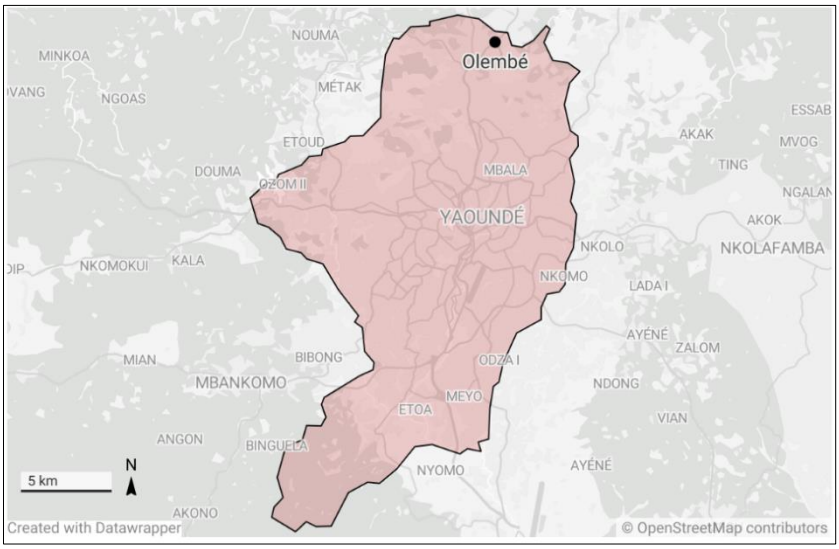

Figure 2. Map of Yaoundé and the location of Olembé (by the authors)

Construction in Olembé began in December 2009, shortly after the launch of the government's social housing program. The initial phase which is completed, involved 500 units by national Small and Medium-sized Enterprises (SMEs) and 660 units by the Chinese government (MINHDU, 2024b). These housing units are situated near the Olembé Stadium, the largest stadium in Cameroon (Figure 3 and Figure 4). In 2023, the construction of an additional 3,060 units in Olembé by a Spanish company was announced (MINHDU, 2024a).

Figure 3. The Social housings in Olembé.
a) Housings by the SMEs, b) Housings by the Chinese
(Adapted from Maps Data: Google, @2022 Maxar Technologies)

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Figure 4. The social housings in Olembé (Minhdu, 2022)

Following the commencement of construction, the initial phase focused on delivering housing units of specific configurations: T4 and T5. T4 units, comprising three bedrooms and a living room, range in size from 99.30 to 105.21 square meters. The T5 units, which include four bedrooms and a living room, have surface areas between 120.87 and 122.89 square meters. The prices of these units, as disclosed by MINHDU, range from 18.25 million to 22.31 million FCFA (MINHDU, 2024b).

Several studies have examined the affordability of these units. An assessment of the supply and demand of social housing in Cameroon by Atangana Tabi et al. (2020) reveals that low-income households cannot afford the currently offered T4 and T5 units. Smaller and more affordable options such as T1, T2, and T3 are generally extremely scarce and were entirely absent in the initial phase of the Olembé project. Njouonang Djomo et al. (2022), on the other hand, point out that the housing units in Olembé require a steady income for payment, rendering them accessible only to comparatively financially more secure households. From a rental perspective, Sardaouna et al. (2022) demonstrate that even the smallest T1 units offered in other social housing projects remain unaffordable to low-income households when monthly rental prices are compared to average incomes. In addition to affordability constraints, studies have identified barriers related to allocation. Njouonang Djomo et al. (2022) emphasize that subsidized housing in Cameroon, including developments in Olembé, is often allocated through informal social networks. As a result, even financially eligible individuals may be excluded if they lack the necessary connections, further limiting equitable access to housing (Njouonang Djomo & Nanfack Tchatchouang, 2022).

