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State-subsidised housing designed for income generation: the case of K206 housing in Johannesburg

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ABSTRACT

State-subsidised housing in the Global South often receives criticism for failing to meet the economic needs of low-income citizens. The K206 housing project, situated in Alexandra, Johannesburg, stands out as a unique case by not only addressing housing requirements but also addressing the economic concerns of its low-income homeowners. This response included the incorporation of state initiated formal built-in rental rooms and provisions for incremental extensions to support income generation. This paper aims to explore both of these options that allowed residents to use housing as a means of income generation, and examines household strategies and the motivations behind using these options for extra income. Twenty-one resident interviews and spatial analyses provided insights on how the K206 housing facilitated income-generating opportunities for its residents and analyses whether households capitalised on these opportunities and the factors influencing their decisions to do so. The findings were that state built-in backyard rooms did not generally work for income generation due to poor allocation strategies that caused conflict. Incremental extensions, even in unintended locations proved more effective for generating income. Incrementally added backyard rooms served multiple purposes and had the potential to generate income to address cash shortfalls, contribute to pension plans, and facilitate investments.

KEYWORDS: State-subsidised housing; South Africa; income generation; incremental housing; mixed housing tenure

Introduction

In addressing poverty among low-income residents in the Global South, state-subsidised housing has been recognised as a pivotal strategy

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(Charlton & Kihato, 2006; Gilbert, 2004; Magalhães et al., 2016; Salcedo, 2010; UN-Habitat, 2014b). While such housing has been associated with improvements in residents' lives (Gilbert, 2004; Moser et al., 1998), it has not necessarily directly elevated residents' income (Greyling, 2009; Riley et al., 2001). Income generation becomes particularly critical in the South African context, where a staggering 33% of the labour force is unemployed (STATSSA, 2023). In South Africa, the fully-subsidised Reconstruction and Development Programme (RDP) provides better-quality housing with essential services for low-income families. However, this housing does not guarantee access to resident income-earning opportunities (Charlton, 2018; Greyling, 2009; Lemanski, 2011; Napier, 2005; Robins, 2002). Allowing for income-generating opportunities has become a challenge, as some South African RDP beneficiaries have been known to even go as far as to prematurely sell their homes below market price in order to get access to cash flow (before the stipulated eight-year mark). Alternatively, they moved back into informal shelters while renting out their state-subsidised housing in response to not having alternative income-generating opportunities (Charlton, 2013; Lemanski, 2011; Manomano et al., 2016).

State-subsidised housing for low-income residents is well-documented, particularly in the Global South (Charlton, 2013; de Sousa Moretti et al., 2015; DoHS, 2004; Salcedo, 2010; Van Gasteren & Tola, 2017). Research also delves into incremental housing, defined here as the gradual extension of existing housing over time (Aduwo et al., 2013; Mota, 2021; Shiferaw, 1998; Wakely & Riley, 2011), and the economic benefits it presents for residents (Bredenoord & van Lindert, 2010; Gough & Kellett, 2001; Wakely & Riley, 2011). Furthermore, a body of knowledge discusses how housing has the potential to generate additional income through home-based businesses. This underscores that proactive residents can use their housing to augment household income (DAG, 2020a; Gough et al., 2003; Moser et al., 1998; Sinai, 1998). Importantly, the existing studies on housing and income generation do not specifically address state-subsidised housing projects.

In the context of South Africa, conversations regarding the income-generating potential of housing primarily revolve around user-initiated incrementally added backyard rooms as a consequence of RDP housing layouts. This underscores the emphasis on the ability of backyard rooms to improve design flexibility to allow for income-generating activities (DAG, 2020b, 2020a; Lemanski, 2009; Robins, 2002). Though previous literature has acknowledged that residents independently create economic opportunities within state-subsidised housing occupancy (DAG, 2020a; Lemanski, 2009; Mahlakanya & Willemse, 2017; Shapurjee & Charlton, 2013), limited focus has been placed on comprehending how the state can actively foster residents' income generation through housing design that facilitates income generation.

This study examines the effects of the K206 project on the income generation of its residents. The K206 project was a component of the Alexandra Renewal Project (ARP), a government initiative involving multiple ministries that sought to enhance infrastructure, services, amenities, and housing in Alexandra. As part of the ARP, various housing developments were implemented, including upgrades to informal settlements. Specifically, the K206 project aimed to improve the housing conditions and livelihoods of its residents, who were relocated from nearby informal settlements in Alexandra to the state-subsidised housing units of K206.

The research team was interested in understanding how residents engaged with the two income generating options presented to them by the state, and what the income generating outcomes for residents were (based on how they engaged with both options presented to them in the K206 project). The unique aspect of this article lies in its exploration of how residents in the K206 project leveraged two types of opportunities to generate income from their homes. First, the extra rental rooms that were provided by this government initiative, next to the house for the owner, intended to offer an innovative option for residents to generate rental income. The possibilities offered to residents in state-subsidised housing that incorporated opportunities for future incremental growth of the house, was a second formal opportunity to be used for income generating activities. This was unique for state initiated housing interventions, as incrementally added backyard rooms have typically been user-initiated (Lategan & Cilliers, 2016; Mahlakanya & Willemse, 2017; Poulsen, 2010). This article therefore provides insights into the extent to which the intended outcomes regarding the economic status of residents were achieved through the combination of the two design options.

To produce these insights, the paper draws on an in-depth qualitative study of the K206 project which includes seven interviews with Alexandra Renewal Project (ARP) management and leadership personnel that were involved during the policy-making and implementation phase, and 21 in-depth interviews with residents about the income-generating activities that they undertook based on the incremental extensions that they realised (spatial analysis).

