The University of Manchester
Global Development Institute

Global Development Institute

Working Paper Series

2020-042

January 2020

ISBN: 978-1-912607-00-6

Bridging the affordability gap: towards a financing mechanism for slum upgrading at scale in Nairobi – analysing NGO experiences with local-level finance

K.Lines[1], Diana Mitlin[2], Jacinta Mwelu[3], John Pius Njenga Maina[3], Omondi Okoyo[3] ,Evans Otibine[3],Tabitha Wakesho[3], Mary Wambui[3]

[1] independent consultant

Email: katherinelines@gmail.com

[2] Global Development Institute, The University of Manchester

Email: diana.mitlin@manchester.ac.uk

[3] Akiba Mashinani Trust (AMT)

Cite this paper as:

Lines, K., Mitlin, D., Mwelu, J., Njenga Maina, J.P., Okoyo, O., Otibine, E., Wakesho, T., and Wambui, M. (2020) Bridging the affordability gap: towards a financing mechanism for slum upgrading at scale in Nairobi – analysing NGO experiences with local-level finance. GDI Working Paper 2020-042. Manchester: The University of Manchester.

Abstract

The purpose of this paper is to contribute to an understanding of more inclusive financing options for decent low-income housing with a specific focus on experiences of housing improvements in Kenya's low-income urban neighbourhoods. The paper summarises the findings of a study of three community led housing developments in Nairobi and Nakuru (Kenya). It has a specific focus on the affordability of loans given to residents and on the speed of consolidation within these neighbourhoods. The developments are all supported by the Muungano Alliance with the residents being members of Muungano wa Wanavijiji (a Kenyan federation of women-led savings schemes) and the monies being advanced by their loan fund, the Akiba Mashinani Trust (AMT). The study uses data on affordability assessments and loan repayments collected by AMT staff, and additional information that was collected to understand the scale and speed of future housing investment. Our findings show that repayments are lower than anticipated and that both affordability and weak loan management may be responsible. Based on what households have been able to repay, inclusive housing finance is likely to require both capital and interest rate subsidies, and must recognise the range of income levels and other heterogeneity within low-income urban communities. For example, considerable housing investment has been made in the form of additional rooms in the incremental development process; this shows that at least some households find the development affordable. A key motivation for additional investments is commercial opportunities including rental income.

Keywords

Housing finance, affordability, Kenya, inclusive urban development, incremental up-grading

Acknowledgements

This study received financial support from the ESRC (Impact Acceleration Account) through the University of Manchester.

The research activities were undertaken by Tabitha Wakesho (AMT), JP Njenga (AMT), and Kate Lines (consultant), with guidance from Jane Weru (AMT), Omondi Okoyo (AMT) and Diana Mitlin (University of Manchester). Contributions to data collection, compilation and analysis came from Mary Wambui, Evans Otibine, John Karanja Muchai, Jacinta Mwelu (all AMT), Kilion Nyambuga and Beatrice Hati (SDI Kenya), and Samuel Mbuthia (Muungano). Research support came from Kate Wanjiru, Eva Muchiri, Susan Mwangi and John Kimani (all Muungano), Stanley Mburu (SDI Kenya), and Leah Nduta (AMT).

The authors are grateful to the 31 participants of a workshop in February 2019 in which community members and support professional staff responded to, validated and reflected on the research team's initial findings and analysis, made recommendations for further lines of enquiry, and resolved to continue the conversation internally and with their own local Muungano networks. That meeting was facilitated by Omondi Okoyo, Diana Mitlin and Kate Lines. Participants were: 16 members of Muungano, including community representatives who sit on AMT's projects team, and staff from AMT and SDI Kenya, the federation's two professional support organisations; overall gender balance was 58% women and 42% men.

1 Introduction

1.1 Context and summary of purpose

There are an estimated 880 million people living in slums in towns and cities of the Global South. The scale of housing need is widely recognised, with an estimated one in eight of the global population living in informal settlements with unsafe and insecure housing and inadequate access to basic services (UN-Habitat, 2016). These areas need to be upgraded. The financing of informal settlement upgrading is a continual challenge. In the absence of government investment and private sector finance, non-state agencies have sought to address this gap. Shelter microfinance has grown in scale; however, this finance is not suitable for the most insecure settings and the costs may be unaffordable for the lowest-income households.

The purpose of this report is to contribute towards an understanding of more inclusive financial options for decent low-income housing by examining a programme of community-led finance in Kenya. The study analyses existing savings and loan data held by Akiba Mashinani Trust (AMT or 'the Trust') relating to groups of informal settlement residents that are part of Muungano wa Wanavijiji ('Muungano' or 'the federation'), the Kenyan SDI federation of slum dwellers. The Trust and federation work with the Kenyan branch of Shack/Slum Dwellers International (SDI Kenya), an NGO providing professional support to the federation[4] as the Muungano Alliance (or 'Alliance'). Our study examines AMT's experiences in low-income housing finance and looks at what evidence there is to inform our understanding as to how much residents can contribute. To understand better how to improve development options through community-managed savings and loans, we also draw on AMT's experience in livelihood loan finance and on data relating to the ability of Muungano savings groups to accumulate financial capital.

In Sub-Saharan urban Africa, half the population are believed to live in slums (UN-Habitat, 2012; Tusting et al, 2019). Over the decades there have been numerous efforts to improve housing, with government programmes providing public housing, government and international development assistance agencies funding site-and-service neighbourhoods, micro-finance for shelter, and many one-off, small-scale initiatives piloting alternative approaches (Satterthwaite & Mitlin, 2014). There have also been substantive programmes – both national and internationally financed – to increase access to water and sanitation. However, it is widely acknowledged that efforts have been inadequate and some of the lowest-income households have been excluded. The shift from the Millennium Development Goals to the Sustainable Development Goals places much greater emphasis on the need for progress to 'leave no-one behind', which has long been a priority for SDI[5]. Recent research on water

[4] See www.muungano.net

[5] SDI is a transnational network to which the Muungano Alliance is affiliated (www.sdinet.org). For more on the global SDI network, see knowyourcity.info/who-is-sdi/about-us/.

services in four African cities highlights the need for much greater attention to be given to issues of affordability, as even minimum WHO standards for water consumption are out of reach for low-income households (Mitlin & Walnycki, 2019). In this context, development agencies need to prioritise learning about affordable housing initiatives that can be implemented at scale.