The Olembé project also incorporates the development of essential social infrastructure. A site visit conducted in 2013 by representatives of MINHDU and other relevant institutions revealed that construction of the access road from Yaoundé to the site at Olembé had commenced, with public lighting installed along the main route (Figure 5a) (MINHDU, 2024b). At that time, 80 completed housing units were reportedly supplied with piped water and electricity (MINHDU, 2024b). A 2015 report further stated that essential public amenities, including a health center, a commercial center, and a school, had also been completed (Figure 5b) (MINHDU, 2022).

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Figure 5. The infrastructure of the Olembé social housings.
a) Yaoundé - Olembé access road, b) Nursery and primary school (MINHDU, 2022)

The 2013 site visit report also stated that, before residents could move into the Olembé housing units, several critical infrastructure works would need to be completed (MINHDU, 2024b). These included upgrading the main access road to a double-layer bitumen standard, finalizing internal roads and utility networks (water, drainage, electricity), and ensuring the proper demarcation of property boundaries (MINHDU, 2024b). However, the report also highlighted significant financial constraints hindering the timely completion of these works (MINHDU, 2024b). These constraints included delays in the disbursement of funds from the MINEPAT, insufficient funding for the construction of the main access road, and a lack of financial resources for utility networks. To address these issues, the report recommended urgent funding allocations, the launch of pre-sale campaigns, and the mobilization of revolving funds to support project completion (MINHDU, 2024b).

However, the financial constraints noted in earlier reports seem to have impacted the later stages of the project. Consequently, despite the reported completion of key infrastructure in the initial phases, a news article of 2020 revealed that some of the subsequently constructed units lacked access to basic services such as electricity and piped water (Actu Cameroun, 2020). This situation prevented residents from moving into the houses and raised concerns about the consistency and functional delivery of the project (Actu Cameroun, 2020). Disruptions in cash flow, as highlighted by MINHDU, apparently remain one of the major challenges hindering the project's completion.

In addition to socioeconomic and infrastructural considerations, the project encompasses important aspects related to its long-term environmental performance. To address this, a Life Cycle Analysis (LCA) was conducted on a T4 housing unit in Olembé to evaluate the environmental impact throughout the construction, use, maintenance, and eventual demolition phases (Elime Bouboama et al., 2017). The assessment is based on twelve environmental impact indicators, covering both resource consumption (energy, water, and materials) and emissions (inert waste, radioactive waste, GWP100, acidification, eutrophication, ecotoxicity, human toxicity, ozone-smog, and odors). For reference, the analyzed T4 unit features a concrete frame infilled with cement blocks, a timber roof covered with aluminum sheets, and wooden carpentry elements such as doors, windows, and cupboards. Construction of the unit was completed in 2017, and its expected service life is accepted as approximately 50 years. The manufactured materials were transported from Douala, while gravel was sourced from the nearby area of Nkometou (Elime Bouboama et al., 2017).

According to the LCA results, the destruction phase had the lowest environmental impact, while the exploitation phase (use and maintenance) had the highest. It is explained as demolition usually being carried out quickly and precisely, while the use phase involves a much longer duration (Elime Bouboama et al., 2017). Primary issues included high water consumption due to supply losses, and notable emissions of waste, radioactive materials, and odors during construction phase. Overall, the use phase was identified as the most environmentally critical, contributing significantly to raw material and energy consumption,

greenhouse gas emissions, acidification, eutrophication, ecotoxicity, and climate change (Elime Bouboama et al., 2017).

Taken together, these observations reveal a complex picture of the Olembé housing project. While the initiative represents a significant effort to address urban housing needs, persistent issues such as financial inaccessibility, inequitable allocation, delays in infrastructure delivery, and considerable environmental impacts during the use phase of the buildings limit its effectiveness and long-term viability. These interconnected challenges highlight the need for a holistic approach to sustainability, as discussed in the following section.