The following section analyses the literature of how incremental housing and state-subsidised housing in South Africa have been used as methods for income generation for their residents. The subsequent section discusses methods of data collection and analysis of the study in more detail. The section thereafter contains the spatial analysis which explores the K206 post-occupancy unit and extracts results of the spatial expansions of the 21 units. The paper then reviews the impact of the incremental outcomes of units on residents' income. Finally, before the conclusion, the paper examines residents' motivations and barriers to using incremental extensions, as well as their income-related outcomes.

Turning low income housing into money generating possibilities

Incremental housing and income generation strategies for low-income residents in the Global South

Incremental housing amplifies opportunities for income generation. It does so through providing the option to extend housing over time, which can be particularly useful in low-income areas in the Global South (Mota, 2021; Park et al., 2019; Van Noorloos et al., 2020; Wakely & Riley, 2011). Incremental housing offers opportunities for flexible housing finance and design. Additional rooms built over time can also be utilised for income generation for residents.

Incremental housing operates as a dynamic approach, enabling individuals to actively engage in constructing their homes at specific development stages, potentially leading to superior quality and more scalable housing processes (King et al., 2017; Van Noorloos et al., 2020) for low-income housing development. Incremental housing also offers opportunities for flexibility, diverse housing finance options, effective management, development of governance strategies, and socio-economic improvement (Hwang & Feng, 2019; Wainer et al., 2016; Wakely & Riley, 2011).

While the financial flexibility for low-income populations may pose challenges, the long-term incremental approach proves to be a healthier and more cost-effective development model. Serving as a catalyst for socio-economic development and household income improvement, incremental housing creates job opportunities and avenues for savings (Wakely & Riley, 2011). The flexibility of incremental housing allows residents to adapt their spaces for physical, commercial, and home-based businesses, including constructing additional rooms for rental earnings (Bredenoord & van Lindert, 2010).

Importantly, incremental housing provides financial empowerment, eliminating the need for substantial loans with high-interest rates, relieving financial pressure and allowing residents to develop spaces at their own pace (Bredenoord & van Lindert, 2010). Incremental projects can serve as a family's financial asset, offering opportunities for investment, return on investment in the long run, and a potential escape from poverty cycles, contingent upon secure tenure and durable housing quality (Bredenoord & van Lindert, 2010; Jimenez, 1983).

In South Africa, the most common form of incremental housing are the so-called backyard rooms. These are a form of low-income incrementally built informal housing built in plots adjoining formal housing for the socio-economic gains of formal house owners. The nature of low-income state-subsidized houses with backyard rooms is inherently incremental. These backyard rooms serve as later incremental additions to existing formal houses. The South African incremental backyard model has the potential to augment much-needed housing provision and decrease the

immense housing deficit (DAG, 2020b, 2020a; Robins, 2002; Shapurjee & Charlton, 2013), as well as provide much needed income generation options in a country with high unemployment rates (DAG, 2020b; Scheba & Turok, 2020; Shapurjee & Charlton, 2013, STATSSA, 2023). Similar developments in other regions, such as examples in Colombia explored by Gough & Kellett, (2001), and compound houses in Ghana (Asante et al., 2009/2015), exhibit opportunities to facilitate income generation for low-income home owners. This underscores the widespread prevalence and benefits of incremental development in informal, low-income rentals across the Global South.

State-subsidised housing and income generation for low-income residents in South Africa

State-subsidised housing initiatives have played a pivotal role in poverty alleviation strategies in the Global South. Typically concentrating on housing provision, finance, or economically driven interventions, these programmes aim to uplift low-income communities. However, little attention has been given internationally to assessing the income-generating potential of the housing itself (DoHS, 2004; Haregewoin, 2007; Roitman, 2016).

In South Africa, housing has been viewed as a means of economic uplift, contributing to economic growth, job creation (construction of houses provides short-term jobs for communities), and sustainable human settlements (Huchzermeyer, 2001; Lombard, 1996; Rust, 2018). However, the provision of housing does not directly improve the household income of the residents who receive this housing. While RDP housing has provided accommodation for low-income citizens, mere possession of a house does not guarantee an improvement in economic status. Some RDP beneficiaries resort to selling (before the stipulated 8 year mark) or informally renting out their homes due to the dearth of alternative income-generating opportunities in the vicinity of government-subsidised housing (Charlton, 2013; Lemanski, 2011; Manomano et al., 2016). This raises critical questions regarding the efficacy of housing policies in directly addressing the economic challenges faced by low-income populations (Charlton & Kihato, 2006; Gilbert, 2004; Lemanski, 2011; Manomano et al., 2016).

Despite the challenges they face, residents have taken the initiative to create income-generating opportunities by adding backyard rooms, gradually expanding their fully subsidised homes with self-contained units. The term 'backyard rooms' encompasses additional rooms added to formalised houses either for rental income or to accommodate the needs of the core family. Originating from pre-apartheid times when such rooms were discreetly built-in the backyards of formalised houses, the concept has evolved post-apartheid to be more widely accepted, encompassing housing extensions for family needs or income generation located anywhere on a user's site. Although these backyard rooms exemplify

user-driven innovation, they remain insufficiently acknowledged and supported by the government, as noted in various studies (DAG, 2020b; Lategan & Cilliers, 2016; Mahlakanya & Willemse, 2017; Poulsen, 2010; Scheba & Turok, 2020; Shapurjee & Charlton, 2013).