Our contribution discusses how the experiences of Muungano Alliance and specifically AMT can inform the development of low-income housing, with an emphasis on the inclusion of low-income households through innovative approaches that seek to address known challenges. The Alliance uses a community-managed approach to identify and realise new shelter options for the residents of informal settlements across Kenya. In that country, more than half the urban population, around 13 million people, live in informal settlements, on land with insecure land tenure and very little government investment in basic infrastructure and services (UN-Habitat, 2016). Most settlements are built either on private land allocated by the state for development purposes or on public land initially set aside for other uses. The balance between landlords (known as 'structure owners' since they usually do not own the land itself), owner-occupiers and tenants varies between settlements. Across Nairobi around 91% of residents are tenants (AMT et al, 2016).

This report has relevant lessons for the global SDI network and other agencies concerned with inclusive equitable urban development. SDI seeks to place the organised urban poor at the heart of the politics and economics that make modern cities unequal and exclusionary, and to organise and unite them in such a way that they are the main catalyst in transforming their slums into safe, secure, affordable and habitable neighbourhoods (Bolnick, 2018). The immediate driver for this publication is the Muungano Alliance's involvement in new opportunities for precedent-setting participatory upgrading partnerships at scale. These have been facilitated by the Kenya Physical Planning Act (2012), which allows the designation of areas as 'special planning areas' if there is a particular need given priority populations and particular challenges such as those in informal settlements. The Alliance recognises the potential for urban transformation as this classification applies to many Kenyan informal settlements, and such a designation can therefore demonstrate a significant recognition by local government that conventional planning processes cannot adequately address an informal settlement's complex challenges. This opens opportunities to recognise the critical input needed from communities in planning and implementation processes for improving their settlements, and for creating space to explore new, innovative, inclusive upgrading solutions.

Considerable finance will be needed to upgrade Kenyan informal settlements. While much of this will be provided by agencies external to these settlements, the Muungano Alliance believes that residents have an essential role to play in contributing to the costs of their own housing improvement. For the Alliance, it is essential that no residents are permanently relocated because of slum upgrading, and that service, infrastructure and housing improvements are affordable to all. There is a need to

understand what people can afford to pay, how to minimise the vulnerabilities and exclusions that may result from poorly designed housing finance models, and to consider how resident contributions can be managed. The Alliance recognises that community-managed savings and loans can both help generate the finance required, and secure high levels of local participation in the upgrading process. The Alliance also recognises that it is unrealistic to expect low-income Kenyan citizens to pay the full costs of adequate shelter (including those for the dwelling, land and services).

1.2 Summary of findings and structure of paper

After having introduced the context and purpose of the study, the introduction has one further sub-section to introduce the agencies that requested two of the co-authors to complete this work with staff of AMT. Section 2 then summarises the literature on the use of loans to improve access to housing for low-income households in towns and cities of the Global South. Section 3 explains the methodology followed and the core research questions that framed our work. Here we introduce the three study areas: two neighbourhoods in Nairobi Huruma (specifically two settlements called Kambi Moto and Ghetto) and Mukuru, and the town of Nakuru. Section 4 includes the substance of the findings and the analysis that we completed. The section has five sub-sections. The first (4.1) summarises our findings with respect to the repayment of AMT housing loans in the three study neighbourhoods, and explores reasons for outstanding repayments. The second models the introduction of both capital and interest rate subsidies to understand the potential of subsidy finance in improving affordability. Section 4.3 examines the scale of commercial activities (excluding the renting of rooms) in our study areas and analyses the impact of commercial activities on the development of the housing from the first investment, and on repayment rates. In section 4.4 we repeat this exercise looking at rental income. Finally, we report on the use of other sources of funds to enable housing consolidation. Section 5 then analyses the recent experiences of the Muungano Alliance with respect to savings mobilisation; savings directly provide capital for housing investment and/or enable investment in income generation activities leading to households' improved ability to repay housing loans. Section 6 concludes.

Our findings report that repayment is lower than anticipated, with actual repayments being 57% to 66% of scheduled repayments (Section 4.1). At the end of 2018, AMT was owed US$36,424 in overdue repayments from the two neighbourhoods of Ghetto (Nairobi) and Nakuru. In addition to challenges to the financial viability of AMT, the emphasis placed on inclusion by the Muungano Alliance means that there are concerns that repayments are unaffordable for some households. Our comparison of required repayments and rent levels in low income settlements suggests that a lack of affordability may be one reason why repayments are low. While AMT has sought to improve decision making related to loan approvals, with an appraisal process that assesses housing income, this has not been successful in identifying households that repay. A second potential reason for low repayments is poor loan management. AMT has improved repayments on income generation loans in recent years through a focus on improving loan systems. The Alliance also recognises that savings groups must be

supported to take responsibility for supporting repayments, and that external factors may cause repayment difficulties. The research process itself has led to more active loan management (without any changes in rules) and following a reflection workshop in February 2019, repayment rates have improved (see footnote 14).

To improve our understanding of affordability, we analysed the subsidies required if scheduled repayments are to equal rent levels, given a housing loan sufficient for a "starter home" i.e. to build a room and toilet and a realistic loan period (Section 4.2). This level of investment is considered by the Alliance to be the minimal first step for an incremental housing development process. To bring monthly repayments down to the affordable range of KES1500–1750 ($15–17) requires an overall subsidy of KES50,000–70,000 ($490–690) depending on a repayment period of eight to 12 years.[6] The shorter repayment period is associated with the larger subsidy.

To improve our understanding of the ways in which households consolidate their homes and to see how consolidation affects repayments, we analysed the speed of consolidation and scale of investment required. By consolidation we mean the investment that has taken place since the construction of the starter home financed by the AMT loan and household contribution. We then considered whether commercial developments and/or the rental of rooms improved repayments. We analysed housing consolidation in the two Nairobi neighbourhoods in which AMT provided loan capital for a house of one room plus toilet on the first floor. Considerable household investment – estimated at $856,000 including both neighbourhoods – has taken place since 2003. In Ghetto, 44% of dwellings have some commercial activities (none are solely commercial) and in Kambi Moto, 13% of dwellings have some commercial activities (none are solely commercial). Our analysis shows that those borrowers undertaking commercial activities do not have an improved repayment rate.

At the request of the Alliance, we analysed the relationship between commercial development, proximity to major roads and repayments (with the underlying hypothesis that better located commercial developments would be more profitable). We have some evidence that location on a major road makes housing consolidation more likely; but no evidence that location on a major road is associated with better loan repayment.