4.2. Sustainability Assessment of the Olembé Project - SWOT Analysis

The Olembé social housing project stands as a significant response to the escalating housing demand in Yaoundé; however, its long-term sustainability depends on more than the scale of construction achieved. A comprehensive evaluation requires an integrated perspective that considers economic viability, social equity, and environmental impact. Assessing these dimensions together provides critical insights into the project's contributions to inclusive and resilient urban development, as well as the ongoing challenges it faces. The following discussion employs a SWOT analysis (Table 1) to systematically examine the strengths, weaknesses, opportunities, and threats inherent in the initiative across its economic, social, and environmental dimensions, thereby situating its outcomes within the broader discourse on sustainable housing in Cameroon.

Table 1. SWOT analysis of the Olembé social housing project highlighting its economic, social, and environmental dimensions.

Pillars of Sustainability	Strengths	Weaknesses	Opportunities	Threats
Economic	- Major national/international investment - Completed and ongoing phases improve urban housing supply	- Persistent financial constraints - Inadequate funding mechanisms - High unit prices (T4 & T5) unaffordable to low-income groups - No smaller units (T1-T3) - Informal allocation excluding eligible individuals	- Potential to stimulate local economic activity near Olembé Stadium - Opportunity to revise pricing models or introduce subsidized housing	- Continuation delays due to lack of sustainable financing - Further exclusion of disadvantaged populations from housing opportunities
Social	- Provision of educational and healthcare facilities - Basic transport and road infrastructure	- Prioritization of middle- and higher-income groups -Exclusion of low-income households - Delays in housing delivery hindering timely habitation - Insufficient access to water and electricity in some areas	- Potential to enhance community resilience through improved services - Proximity to Yaoundé fosters social integration - Scope to revise eligibility and strengthen inclusion	- Growing dissatisfaction due to unmet expectations - Deepening social inequality and spatial segregation - Weakening of social cohesion and trust if inequities persist
Environmental	- Long service life of housing units - Low impact in demolition phase - Use of local materials from Douala and Nkometou	- High environmental burden during use and maintenance phase - Excessive energy and water consumption - Emissions contribute to acidification, eutrophication, and toxicity	- Opportunity to retrofit units with sustainable technologies - Use findings of Life Cycle Analysis (LCA) to inform future eco-design of housing units	- Continued ecological degradation from inefficient resource use

The economic dimension of the Olembé social housing project is characterized by significant strengths alongside persistent challenges. As a major initiative born from national and international collaboration, the project aims to provide long-term solutions to Yaoundé's housing crisis. Completed phases and ongoing developments signal promising improvements in the urban housing supply and reflect a strong commitment to addressing housing needs. However, these strengths are tempered by ongoing weaknesses, notably persistent financial constraints and inadequate funding mechanisms that hinder the project's continuity. Despite MINHDU's acknowledgment of these challenges in its 2013 report (MINHDU, 2024b) and recommended financial mechanisms to secure project continuity, similar funding difficulties persist, threatening the timely completion of future phases. Housing affordability further complicates the economic sustainability of the project. The high prices of the larger T4 and T5 units exclude many low-income households, while the absence of smaller units (T1-T3) limits inclusivity for vulnerable populations. Informal allocation practices have also exacerbated inequities by excluding eligible individuals lacking social connections, undermining the goal of equitable access. Nonetheless, there are opportunities to strengthen the project's economic impact, including leveraging its proximity to Olembé Stadium to stimulate local economic activity. Revising pricing models or introducing subsidized housing could enhance affordability and expand access. These prospects, however, face threats such as potential delays from insufficient sustainable financing and the risk of further exclusion of disadvantaged groups from formal housing. Taken together, these economic dynamics underscore the urgent need for more effective financial strategies and transparent allocation policies to ensure the project's long-term viability and social inclusiveness.