In summary, this section highlights the nuanced relationship between state-subsidised housing and income generation for low-income residents in South Africa. It emphasises the need for a more comprehensive understanding of the economic dynamics within subsidised housing programs to ensure sustained improvement in the economic status of beneficiaries.

Methods

The investigation embraced a case study methodology, with a focal point on the K206 project. A variety of research methods were utilised, including an examination of the project's background and first-hand accounts from residents regarding income-generating opportunities stemming from their homes. The main goal was to reveal how the introduction of two additional formalised backyard rooms and incremental housing allowances could function as a mechanism for fostering economic empowerment among the residents.

The research investigation involved comprehensive data gathering from academic sources, newspaper articles, legal proceedings, and interviews with seven key management and leadership personnel. Between September 2020 and August 2022, seven interviews were conducted with personnel from the Alexandra Renewal Project (ARP) and K206 leadership. These interviews aimed to provide insights into the governance frameworks and on-the-ground implementation realities of the project. These interviews, audio recorded, approved and transcribed, and Academic sources and legal documents were consulted to extract background knowledge about the project, providing context on governance structures and design insights for the units. This information guided the understanding of post-occupancy unit design outcomes.

To delve specifically into household income aspects, in March 2021, interviews were carried out with 26 residents, and their 26 housing units were drawn up and analysed to assess the extent of incremental development. Twenty-one of these houses were type 1 units. A total of five units were excluded from the study due to their typology lacking two rental rooms and designed incremental allowances. The selection criteria for interview respondents required them to reside in homes within the K206 project that had undergone incremental extensions since the project was completed in 2010. All interviews were conducted with residents that had lived in the development since 2010. Resident households ranged from two people to 18 people (including rental room tenants) within a dwelling plot.

Spatial analysis techniques were employed, entailing thorough surveys of the buildings, illustrating the gradual expansions of residents' homes over the years. Drawings of 21 type 1 unit houses were created to highlight the spatial changes that occurred over time. Additionally, the motivations behind these alterations were documented, including whether residents were driven by income-generating reasons for the extensions.

Efforts were made to interview a diverse group, representing various unit types and ensuring an even distribution across the 28-hectare footprint of the K206 project. Recruitment was facilitated in collaboration with a local NGO, using methods such as advertising flyers, word of mouth, and, in some cases, the snowball method. All interviews were audio recorded and transcribed for analysis. Informed consent was obtained after residents were briefed on the project's background. The interviews, lasting between one to two and a half hours, were conducted in languages comfortable for the residents, predominantly isiZulu, isiPedi, and English. A translator was utilised for isiPedi interviews. Respondents shared insights into their incremental extensions motivations, timelines, and their correlation with household income. Interviews were transcribed in English and manually coded to systematically analyse data, focusing on themes of income generation and incremental expansion. Additionally, each unit was digitally drawn and spatially analysed using various architectural methods to understand its expansion over time and how the home expansion was put to use.

Case study: the K206 housing project in Alexandra Township, Johannesburg

The K206 housing project in Alexandra Township, Johannesburg, is an example of a housing project where the state actively encouraged residents' income generation to counter poverty. Despite Alexandra Township being located only three kilometres away from the Sandton CBD, Africa's richest square mile (Bohn, 2017), 52% of the population is not considered to be employed. K206 was part of the Alexandra Renewal Project (ARP), as a special - still unique - presidential project that aimed to implement solutions for economic empowerment among other objectives (ARP Representative 1, personal communication, June 28, 2022; Asante et al., 2009/2015). The K206 project consisted of 2924 units in total. Ninety percent of the development comprised of type 1 units, which by design enabled rental income generation from the outset as the units included two built-in rental rooms. Units of type 2 and 3 constituted a minority within the project, characterised by an alternative design approach that did not include deliberately integrated built-in backyard rooms or planned incremental features. The rental rooms of the type 1 units came with 5-year formal rental agreements. The monthly rent was subsidised and formally capped at R350/€20 per room (PPSA, 2014).

In addition to the two built-in rental rooms, K206 type 1 units were designed to accommodate incremental expansions by owners to extend homes for future income generation as elaborated in the case study section. Over an 11-year period, over 80% of all the units were incrementally extended.

The K206 project was tailored to address the income generation needs of Alexandra residents, distinguishing it from other housing initiatives. Its design, which included provisions for incremental expansions and two built-in rental rooms specifically integrated into the project, rendered it particularly distinctive. These distinctive attributes will be examined further in the following section.

Housing unit with built-in rental rooms and incremental extension opportunities

The K206 unit (as seen in Table 1), was originally designed to offer a double-storey 43 sqm house along with two additional rental rooms for qualifying residents.¹ This state-subsidised housing model aimed to cater to both qualifying and non-qualifying residents (residents that did not meet housing criteria). Alongside the provision of two rental rooms, the type 1 unit was also facilitated for incremental growth.

In contrast to the initial plan of relocating non-qualifying residents to the affordable type 1B rental units, as seen in Table 1, the actual outcome deviated from expectations (ARP Representative 2, personal communication,

Table 1. K206 post occupancy unit types and incremental housing potential (post-occupancy).