We analysed rental activity and found that the renting out of rooms was taking place in 56% of dwellings in Huruma and 43% of dwellings in Kambi Moto. Monthly rental income for one room is slightly higher than the required loan repayment although households may not succeed in renting the room throughout the year. The Alliance first assumed, in the development of Kambi Moto, that no rooms would be rented but this assumption has now changed.

While not the primary focus of this study, we found that households accessed other loan finance, although not all households wished to do this.

[6] KES–US$ comparisons in this paper are as at July 2019 and rounded to the nearest dollar.

Our analysis builds on the knowledge of the AMT members of the research team and draws on insights from across the Alliance. Households have to balance AMT loan repayments with their needs. Box 3 summarises what we learned about different scenarios. The content of this box highlights the need for the local management of loans, as essential information is held by local community members. In addition, there needs to be effective loan management by AMT.

To understand the potential for housing investment, we analysed recent savings mobilisation in Mukuru, a large informal neighbourhood in Nairobi which has been a priority area for the Alliance in the past two years. Some groups have been established and are lending to their members with notable success (as shown below in Table 4). Average savings across all members is currently just below KES7,000 ($69).

1.3 Introduction to Muungano wa Wanavijiji and the Akiba Mashinani Trust

Muungano is a federation of autonomous savings groups with over 60,000 members from informal settlements across Kenya (Weru et al, 2018). It emerged in the mid-1990s as a grassroots movement in Nairobi resisting forced evictions in informal settlements, spread throughout Kenya from the early 2000s, and in 2001 federated and joined the global SDI network. Muungano campaigns for slums to be recognised as human settlements (especially in the context of Kenya's planning and urban development) and has over the years progressed to designing models for upgrading living conditions.

Residents' savings are critical because they provide financial security, develop and demonstrate communities' capacity to repay loans and hence leverage additional resources, and build social capital among members. Savings groups support the development ambitions of their members, amplify their collective voice and reduce the vulnerability of individual households. Each savings group draws membership from the informal settlement/market where it is rooted. Members' income is generally low – for instance in Mukuru, a slum belt in southeast Nairobi, residents earn on average about KES12,000 ($117) per month; women earn about 30% less than men in similar occupations (AMT et al, 2016). Groups hold weekly meetings where members discuss issues affecting them, deposit or review savings, and take out loans and make repayments. At district and city levels, savings groups form regional, county or city networks, creating platforms for community mobilising and organising, and developing capacities to engage with government over improving conditions in settlements (Lines & Makau, 2017).

AMT uses groups' savings as seed capital for revolving funds at community, city and national scales. The funds offer informal settlers a range of financial products, including loans for community projects, which allow savings groups to finance social housing, sanitation, and basic infrastructure in an affordable way. Unlike formal banking and microfinance institutions, AMT positions its financial services within a broader effort to improve the physical and social fabric of urban informal settlements. Muungano and AMT aim to 'leave no one behind', including those with very low incomes. And – given

that these are the people least likely to be able to repay loans – unlike most microfinance institutions, which focus on lending and recovering from individuals, responsibility for AMT loans is located within the saving groups. Groups have to engage actively with the needs of members and assess how to support them to better meet their needs through collective interventions. Structures, systems and accountability for AMT loaning activities therefore operate on two levels in parallel: (1) at the level of the fund, with its professional staff and Muungano board members; and (2) at the level of the group based in the settlement.

In addition to AMT's primary focus on savings and loans, the Alliance recognises that residents alone cannot finance the investments needed in their settlements. Savings and loans activities are therefore designed to facilitate political engagement leading to state-financed redistribution, alongside local self-help improvements. Government capital and ongoing subsidies are required to upgrade informal settlements if they are to provide safe and secure homes for their residents. The experiences of Muungano and AMT to date demonstrate both the catalytic impact that can be achieved by establishing appropriate financial services geared towards low-income groups, and how the savings of low-income people can leverage government resources to build more inclusive cities. For recent, more comprehensive accounts of AMT's services and processes, management, operations and governance, with case studies, see Weru et al (2017, 2018).

2 Access to housing for low-income households

There is a widespread recognition that access to safe and secure housing is limited for low income households because of affordability. Households typically either rent or purchase their homes. While there are contexts in which alternative practices take place at scale (such as leasehold), these are relatively rare and are not further considered here. This section introduces efforts by the public, private and voluntary sectors that have been made in Kenya and elsewhere to improve access to housing. This discussion introduces the context within which AMT is working.

Overall, housing need is acute in Kenya with the World Bank estimating a deficit of two million units, and the annual production of housing units being estimated to be less than 50,000 (World Bank Group, 2017). As noted above, over 90% of Nairobi's residents rent (Mwau and Sverdlik 2019). An estimated 53% of urban renters pay less than KES1,900 ($19) a month in rent (Kenya National Bureau of Statistics, quoted in CAHF, 2018).

In the Global North, governments have traditionally provided housing support both through efforts to extend home ownership with assistance for taking on mortgage finance, and through the provision of public housing for rent and/or assistance to cover the costs of renting for those in the private sector (UN-Habitat, 2005). In the Global South there have been limited efforts to replicate these strategies. Invariably the high

costs have limited the scale of interventions and there has been a tendency for provision to be captured by higher income households (Mitlin, 2011).

Governments in the Global South have made multiple efforts to improve housing, although relatively few governments in Sub-Saharan Africa have invested at scale. One exception is South Africa, where the post-apartheid democratic government introduced a capital housing subsidy that has now produced millions of dwellings (Charlton, 2018). However, the high cost of this option restricts its replication. A more widely used approach in the Global South, led by innovations from Latin America, has been to extend public support for housing finance, enabling households to purchase privately produced housing with a blend of savings, loans and capital grants facilitating access (Rojas, 2018). However, this has not been replicated at scale within Africa (CAHF, 2018). While the Kenyan government made a commitment to support 500,000 affordable houses in December 2017, the realisation of this programme has yet to be determined (CAHF, 2018). There is a recognition by the government of the need for some kind of tenant purchase scheme, but the current cost of a one bedroom 30-square-metre unit is KES1,000,000 ($9,800), with the affordable housing scheme seeking to reduce this to KES600,000 ($5,890) with an anticipated monthly repayment of KES2,500 ($24.5) under a 25-year rent-to-own arrangement with a 3% annual interest rate.[7]

In terms of the contribution of the private sector to providing low-income housing finance, while efforts have been made to facilitate access to mortgage finance, this remains limited. In Kenya, for example, there are fewer than 25,000 mortgages and less than 10% of housing lending comes from the mortgage market (World Bank Group, 2017). The average mortgage loan is for KES9.1 million ($89,200) (Feather & Meme, 2019). Mortgage finance throughout the Global South tends to be limited to those with formal title and, as critically, to those with formal employment and hence the potential to make repayments through payroll deductions (Mitlin, 2011). Both these requirements mean that this is for higher income households.