Closely linked to the economic context, the social dimension of the Olembé social housing project reveals a complex interplay between progress and persistent structural limitations. Among its notable strengths are the inclusion of essential services such as access to education and healthcare facilities, as well as the provision of basic road and transport infrastructure. These elements contribute to an improved quality of life and reflect an intention to integrate social amenities into the urban fabric. However, these gains are undermined by significant weaknesses. Chief among them are exclusionary allocation practices and a clear prioritization of middle- and higher-income groups, which marginalize low-income households, the primary targets of social housing initiatives. The project's focus on these higher-income brackets, coupled with inequitable allocation procedures, undermines its capacity to promote fairness and inclusion. These issues, in turn, hinder the project's potential to foster genuine social integration, which is essential for long-term social resilience. Moreover, delays in the delivery of housing units and insufficient access to basic services such as water and electricity have compromised not only the quality of living but also timely habitation. These infrastructural and administrative shortcomings obstruct the goal of ensuring humane, timely, and dignified habitation for all beneficiaries. Nevertheless, opportunities remain to enhance the project's social impact, particularly through expanded service provision, inclusive eligibility criteria, and community-oriented development strategies. Its strategic proximity to central Yaoundé increases the potential for meaningful social integration by connecting residents to broader educational, employment, and social networks. Yet these prospects are threatened by the continued risk of social inequality and dissatisfaction due to unmet expectations, especially if the gap between intended policy goals and lived realities is not adequately addressed. Ensuring social sustainability thus requires a more inclusive and equitable framework that responds directly to the needs of underserved populations.

Complementing the economic and social considerations, the environmental dimension of the Olembé social housing project presents a mix of promising features alongside significant ecological concerns. One of the project's strengths lies in the long service life of its housing units, which contributes to resource efficiency over time (Elime Bouboama et al., 2017). Additionally, the use of local materials in construction has reduced transportation-related emissions and supported the local economy. The relatively low

environmental impact associated with the demolition phase further enhances the project's environmental profile by minimizing waste generation and disruption at the end of the building life cycle. However, several environmental weaknesses undermine these strengths. The operational phase of the housing units is marked by excessive energy and water consumption, resulting in a high environmental burden during use and maintenance. Life Cycle Assessment study indicates that emissions generated during this phase contribute significantly to environmental problems such as acidification, eutrophication, and toxicity, revealing critical inefficiencies in design and resource management (Elime Bouboama et al., 2017). These findings underscore the need for a more comprehensive sustainability framework that extends beyond construction to the building's entire life cycle. Opportunities exist to address these weaknesses through retrofitting existing units with sustainable technologies and applying LCA findings to improve future housing designs. Integrating energy-efficient systems, water-saving fixtures, and environmentally friendly materials could reduce the ecological footprint and align the project more closely with global sustainability goals. Nevertheless, if current inefficiencies persist, there is a considerable risk of continued ecological degradation, particularly due to inefficient resource use. This threat emphasizes the importance of proactive environmental planning and the integration of circular economy principles in the design, operation, and maintenance of social housing developments in Cameroon.

Taken together, the economic, social, and environmental analyses underscore the complexity of achieving sustainability in large-scale housing initiatives such as the Olembé project. While notable progress has been made in expanding housing supply and integrating essential services, persistent challenges across all three dimensions continue to shape the project's overall impact and sustainability profile.

5. CONCLUSION

The Olembé social housing project serves as a critical case study illustrating the complexities of translating sustainable development policies into effective practice. The Government of Cameroon has articulated a comprehensive urban development strategy that aligns with the three fundamental pillars of sustainability, namely social inclusion, economic viability, and environmental responsibility, and explicitly supports the objectives of Sustainable Development Goal 11, which seeks to make cities inclusive, safe, resilient, and sustainable (Republic of Cameroon, 2024, pp. 149–155). In theory, this strategy places strong emphasis on the provision of affordable housing as a means to address pressing urban challenges and promote equitable urban growth. However, despite certain achievements, the Olembé social housing project reveals a significant disconnect between these policy intentions and their implementation in practice.