House Type	House Type	Size of plot	Size of Subsidised House built by state	Built-in design features to encourage incremental growth	Opportunity to Incrementally expand
	K206 Unit type 1	Approximately 86 m ²	40 m ² two bedroom, double storey house with appending single storey 2 bedrooms and bathroom	Yes	Yes, due to design of unit that allows for incremental expansion (even vertically)
	Type 1A	Approximately 43 m ²	40 m ² two bedroom, double storey house	No	Yes in remaining plot space in front of house
	Type 1B	Approximately 43 m ²	(Appropriated by original tenants) single storey 2 bedrooms and bathroom	Yes	Yes in remaining plot space in front of house and vertically

December 1, 2021; ARP Representative 3, personal communication, March 29, 2022). Instead of serving as long-term, low-rent accommodations for non-qualifying residents and generating rental income for the property owner, the majority of tenants, in most cases, declined to pay rent and assumed a de facto ownership role of the rental rooms. (K206 Tenants Association Representatives, personal communication, March 21, 2020; PPSA, 2014; Alexandra leadership representative, personal communication, August 5, 2022; Siso, 2012). Key reasons for this included perceptions about the legitimacy of the allocation process and the allocation process was viewed as unfair (Alexandra leadership representative, personal communication, August 5, 2022; Siso, 2012).

Eventually, the pressure against unfair allocation, resulted in tenants informally taking ownership of their units, resulting in unit type 1 being divided into type 1 A and 1B in the cases where type 1 owners chose to have tenants as illustrated in Table 2. Among the 21 cases examined, only one (Respondent 23's unit) adhered to the original plan of utilising the type 1B unit, built by the state, to generate income for the household residing in a type 1A unit. In contrast, all other households either maintained their entire type 1 unit without using it for rental income generation, or, similar to Respondent 3, employed room extensions for home-based enterprises. Initially, the remaining type 1 units did utilise their type 1 units for renting out the type B units, resulting in the type B units being taken over by tenants in terms of ownership. This also resulted in rental prices of the development being uncapped from R350, and landlords' asking price being left to their own discretion.

Income generating implications of original tenant responses on original owners' income generation

The implications were that type 1 owners who originally decided to rent out their adjoining rooms forfeited the opportunity to generate income from these rooms. Type 1 units are roughly made up of a 50/50 split in size between double storey and single storey portions and therefore, a large majority of type 1 owners (with the exception of Respondent 23's unit), essentially lost ownership of 50% of their plot and thus halved their opportunity for incremental expansion and income generation. The outcome was the complete opposite of what had been intended. Despite how this worked out for original owners, the 50/50 split provided original tenants with housing and, the opportunity to incrementally expand and create income through these expansions, which was the end result in many of these cases.

Owners were located in double storey dwellings, and incremental extensions had been designed for above the rental rooms. The opportunity to expand vertically became much more difficult for type 1A owners. The original tenants, now de facto owners (type 1B residents), had more opportunity to vertically expand.

Table 2. Type 1 resident assessment of incremental extensions and how they were used for income generation.

Type 1 units that used incremental extensions for income generation					
Type	Total number of respondents	Number of units that used state anticipated incremental extensions for income generation	Number of units that used Resident initiated extensions for Income generation	Number of units that used a combination of state anticipated incremental extensions and resident initiated	Forms of income generation of respondents (R)
1	2	0	2	0	R03 Home-based enterprise (HBE) R23 External salary and rental rooms
1A	4	0	3	0	R04 Rental rooms only R11 Rental rooms only R19 Rental rooms only R20 Rental rooms only
1B	7	0	4	3	R05 Rental rooms only R10 External salary and rental rooms R13 External salary and rental rooms R16 Rental rooms only R17 External salary and rental rooms R18 Rental rooms only R21 HBE
Total	13	0	9	3	

If the motivations to rent out adjoining rooms were based on the need for income, this shift also meant residents who were most in need of income lost their opportunity to generate it, while those who did not need it as much (type 1 owners that did not rent out the outside rooms) retained their assets and potential to generate income.

Implications of incremental housing on property rights

Incremental housing extensions made property rights of the K206 project even more difficult. The more incremental expansions made by original tenants, the less likely original owners/landlords were to regain ownership over their entire property.

The property right tensions substantially affected the outcomes of the K206 project, this also affected the original intention of the type 1 design. The initial design and allocation plans aimed for type 1 owners to either retain the entire house or convert it for income generation, resulting in type 1A and 1B units. However, residents faced significant pressure to rent out type 1B units due to high demand and a backlog of available accommodation. This resulted in residents either retaining a whole type 1 unit, or with owner-tenant ownership split, they could be shifted into

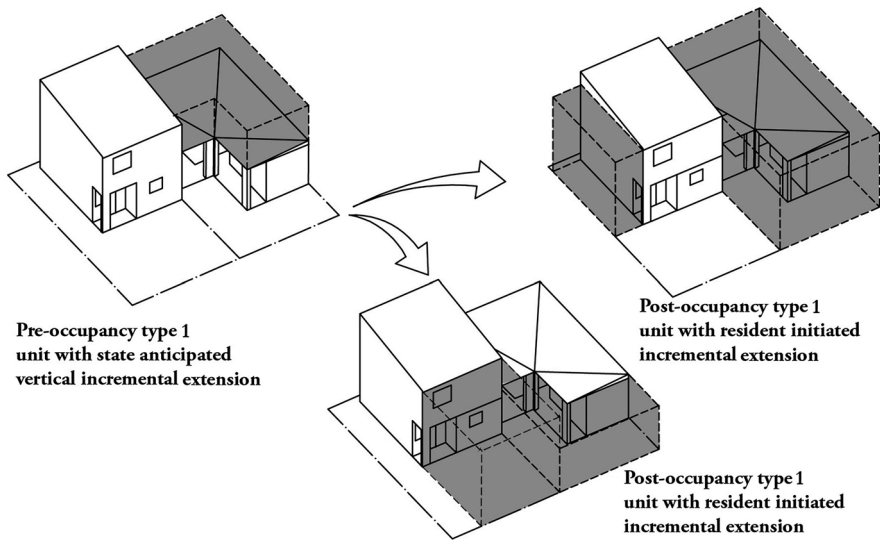


Figure 1. Type 1 Original design concept with anticipated incremental extensions. Further Right: Lived reality examples of resident initiated incremental extensions.

type 1A and type 1B units. The intention of type 1 units was to provide the option of rental housing units and structure that could allow for vertical incremental expansion as demonstrated in [Figure 1](#) (top left image). In reality, the majority of these incremental extensions were user initiated, outside of anticipated state demarcations as demonstrated in [Figure 1](#) (right most images).