More growth has taken place in the shelter microfinance sector (within either the commercial banking sector or having emerged from the voluntary sector). In Kenya it is estimated that the number of shelter microfinance loans increased from 2,000 in 2014 to 120,000 loans in 2018 (AMFI, quoted in Feather & Meme, 2019). Microfinance lending is typically to individual households who wish to borrow to improve the quality of their dwelling and/or add rooms for rental income (Mitlin, 2011). The loans provided in Kenya are for lower income households, although typically not the lowest income households, because of the need for a track record of loan repayment and the relatively high cost of short-term loans (Feather & Meme, 2019). Moreover, the lowest income households tend to be tenants without access to land or a dwelling.

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7 https://bomayangu.go.ke/downloads/Affordable_Housing_Program_Presentation_28062019.pdf . Accessed: 1 November 2019.

In some countries, there has been a growth in solutions from within the voluntary or third sector. In Kenya, housing cooperatives and savings and credit associations have helped to facilitate access to finance with group development of greenfield sites; the significance of such activities has grown in the absence of alternatives (World Bank Group, 2017). Feather and Meme (2018) report that financial cooperatives are being used by 5.4 million Kenyans to facilitate saving. Low interest rates have made them an attractive source of loan capital, including supporting investment in housing (Feather & Meme, 2018); there are an estimated 6.1 million housing loans through cooperatives in Kenya (Feather & Meme, 2019). However, this solution has limited relevance for the lowest income groups (Feather & Meme, 2018, 2019). The World Bank Group (2017) reports that housing cooperatives are financing dwellings from KES600,000 upwards ($5,880). Those with very low incomes are unlikely to meet the requirements for regular contributions or the accumulation of sufficient savings to participate in land acquisition. Once more this is a partial solution, responding to the ability of specific households to invest in housing.

In summary, the need to provide support for housing has long been recognised by governments. However, effective low-cost policy responses have proved difficult to design and there is limited relevant experience of approaches that include the lowest-income groups. Efforts to date – be they public, private or from the voluntary sector – have tended to favour those who are better off and looking to purchase a private dwelling. If they are targeted at low-income households, they are invariably aimed at those households who have selected to join greenfield or redevelopment projects (ie where households are moved off land and only some invited back). This limits their relevance to inclusive approaches to addressing housing need that need to give much greater priority to upgrading informal neighbourhoods.

Relatively few programmes have sought to integrate the upgrading of informal neighbourhoods with opportunities for private housing investment. One exception has been the set of programmes in central America that emerged in the late 1980s (Stein & Vance, 2008). These provided state investment to informal settlements for the upgrading and regularisation of all plots (ie improved access to basic services) with provision to enable the better-off households to take out microfinance loans to improve their dwellings. Typical improvements were additional rooms, concrete floors, alternatives to pit-latrines and kitchens (Stein & Vance, 2008). A further effort has been the work of SDI's Indian Alliance within the Basic Services for the Urban Poor programme in India (Burra et al, 2018). In this programme, community-driven innovations together with state subsidies led to investments in basic infrastructure, with subsidy finance to improve dwellings. The Indian Alliance facilitated the inclusion of all residents in the neighbourhood through flexible housing improvements that enabled *in situ* development.

In the context of Nairobi, where large numbers rent in informal settlements, there is a need to identify solutions able to support shelter improvements for all (Mutero & Cheng, 2019). As described in Weru (2004) the priority is to provide an inclusive community-

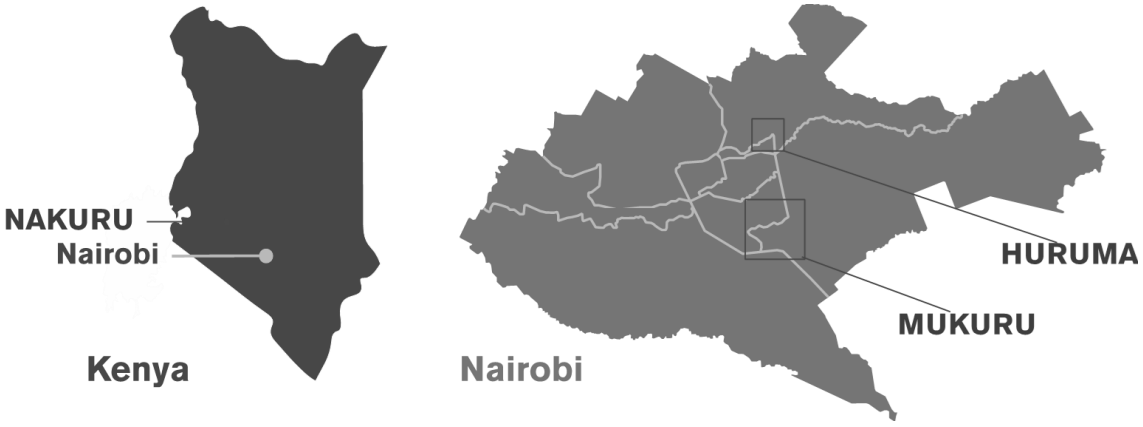
driven response. This requires innovative approaches that build on the relative paucity of experiences to date.

3 Methodology and locations in the study

In this study we have focused on secondary data held by AMT related both to savings and housing loans. We augmented this with additional interviewing with key informants to add to our understanding of findings emerging from the analysis of these data.

The data presented below relate to the activities of Muungano networks located in three different geographical areas: the informal settlements of (1) Mukuru and (2) Huruma, both in Nairobi, and (3) Muungano's Nakuru West network in the town of Nakuru in the Kenyan mid-west. The Huruma and Nakuru locations were selected because of their significance for AMT housing support. Towards the end of the paper, the data from Mukuru demonstrate how informal settlement residents respond to opportunities generated by Muungano's mobilisation efforts, leading to community organisation, savings consolidation and AMT income-generation lending.

Figure 1: Locations of Muungano housing projects analysed in this research



Below we give a short background on each of the three areas. The narrative sections on Huruma (Ghetto and Kambi Moto villages[8]) and Nakuru West are drawn in large part from Weru et al (2018).