The SWOT-based analysis of the Olembé initiative underscores the multifaceted challenges that hinder its alignment with sustainability goals. Economically, although national and international investments have expanded housing supply, financial instability, high unit prices, and inequitable informal allocation practices continue to restrict access for low-income populations and jeopardize project continuity. Socially, while the provision of essential services and infrastructure contributes to improved living standards, the prioritization of middle- and higher-income groups, delays in habitation, and limited access to basic services weaken the project's capacity to foster equitable inclusion and long-term social cohesion. Environmentally, positive features such as the long lifespan of housing units and the use of local materials are offset by excessive energy and water consumption and harmful emissions during the operational phase, which compromise the project's environmental sustainability.

Together, these findings highlight a significant gap between policy aspirations and practical outcomes, pointing to the need for strategic reforms that reinforce each dimension of sustainability. To better align the project with its stated objectives, several targeted measures should be prioritized.

Economically, improving accessibility and affordability is essential. Key strategies include expanding mass housing production through broader stakeholder engagement, promoting the use of locally sourced and cost-effective building materials, and introducing public support mechanisms and tax incentives to reduce construction costs (Atangana Tabi et al., 2020). Diversifying housing typologies to include smaller, more affordable units, clearly defining low-income target groups within legal frameworks, enhancing household creditworthiness, and optimizing architectural and technical design are equally important for enhancing financial inclusivity.

From a social sustainability perspective, addressing unequal allocation requires expanding the overall housing supply, with specific focus on meeting the needs of the most disadvantaged populations, those who must be at the center of state housing policies (Njouonang Djomo & Nanfack Tchatchouang, 2022). Improving affordability plays a vital role in promoting social cohesion by enabling low-income households to access adequate housing. Additionally, enhancing infrastructure, particularly in water supply and electricity, is essential to improving residents' quality of life and supporting long-term social integration.

In terms of environmental responsibility, the project must adopt strategies that reduce resource consumption and emissions throughout the buildings' life cycle. This includes integrating energy-efficient technologies, sustainable construction practices, and maintenance plans that minimize long-term environmental impact.

Implementing these recommendations would not only address the key weaknesses and threats identified in the SWOT analysis but also reinforce the project's strengths and opportunities. In doing so, the Olembé initiative could serve as a replicable model of sustainable, inclusive, and resilient urban housing development in Cameroon.

Moving forward, enhancing affordability, strengthening mechanisms for equitable access, addressing the needs of underserved groups, and adopting resource-efficient practices are essential to embedding sustainability and equity at the core of housing policy. By acknowledging and applying the lessons learned from Olembé more broadly, Cameroon has the opportunity to emerge as a regional leader in sustainable and inclusive social housing (Tadida Foutsiwa, 2024). With sustained commitment, cross-sector collaboration, and active engagement from international partners, Olembé can pave the way toward a future in which all citizens have access to decent, affordable, and environmentally responsible housing.

ABBREVIATIONS

Abbreviations corresponding to original French organization names are presented with their English equivalents in the main text and are detailed alongside the full terms in the Abbreviations section.

BDEAC: Banque de Développement des Etats de l'Afrique Centrale (Development Bank of the Central African States)
CAHF: Le Centre pour le financement du logement abordable en Afrique (Centre for Affordable Housing Finance Africa)
CFC: Crédit Foncier du Cameroun (Cameroon Mortgage Bank)
MAETUR: Mission d'Aménagement et d'Equipements des Terrains Urbains et Ruraux (Urban and Rural Lands Development and Equipment Authority)
MINDCAF, Ministère des Domaines, du Cadastre et des Affaires Foncières (Ministry of State Property, Surveys, and Land Tenure)
MINHDU, Ministère de l'Habitat et du Développement Urbain (Ministry of Housing and Urban Development)

MINEPAT, Ministère de l'Economie, de la Planification et de l'Aménagement du Territoire (Ministry of the Economy, Planning and Regional Development)
MINTP, Ministère des Travaux Publics (Ministry of Public Works)
SIC: Société Immobilière du Cameroun (Real Estate Company of Cameroon)

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