Incremental housing can also connect to income generation as the more incrementally added rooms that are built, the more rooms there are to rent out. The case study also revealed that many of the K206 residents extended past formal plot boundaries, and in doing so maximised the sizes of their plots, which in turn, maximised their opportunity to create income. In the case of the type 1 unit, a maximum of two sizable rooms could be built, the majority of added rooms exceeded two rooms (Only Respondent 6, 16, 22 and 23 extended within two rooms). Extensions occurred in all forms of type 1 units, including type 1A units that were never anticipated by the state for expansion. The majority of these extensions took place in spaces that were not anticipated by the state as seen in [Figure 2](#).

Income generation and motivating factors

This section reflects on the incremental extensions of the project that were initiated by both owners and original tenants, and the extent to which they resulted in income generation per unit type, it also observes the outcomes of extensions within the K206 project, be it state anticipated

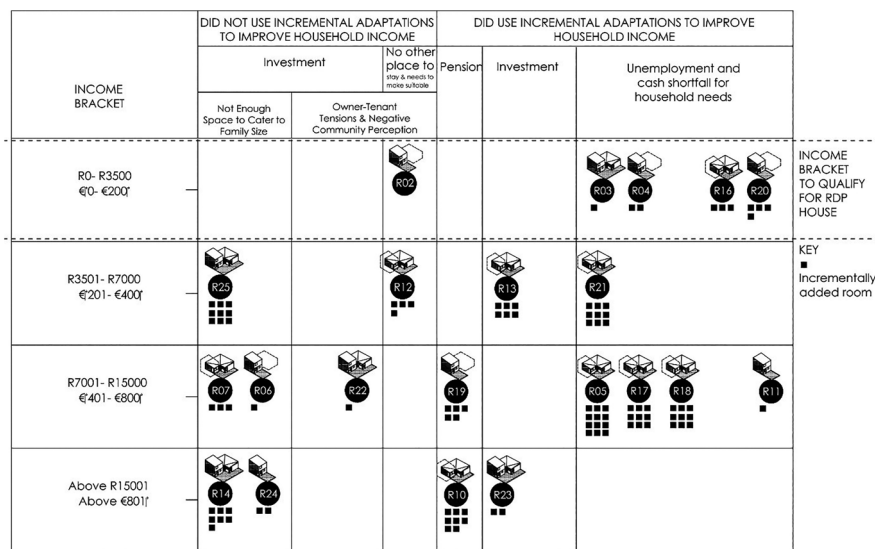


Figure 2. Classification of residents’ motivations to improve household income through incremental interventions. The graph depicts household income, unit type and number of rooms added incrementally (drawn as squares below each respondent)².

extensions or user initiated extensions³. Incremental extensions in this case are extensions that extend past the original built unit and 2 built-in rental rooms. As the previous section shows, type 1 units were originally designed to facilitate for income generation and vertical incremental expansion, but due to resident-initiated extensions, these properties were also incrementally changed over time. Resident-initiated incremental expansions also took place in type 1 units. The section also examines the extent to which type 1 residents (both owners and original tenants) used state anticipative design interventions, and whether this was a practical tool for income generation. This section reviews the incremental outcomes of unit type 1 as well as how they correlate to residents’ income generation.

Residents in type 1 units had a range of household income. Residents with type 1 units and type 1B units were eligible to use state anticipated incremental design interventions. State anticipated incremental design interventions did not extend into unit type 1A. The area for anticipated expansion was limited and therefore many type 1 residents resorted to expanding horizontally also influenced by the fact that horizontal expansion was a more cost effective option. Residents in the 1A units were less likely to generate income from their property due to the limited space to incrementally adapt with the exception of Respondent 19 (45 years) (personal communication, March 22, 2020) that extended the original built unit up until cluster driveway. All residents extended their homes incrementally, some extended for income generating purposes as seen in [Table 2](#) and others extended their homes but not for income generation as seen

Table 3. Type 1 resident assessment of incremental extensions that were not used for income generation.

Type 1 units that did not use incremental extensions for income generation					
Type	Total Number of Respondents	Number of units that used state anticipated incremental extensions	Number of units that used resident initiated extensions	Number of units that used a combination of state anticipated incremental extensions and resident initiated	Forms of income generation of respondents (R)
1	3	0	1	2	R14 External salary only R22 External salary only R25 External salary only
1A	3	0	2	0	R02 External salary only R06 External salary only R24 External salary only
1B	2	0	2	0	R07 External salary only R12 External salary only
Total	8	0	5	2	

in Table 3. The forms of income generation for residents were: rental rooms, home based businesses or external salaries⁴. In some cases residents had a form of employment and subsidised income with rental rooms.

Forms of income in all units included: home based enterprises, external salaries, pension, rental rooms or salary supplemented with rental rooms. State anticipated vertical incremental expansion interventions were used by some type 1B residents, however it was always supplemented with horizontal expansions outside of formal guidelines.