Huruma is the location of one of the Alliance's earliest, most successful community-driven informal settlement upgrading programmes. In 2000, responding to poor living conditions and constant threats of demolition, residents from several informal settlements came together to lobby the county government to upgrade their settlements. Many had been active in Muungano for some years, mobilising the community to successfully resist forced evictions. In 2003, Ghetto and Kambi Moto, the Huruma neighbourhoods discussed here, were two of six villages identified for

[8] In Kenya, a smaller, discrete informal settlement neighbourhood is called a 'village'.

upgrading by the city government. The Nairobi government entered into a memorandum of understanding (MoU) with the residents, in which it consented to release the land to them free of charge; for their part, the residents agreed to redevelop the area with the assistance of professionals. For a description of the early stages of evolution of the Kenyan federation, and the central role the Huruma upgrading has played in it, see Weru (2004).

Kambi Moto was the first Huruma village to start savings, enumeration, house design and then construction, with 270 households identified as beneficiaries. Kambi Moto Phase 1 construction began in 2003, Phase 2 in 2006, Phase 3 in 2008 and Phase 4 in 2013. There are 145 upgraded structures so far, including community facilities like churches; of the remainder of the land, a portion that was originally allocated to the community was subsequently used by county authorities to build offices, and the other part is still occupied by informal houses. Ghetto, the second village to begin the upgrading, has a population of about 550 households, and most adult residents are low-income earners who own and operate small-scale businesses. Construction of Ghetto Phase 1 began in 2011, Phase 2 in 2014 and Phase 3 in 2018 (see Box 2). As at June 2019, 34 units and 40 foundations had been constructed.[9] Ghetto and Kambi Moto savers worked closely with a team of professionals to develop their house design and settlement layout. The typical house design is incrementally built, beginning with a ground floor starter unit with footprint of about 20 square metres, plus (for Ghetto) a shower and toilet on an upper floor.

Before they can secure a housing loan, a Ghetto or Kambi Moto beneficiary must be an active participant of the savings group, ie must attend meetings and save regularly; their household must have been enumerated; and they must have saved 20% of the cost of the house as what AMT term a ‘cash collateral’ for the loan. Low savings rates, a function of low incomes, have frequently made it difficult for households to raise the 20% sum required. This tension characterises the challenge of community-managed lending for very low-income households. The 20% cash collateral is required to help households practice regular savings and to reduce their vulnerability when they take the loan (which is smaller than would otherwise be the case). But it can be difficult for very low-income households to prioritise savings. Other households that face particular difficulties are: structure owners with lots of rooms for rent, who typically want more than one house during the upgrading process; and temporary residents such as short-term tenants who wish to carry on renting. This highlights a challenge which is particularly acute in Nairobi, with different groups within a neighbourhood pushing for different kinds of development to address their own needs and interests. Muungano’s role is to ensure that the lowest income groups do not lose out in this local politics. Persuasion and negotiation with these groups, encouraging them to adopt the housing

[9] Eight structures that stand in the Ghetto area have not been included in the analysis; these are in various states of use/disuse. Either they were ‘pilot’ houses built in the mid-2000s to showcase Muungano building techniques, or construction was not financed with AMT loans.

arrangements envisioned under the MoU, is an ongoing activity for Muungano groups in Huruma.

Nakuru: As a greenfield enterprise, Muungano's Nakuru West network's efforts are contextually very different to those in Nairobi. Nakuru was chosen to be part of this study as a counterpoint example outside of the city and because the dynamism of the network is an inspiration for many other groups in Muungano.

The network was created in 2002 and now organises over 900 hundred members into eight large savings groups. Most members are local women market traders, and almost all are tenants who rent poor-quality houses in nearby informal settlements. Members earn average monthly incomes of KES13,000 ($126). The network has a strong credit history with AMT: over two years, groups have received KES4.5 million ($43,700) in small livelihood loans. By 2018, the network had used members' savings to buy 15 acres of land for 492 members, and by the end of 2018 they had constructed or started constructing 90 houses. Land parcels are acquired in phases because of the lack of sufficient capital to accommodate all the savers at the same time, and plots of equal size are then carved from the original title. As in Ghetto and Kambi Moto, the Nakuru groups work with professionals to envisage their new neighbourhood and determine what type of house they can afford. Procurement and construction are overseen by a project team elected by the network; a separate team is responsible for auditing the project. Savers are required to raise 20% of the initial construction cost as a cash collateral, the remainder is financed through low-interest loans from AMT. Houses are developed in phases to reduce the size of individual loans: the minimum requirement is that a loan must cover the costs of a foundation and one room, so that the saver's family can relocate to the house, freeing them from paying rent. Construction of the initial houses has created great demand from other Nakuru West members, who are working hard to save money for new houses. While much of the SDI network has shifted away from greenfield development, the dynamism and capabilities of the Nakuru network have resulted in continuing support from AMT, which recognises the potential of these groups to develop innovations relevant to addressing their shelter needs.

Mukuru: Over 100,000 households live in Mukuru, a dense 670-acre belt of informal settlements in the southeast of Nairobi. The challenges facing Mukuru are among the most severe in the city, and recent Alliance profiling and enumeration work in Mukuru with research partners at Kenyan and international universities, conducted in 2013–17, has revealed some of the highest known population densities in the city (AMT et al, 2016; Corburn et al, 2017). There is a large poverty penalty exacted on residents, whose access to basic services is controlled by cartels. The area faces severe flooding and, because of its location in an industrial area, has elevated levels of air, water and soil pollution. Virtually all of Mukuru's land is privately owned by around 230 landowners, and 94% of residents are tenants.

In this paper we analyse the financial data in respect of Mukuru's savings groups and their members' savings and loaning activities. Efforts have been made to support residents to organise collectively, strengthen their systems, build savings and income-generating activities, and be ready to leverage and access financial services to support their financial involvement in the upgrading of the area. This is an example of how capital can be mobilised when development opportunities emerge.

Table 1 outlines the different types of data and/or information relating to these three areas specifically compiled for this report.

Table 1: Different data types analysed in this research

Data type	Mukuru	Huruma	Nakuru
General savings (group and/or individual level)*	√		√
Housing loans and repayments (group and/or individual level)*		√	√
Housing loan application forms			√
Livelihood loans and repayments (group and/or individual level)*	√		
Physical layout**		√	
Tenancy status**		√	
Housing loan beneficiary interviews (qualitative)		√	

*Notes: * Compiled from AMT records; ** Collected by Alliance data collection teams.*

Data was compiled between September 2018 and February 2019 by the research team.

Our initial, overarching research question is: *What do we learn about the provision of inclusive housing finance from the housing interventions of the Muungano Alliance?*

The secondary research questions, which structure section 4 below, are:

- *What is the experience to date of borrowing for housing development and what is the repayment rate on AMT housing loans?*
- *What did we learn to account for the current repayment rates on housing loans – in terms of (a) the affordability of loans and (b) loan collection systems?*
- *What scale of subsidy finance would be necessary for repayments on existing loans to fully meet repayment expectations?*

- *Do people (a) need and (b) have access to alternative sources of income or finance (ie other than AMT loans) to support housing development and consolidation? And if so what difference does this make to repayments?*
- *How quickly are Muungano groups' mobilising members and encouraging savings and livelihood loaning activities?*

4 Examining the data

In this section, we address each of the secondary research questions in turn, looking at what evidence there is in the data relating to each question and how this evidence might be augmented by qualitative information documented through conversations with AMT staff, discussions in the reflection workshop mentioned above, and transcripts of a small number of interviews conducted by AMT staff with AMT housing loan beneficiaries in Kambi Moto.

4.1 What is the experience to date of borrowing for housing development and what is the repayment rate on AMT housing loans?

Our evidence on repayment of AMT housing loans is drawn from two datasets relating to (1) *in-situ* upgrading in Ghetto village in Huruma; and (2) greenfield housing projects in Nakuru. Findings are captured in Table 2 and Figures 2–3.

In the case of Ghetto, we looked at 34 individual households' housing loans related to the first two phases of Ghetto village's slum upgrading process. Ghetto Phase 1 (18 units/households) began construction in 2011. Loans for the cost of construction were for KES161,000 ($1,564), which included a 20% cash collateral (KES32,000 or $311) by each household to AMT. The repayment period was set at 96 months, with monthly household repayments (principal + 6% interest on reducing balance) of KES2,120. Ghetto Phase 2 (14 units/households) began construction in 2014.[10] Learning from the experiences in Phase 1, the community and AMT agreed to increase the Phase 2 loans to KES250,000 ($2,428), ie with the 20% cash collateral now KES50,000 ($486), and they extended the repayment period to 120 months so as to minimise the increase in monthly repayments – now KES2,776 ($ 27) per household (but keeping the same interest rate). This increase in the loan amount was to finance the same unit of one room and toilet above; a larger loan was required as the price of construction materials had increased. Ghetto Phase 3, for which loan data is not analysed, began construction in 2018 (see Box 2).

Factoring in the cash collateral (Box 1), Ghetto households' average repayment rate was 57% for Phase 1 and 61% for Phase 2 (excluding the two loans mentioned in

[10] Sixteen loans for house upgrading were issued by AMT for Ghetto Phase 2, but because of an only recently resolved issue relating to plot allocation, two Phase 2 households have not yet started to repay their loans. We therefore excluded these two from our analysis to avoid the 'zeros' skewing findings. This case is worth noting for several reasons, including that repayment relates to other factors than just affordability – for example community group decision making and cohesion – and that location-related income generation opportunities –in this case for commercial activities through proximity to larger roads/popular routes, which was central to this particular conflict – can be a key part of the value calculation made by households when taking housing loans. See Box 3.

footnote 7). This means that there is only a small difference in repayment rates between the two phases.

The Nakuru data includes all AMT's 87 housing loans (to 87 households) to the Nakuru West network at time of data collection. Loans were given to households via 11 groups (or 'phases'), named *Shikamoo 1–11,* which each began construction between 2012 and 2018 (Table 2). As of December 2018, ten of the 11 Nakuru groups had started repaying loans (the 11th had only received the loan in the past month). Groups and individuals show a variety of repayment rates, with some individuals repaying early. Overall across all Nakuru phases the household repayment rate is 74% – but this reduces to 66% if the rates of the 12 households who had overpaid their monthly instalments (ie early repayment) are capped at 100%.

In these two examples of AMT housing loans, repayment rates, on aggregate, do not achieve the targeted levels – although it should be noted that there is a considerable variability between the repayment rates of different households. Figure 2 summarises the variation between households in repayment rates, while Figure 3 shows the variation between the different phases in both Ghetto and Nakuru.

Comparing the amounts due to AMT according to instalment schedules with what has been repaid by households, AMT is owed KES3.75 million ($36,424) in overdue repayments.[11] This is challenging for AMT, which has many groups waiting for loan capital, and which has been seeking to strengthen loan management systems in recent years (see below). This improvement of systems has primarily been focused on livelihood loans, and the February 2019 reflection session resulted in a commitment to advance these efforts to housing loans. AMT notes: "at present, there is a repayment rate of 90 per cent for livelihood loans and 76 per cent for housing loans" (Weru et al, 2017, p 10).

[11] KES 1.31m from Ghetto loans, as at end September 2018; KES 2.44m from Nakuru loans, as at end December 2018.

Table 2. Group-level data on individual household (HH) housing loans for Ghetto (Huruma) and Nakuru West network