Residents' motivations to use their incrementally adapted units for household income improvement

This section takes a more in depth look at the motivations for residents to use housing incremental extensions for income generation. The main motivations for this were to make up for income shortfalls, pension income or to increase the value of the home in advance of selling.

Unemployment, cash shortfall in household income and income to provide for children

Unemployment is an all too familiar circumstance for many people in Alexandra (Harrison et al., 2014). The three residents below used

incremental extensions as a basis for household income generation or to supplement income because they are either unemployed or do not generate sufficient income to support their household. According to Respondent 20 (43 years) (personal communication, March 22, 2020):

People are not working so they need to add rental rooms

Respondent 4 (41 years) (personal communication, March 18, 2020) suggested other motivations:

On a personal level, me? I would like to stay inside a farm, a big space, not a congested space. I need ... birds, nature. This is not my type of environment, it's for commercial reasons or economic reasons that's why I am in this type of setup... Renting is done so you can sustain yourself, this is not someone who is making a property, buying here then you go like Sandton [suggesting this is not an affluent property developer setup but rather living hand to mouth], that's not the type of place this is, this is done just to sustain a living.

When discussing the reason for building rooms and the household income in a house of five adults and one child, Respondent 17(52 years) (personal communication, March 22, 2020) stated:

The one child went to study marketing and then when they finished they got a job at African bank. They started for 2 months in 2018 and then from that job they helped me to build the rooms. Now my other child is studying HR. The University for my other child has been stressing me [financially]. But at least my other child had a job, but then Covid, now I'm the only one working.

Respondent 20 and 4 earn their total income from incrementally built rental rooms. As Respondent 17 is employed (only one out of six family members), between 23% and 39% of family income is from incrementally built rooms.

These narratives show that housing has offered a form of income generation for residents who have not been fortunate enough to find employment and pay for their basic needs. Respondent 17 (52 years) (personal communication, March 3, 2020) speaks of the turbulence in employment in her family, indicating that she built rental rooms because of the availability of funds that her child's income presented to the family. This income was quickly absorbed into a rental room investment that could secure a monthly stipend and contribute to household income. Covid-19 was unfortunately the reason for the eventual termination of her child's employment contract, but fortunately, during the time of employment, the available funds were used as a safety net for longer-term remuneration.

Respondent 20 (43 years) (personal communication, March 22, 2020) reinforces the scarcity of jobs and suggests that the reason why many K206 residents build incremental extensions for income generation, is because it is the only resource they have to generate income. The potential to earn rental income made Respondent 4, a migrant worker (even if work

is being a landlord), move to Johannesburg, even though he still identified his true home as being in his home town Tzaneen. He was accruing income in Johannesburg, but his ultimate plan was to return to Tzaneen with the wealth he had amassed. This situation aligns with the findings of Marais et al. (2022), where individuals employed in urban environments accumulate wealth with the intention of later investing in and developing their homes in rural areas, eventually relocating back to those rural areas instead of opting for a complete move to urban centres.

With relation to income, some residents used incremental extensions to increase household income for the future of their children to make up for cash shortfall in the household. As is seen in the following excerpt where Respondent 4 (41 years) (personal communication, March 18, 2020) explains the reason why he has invested in his house and why he will not sell his house in the future:

Yes, for our kids, for instance... now I am not working, so, those rooms are going to allow my kids to go to school, and do what they need as kids...I won't sell it [the house], this [house] is my kid's career.

None of the five household members in Respondent 4's household are working. Therefore other than any possible welfare assistance, 100% of Respondent 4's household income comes from the incrementally built rental rooms.

Respondent 4's narrative illuminates the long-term aspirations that many of the residents have for their families. This particular extract and the use of the terminology of 'career' suggests a twofold meaning. It speaks to the fact that the rental units offer opportunities for income generation that can be used to financially support their children and their needs as dependants, but also, how in the long run, the rental units offer potential careers for their children to inherit these homes and become landlords themselves. The intention and long-term motivations behind investing in their incremental home rentals are for an increase in household income to better the lives of their children.

Pension

Whilst some residents were building for their children and families, other residents want to enjoy their money during their retirement. In these cases, incremental extensions are used to increase income to save for their retirement. Respondent 10 (43 years) (personal communication, March 20, 2020) explains the reason why she does not want her daughter to have a child until she can financially look after it herself. For example respondent 10 explains how she will move back to the rural areas and live on rental income during her retirement.

When will I rest? [When explaining the reason she is investing in the building] One day I am going to get old and I will go for a pension. One day I can rent it all and go home! [Her hometown village]. I will stay at home,

and collect the rentals ... you see, people will pay rent and I will stay at the village, you see, for pension.

Between 38 and 56% of Respondent 10's household income (two employed household members) comes from the incrementally built rental rooms. Respondent 10 has invested in rental rooms that will generate monthly income when she retires. Another interesting observation is the investment in the quality finishes of the property. Respondent 10 has over 10 years before she reaches retirement age, this could be the reason why she has created such a quality product for her tenants. Many other residents have invested in the bare minimum for their rental rooms, but Respondent 10 has invested in quality materials including high-end tiling and aluminium windows for her tenants for long term benefits.

For sale-investment

Not all the residents in K206 aspire to take root in the development for the long term. Some are incrementally developing their property for its resale value. When asked about the reasons for investing in her house Respondent 13 (39 years) (personal communication, March 20, 2020) mentioned her aspiration to eventually sell her property:

Obviously maybe after some years I'm selling so I'll be able to buy another big house that has a yard.

Apart from the erratic income that comes from her events business, 100% of Respondent 13's household income comes from the incrementally built rental rooms. Units C, C1, and C2 have smaller yards than type a and b units, this could be a reason why Respondent 13 in a type 3 unit would like to move on from the property in pursuit of a 'bigger yard'; however with supplementary municipal land, Respondent 13 occupies a larger stand than most at 217m². She also spoke of the inconvenience of the small driveway and lack of privacy, so perhaps the access to the site is what is most influencing this statement. In all, Respondent 13 sees her property as a nest egg and stepping stone to being financially equipped to move to greener pastures.

It is also important to note that there is a grey area around the selling of RDP houses and how much one can earn by selling RDP houses. RDP housing can be sold back to a willing party, but it is not clear if residents incrementally adapt these homes, whether incremental developments will significantly increase the value of their properties. The sale of these houses will most likely be quite complex due to the lack of title deeds in the project (Alexandra leadership representative, personal communication, August 5, 2022).

Barriers to using incrementally adapted units for household income improvement

In the previous section we discussed three reasons the residents invoked to use their units to generate income. This section elaborates on the

deterrents of using incremental extensions of homes for income generation. These residents adapted their homes incrementally as an investment for their family or because they did not have alternative accommodation and needed to adapt the home to their needs.

Tenure insecurity and owner-tenant tensions

As outlined in the preceding sections, particularly concerning post-occupancy unit design and property rights conflicts, the confusion arising has resulted in tensions among neighbours. These tensions hinder the ease of incremental expansions, thereby discouraging residents from incrementally extending their homes for income generation. When asked about whether residents are happy with their housing, Respondent 22 (49 years) (personal communication, March 23, 2020) explained:

I doubt, it is because there was a miscommunication between housing and the people because the rentals they were told that, after 5 years they need to start paying rent [as explained in K206 Project overview], which to them wasn't fair, they said they must wait 5 years to change the houses... even now, it's not resolved, people are not happy. [When asked why they don't have tenants] They [government] didn't give you options [to have tenants] to prove your case, so with us it was because of the family [the reason they received the housing grant]

Respondent 22's perception of the K206 project has clearly been jaded by the tenant-owner tensions. She feels that people are not happy with the housing situation, similarly to Respondent 2 (41 years) (personal communication, March 18, 2020) who had an overall negative perception of the community based on the history of the development. Respondent 12 (41 years) (personal communication, March 20, 2020) also commented on the compact nature of the cluster and the fact that neighbours could look into each others' spaces and comment on incremental developments. When asked if there was a way to improve privacy, the respondents answered 'It's difficult'. There appeared to be a lot of tension that had developed over the years between the 'former tenant' respondent and her neighbour, she shares the same yard as her neighbour.

The insecurity stemming from tensions between owners and tenants has posed challenges for some individuals looking to develop rental properties in the area. There is a fear that tenants might assert ownership claims over their rental properties, as has been historically experienced in the project.

Not enough space to cater to the size of family

The issue of a lack of space is also apparent as Respondent 6 (45 years) (personal communication, March 19, 2020) explains that she has not invested in rental rooms, but would do so if there were more space:

Ja, because I don't have space... My daughter plays on the pavement. At the washing line, we have to take chances hanging our clothes. [When asked about whether they want to build rental rooms] Not to say I don't want, but for me, if it were a bigger space I'd have rooms.

The statement demonstrates the willingness of some residents to use their homes for household income generation, however, due to a lack of space they feel they cannot.

Respondent 12 (41 years) (personal communication, March 20, 2020) saw her staying in the space as an act of survival as there was no other alternative for her and her family, and therefore was adapting her home to meet the spatial needs of her family.

In all, the lack of space to cater for size of family based on unit type and owner tenant tensions became the main barrier to incremental expansion for income generation.

Assessing the impact of the K206 project on residents' wallets

This section delves into the broader context of resident decisions regarding incremental extensions (as discussed in the previous section) and housing types (covered in the section on design options and incremental extensions). The aim is to unpack the spatial outcomes of incremental expansions and analyse their impact on household income generation.

All residents, except those in type 1B, qualified for housing, placing them within the 0-R3500 (€200) household income bracket at the project's inception in 2010. Figure 3, summarised here, reveals that numerous

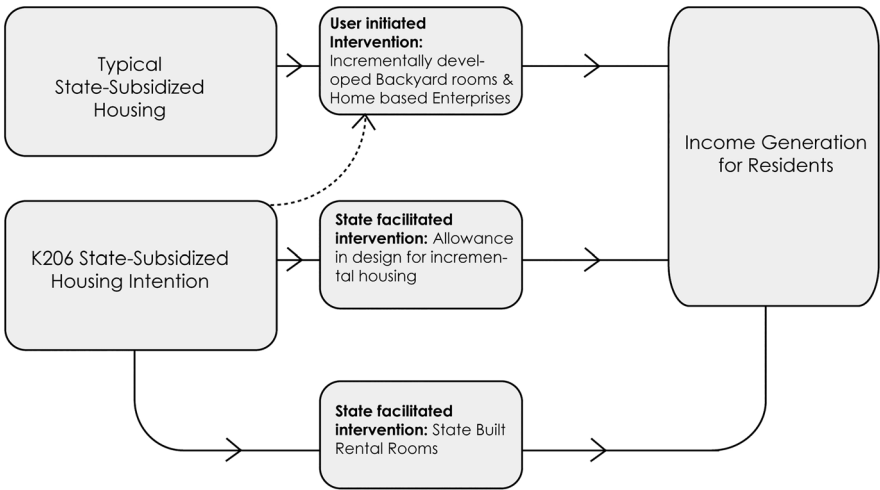


Figure 3. Summary Mindmap illustrating the interplay of state funded rental rooms, Incremental housing in Income generation for residents in the K206 project.

households managed to surpass their initial income bracket during the 11-year span. Residents who did not engage in incremental home adaptations for income generation experienced an increase in household income through external employment (see section on incremental extensions and income generation). In contrast, residents who utilised their homes for income generation, either supplementing household income or transcending the initial bracket, invested significantly in incremental extensions.