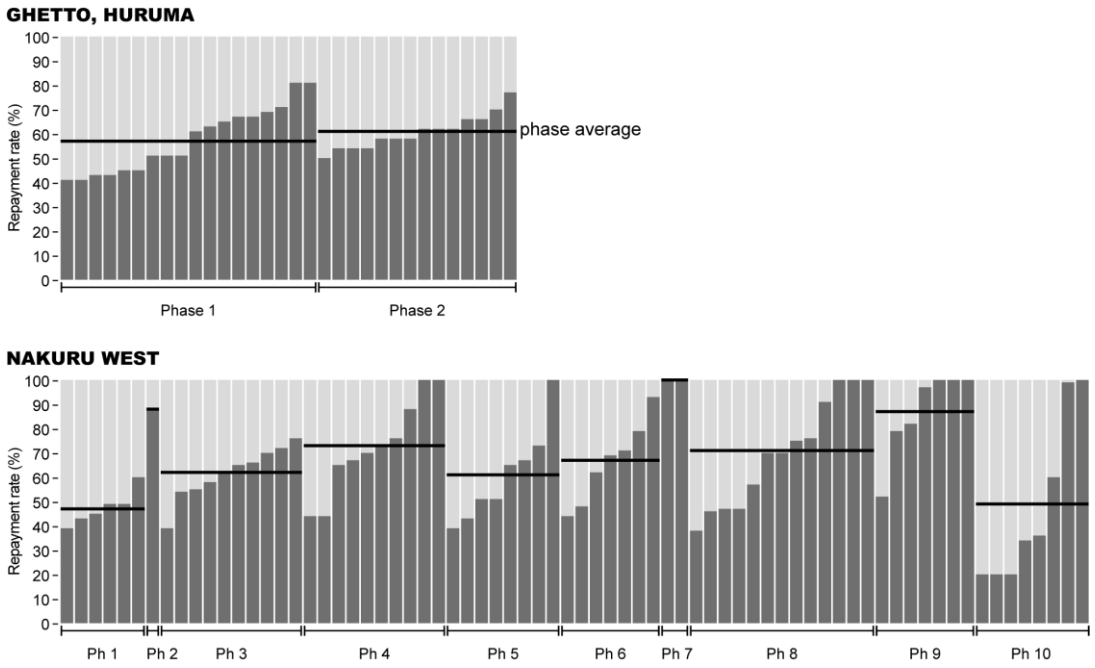
Location/ group and phase	No HHs/ HH loans	Date loan disbursed/ start of building	Full loan amount (per HH, KES) min, max and average	20% cash collateral (per HH, KES) min, max and ave	Monthly instalment * (per HH, KES) min, max and ave	Interest rate on reducing balance	Loan period (mths)	Ave HH repayment rate***
GHETTO Ph 1	18	2011	161,000	32,200	2,120	6%	96	57%
GHETTO Ph 2	14**	2014	250,000	50,000	2,776	6%	120	61%
NAKURU Ph 1	6	Nov 2012	187,162–240,528 Ave 218,149	37,432–48,106 Ave 43,630	3,050–3,910 Ave 3,552	12%	96	47%
NAKURU Ph 2	1	Aug 2015	250,000	50,000	4,070	12%	96	88%
NAKURU Ph 3	10	Feb 2016	150,000–250,000 Ave 221,000	30,000–50,000 Ave 44,200	2,120–3,540 Ave 3,129	8%	96	62%
NAKURU Ph 4	10	Apr 2016	100,000–250,000 Ave 212,500	20,000–50,000 Ave 42,500	1,770–3,540 Ave 3,009	8%	96	73%
NAKURU Ph 5	8	Oct 2016	250,000	50,000	3,540	8%	96	61%
NAKURU Ph 6	7	Oct 2016	50,000–250,000 Ave 207,143	10,000–50,000 Ave 41,429	710–3,540 Ave 2,933	8%	96	67%
NAKURU Ph 7	2	May 2017	250,000	50,000	3,540	8%	96	100%
NAKURU Ph 8	13	Sept 2017	150,000–250,000 Ave 211,538	30,000–50,000 Ave 42,308	2,120–3,540 Ave 2,994	8%	96	71%
NAKURU Ph 9	7	Feb 2018	150,000–250,000 Ave 228,571	30,000–50,000 Ave 45,714	2,120–3,540 Ave 3,236	8%	96	87%
NAKURU Ph 10	8	Apr 2018	125,000–250,000 Ave 203,125	25,000–50,000 Ave 40,625	1,770–3,540 Ave 2,875	8%	96	49%
NAKURU Ph 11	15	Nov 2018	100,000–250,000 Ave 223,333	20,000–50,000 Ave 44,667	1,420–3,540 Ave 3,163	8%	96	–

*Notes: * principal + interest; ** excluding two households in Ghetto Ph 1; *** Nakuru overpayment capped at 100%.*

Box 1: How we calculated repayment rate

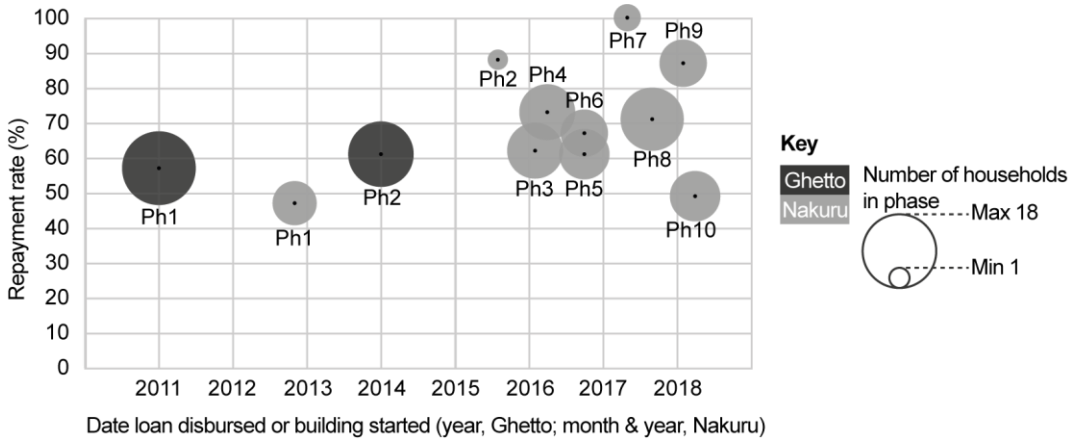
Figures for both Ghetto and Nakuru include the initial cash collateral of 20% of the full loan amount within our calculation of the repayment rate. In other words, the amount repaid is equal to the sum of monthly repayments and the initial collateral, given as a percentage, where 100% is equal to the full repayment due to date plus the 20% collateral.

Figure 2: Ghetto and Nakuru West individual household loan repayment rates, December 2018 (households ordered by repayment rate and phase).



Note: Nakuru early repayments are capped at 100%.

Figure 3: Ghetto and Nakuru West group/phase repayment rates, December 2018



Notes: Size of circle indicates number of households in a group loan/phase. Nakuru early repayments capped at 100%.

4.2 What accounts for the current repayment rates on housing loans?

Having looked at the data on repayment rates of AMT housing loans in Huruma (Ghetto village) and Nakuru West network, we considered two factors that might cause low repayment rates. Unusually for a lending agency, but consistent with the ethos of the Muungano Alliance, efforts have been made to include the lowest income households. This creates challenges for loan repayment and has raised concerns about affordability. It is evident from the data reported above that some households have failed to make the anticipated repayment. Hence a first issue to explore is

whether there is lack of affordability, at least for some households, since incomes within an informal settlement vary a lot; a second cause of late repayments may be weak systems for collecting them. We analyse each below considering the available data.

Are housing loans affordable or unaffordable?