Those who invested in incremental extensions but remained within the eligible income bracket often faced constraints such as limited plot size or engaged in unprofitable home-based businesses rather than rental rooms. Notably, respondents like Respondents 10 and 18 for example who generated income through a salary, were able to construct more incremental rooms than those solely reliant on room rentals. Higher income allowed these residents to invest more in constructing higher-quality rooms, thus commanding higher rental fees from tenants.

The size of the plot emerged as a critical factor influencing potential rental rooms and income generation for all unit types. For residents not using their homes for income generation, a larger plot facilitated more incremental extensions catering to family needs. Respondents 18 and 5, situated in higher income brackets, generated their entire income from the surplus of rooms facilitated by their large plot size. Larger plot sizes allowed residents to construct more rental rooms, thereby increasing their income.

The project's outcome significantly deviated from the envisioned incremental development. However, residents surpassing initial plot extents presented an unforeseen opportunity for greater economic development. Resident-initiated incremental development provided increased prospects for income generation, even beyond the initially anticipated incremental development.

From the residents' perspective, state-subsidised housing seemed to offer a viable avenue for income generation and income bracket elevation. However, substantial resident-initiated incremental interventions, often exceeding formal state demarcations, proved crucial for generating significant household income.

Conclusion

The K206 housing project was intentionally crafted to promote income generation for residents from its inception. It represented a significant and unique state-led effort to tackle the prevalent unemployment issue in Alexandra, a factor often overlooked in state-subsidised housing initiatives in South Africa. The case study integrated features enabling immediate rental income and potential future expansion through incremental additions by homeowners. This case study provides insight into the

dynamic relationship between low-income housing project design, incremental extensions, and income generation, aiming to answer the question: How did residents engage with the two income generating options presented to them by the state (analysed spatially), and what were the income generating outcomes for residents based on how they engaged with the income generating options presented to them (explored through in-depth interviews) in the K206 project?

The study delves into how residents utilised formally built backyard rooms and incremental provisions as strategies for income generation as demonstrated in [Figure 3](#). It highlights that while the state's provision of quality-built rental rooms alongside residences aimed to facilitate income generation for low-income earners, the majority of units were taken over by tenants not paying rent, hindering original owners' income opportunities. This indicates that the strategy for state-subsidised built-in units did not effectively generate income due to poor allocation strategies. Moreover, residents utilised both state-initiated and user-initiated expansions to generate income, with plot size significantly influencing expansion potential. Original tenants who acquired experienced increased opportunities for incremental expansion and income generation compared to original owners, emphasising the complexities of state interventions and resident-driven initiatives in income generation strategies.

Income generation for these residents came from a number of diverse income sources, including external salary, home-based business, rental rooms, or combinations thereof. Income levels also influenced rental room quality, with higher-quality rooms commanding higher fees. Motivations for using incremental housing for income generation stemmed from high unemployment rates and limited income opportunities. Residents adapted homes incrementally to meet various household needs, such as improving children's lives, securing future pensions, and investing for potential property sales. Deterrents to using incremental extensions for income generation were rooted in broader policy structures, including owner-tenant tensions and plot size considerations.

In summary, both state-sponsored initiatives for constructing backyard rooms and considerations for incremental design yielded mixed results in generating income for residents. While dissatisfaction of tenants prevented many original owners from benefiting from the rental income of formally built rental rooms, incremental provisions proved to be more successful in the project. The majority of residents extended their homes incrementally, often beyond the originally anticipated scope as demonstrated in [Figure 3](#). These extensions, though not initially planned by designers, provided opportunities for original owners to earn income from their incrementally built units. Additionally, they offered chances for original tenants to expand their homes and generate income from the incrementally added units.

This paper contributes to the literature on income generation for low-income households in the Global South and the practical feasibility of achieving this through state-subsidised housing with government facilitated options for income generation for residents. While formalising income generating opportunities through state-subsidised housing holds promise, careful consideration of the implementation process, especially regarding property rights implications and tenant reactions, turned out to be crucial. The case study illustrates how incremental housing can offer emancipatory opportunities for self-initiated transformations and income generation, representing a positive step beyond merely meeting housing needs. However, it also underscores the importance of the institutional environment and prompts further research on the intricate workings of income generation mechanisms, along with advocating for a government assessment of policy effectiveness.

Notes

1. Qualifying criteria for low-income households were as follows: Household must be South African citizens, they must be contractually capable, married or habitually cohabiting with a partner, single with financial dependants, they must earn R3500/(€200) or less household income per month, must be first-time government subsidy recipients, first-time homeowners and/or single military veterans without financial dependants (DoHS, 2022).
2. The graph depicts household income brackets in the column to the left, and each Respondent's unit type is expressed symbolically according to the explanation in the rightmost column. The graph connects the incrementally added number of rooms with household income and motivations to use or not use incremental housing for household income.
3. State anticipated extensions refers to the type C and C2 units that anticipated for vertical incremental extensions. User initiated extensions refer to residents using their own initiatives to extend their homes incrementally in ways other than prescribed by the state i.e., horizontal expansion or vertical expansion in spaces that were not above the C2 unit.
4. External salaries refer to income that is generated from a form of employment, this is unrelated to backyard rooms or HBE's.

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