> "We had a house that we owned and therefore we were not paying rent. That which we used to allocate for rent, we would put into repaying the loan. There was also the fact that rent prices where we used to stay were lower that what was required monthly to repay the loan. In the end it was up to us to work hard and just complete repaying the loan." (CN, Kambi Moto)

We began our analysis by considering rent levels in Mukuru and Nakuru. AMT and academic partners' recent situational analysis research and extensive survey of over 2,000 households in Mukuru provides information about rent levels in one inner-city neighbourhood of Nairobi (Mukuru). As noted in the quote that opens this section, previous rent levels are one benchmark by which to assess affordability (SPA Finance Consortium, 2018; Corburn et al, 2017). The average rent paid in Mukuru for a one-room shack (in 2015) was KES2,045 ($20) per month. Across the three large neighbourhoods that make up Mukuru:

- 21% of tenants pay below KES1,500 ($15);
- 39% of tenants pay between KES1,501 and KES2,000 ($15–19);
- 24% of tenants pay between KES2,001 and KES2,500 ($19–24);
- 16% of tenants pay more than KES2,501 ($24).

In addition, Weru et al (2018) gives the average rent for a single-room house for Nakuru West network members living in informal settlements as KES3,000 ($29) per month in 2016, noting that this had increased from an average of KES1,000 in 2013.

In comparison, monthly AMT housing loan repayments for Ghetto and Nakuru are in the range of KES2120–2776 ($20–27) for Huruma and KES2875–3552 ($28–35) (using *Shikamoo* group averages) for Nakuru.

If the affordability of loan instalments is assessed only in this way, ie approximated using rents, current monthly repayment instalments in Ghetto and Nakuru may be considered high.

People's ability to afford loan repayments can be difficult to assess in informal settlement contexts. Many residents' incomes are insecure and may vary considerably over a period. As one resident noted:

> "[I was given a loan to build the type of house with] one room, toilet and bathroom. I was not comfortable in that house. [In terms of savings] I am just praying for my children to get a job to finish this house." (MW2, Kambi Moto)

In *in-situ* house-building projects – such as is the case for Kambi Moto and Ghetto – AMT officers' experience has been that, when deciding on eligibility for loans, federation members consider incomes and the amount people have saved by, for example, holding a series of community meetings and interrogating one another through these meetings. Members also said that communities considered other factors in establishing a fair order in which residents would benefit from an upgrading, such as if people had volunteered to relocate early so their informal housing could be demolished, or how long people had been living in the area.

As one AMT officer explained:

> "…in Kambi Moto, there were some people who the community felt should benefit [first], but if you were to come and do a technical appraisal, you would find that these people don't look like they could afford [it]. But if you look at the environment that they operate in, in some way … they can afford [it], because there will be their children and grandchildren who can support them in some way. But if you just look strictly at their own income, it's not really enough."

The AMT appraisal process primarily seeks to capture the income of the household head or the adults in the immediate household, but it is recognised that a wider network of family members may contribute to repayments on a housing loan. This can be difficult to capture in the loan assessment process. However, while households may benefit from family support, these contributions are not certain and are generally irregular.

Another AMT officer adds:

> "…appraisals are very interesting in the community [context], because what you put on the paper sometimes is not the best picture. For example, somebody will tell you that they earn KES2000, but that's their personal income. But if you look at the incomes of the household, they are more than that: probably there are children bringing in money … Appraisals are a process … over time, when they understand why these appraisals are important, people give you the information. Because it's a series of meetings. Remember, in an in-situ project it is a close-knit community, everyone knows everyone. And appraisals are not conducted separately, [in some way] people just know what is going on."

AMT has recently developed a standard appraisal form that aims to support communities in capturing the kind of information that can help them assess whether a candidate can afford to take a housing loan, and these are now being used by the Nakuru West network. We secured data from the forms of 35 of Nakuru West's 87 beneficiaries: four are in *Shikamoo* group 11, which has not yet started repayment, and of the remaining 31 forms, 14 applicants' repayments rates were lower than the average rate for the Nakuru network (66%), although the form had indicated that they could afford to repay fully. This indicated that the loan appraisal did not accurately

predict their ability to make regular repayments, which suggests that the loan affordability assessment process is not always helpful to households and the Alliance, as it may not accurately indicate ability to pay.

How strong are the systems for collecting repayments?

To assess the extent to which relatively low repayments may be simply related to weak financial management systems, at AMT level, or weak grassroots group-level collection systems, we looked at data related to loan repayments on livelihood loans at two levels: across AMT, and in Mukuru.

Table 3 shows that across AMT, loan repayment rates on livelihood loans improved significantly between 2012 and 2016. As described in Weru et al. (2017), AMT consider that that significant attention has been given to strengthening collection processes in recent years and this accounts for the progressive improvement in loan repayments to date (Table 3).

Table 3: Repayment rates for AMT livelihood loans 2012–16

Year	AMT Muungano membership	Loan amount disbursed (KES)	Amount in US$	Repayment rate
2012	68,000	5,447,920	52,300	76%
2013	73,360	7,848,580	75,346	76%
2014	73,360	22,558,800	216,564	85%
2015	74,400	13,439,400	129,018	89%
2016	74,400	14,067,500	135,048	93%
Total line of credit loans for general livelihoods		*63,362,200*	*608,276*	
Total cash collateral as of November 2016		*21,000,000*	*201,600*	

Source: Weru et al (2017, p 10).

Looking at current loans, we also had data for 14 active AMT livelihood loans taken by savings groups in Mukuru that were between one and 10 months into their repayment schedules (Table 4). As at end of December 2018, on average actual rates of repayments of these loans stood at 116% of the amounts due. Of these, one of these loans is with a group that is on their fifth loan (for KES1.8 million ($17,501), another group is on their fourth loan (KES one million ($9,723)), and a third group is on their third loan (KES100,000 ($972)).

Table 4: Repayment rates on recent, active AMT livelihood loans held by 14 Mukuru savings groups, December 2018

Anonymised savings group name	Number of members in loan	Group loan amount (KES)	AMT service charge	Cash collateral	Loan term (months)	Months into loan (Dec 18)	Monthly instalment (KES)	Repay-ment rate
KUB	12	1,000,000	10%	20%	12	9	83,333.33	100%
YD	14	1,800,000	10%	20%	12	7	150,000.00	138%
SNSYC	10	100,000	10%	20%	12	6	8,333.33	51%
UDG	19	150,000	10%	20%	12	7	12,500.00	100%
MC	5	50,000	10%	20%	12	10	4,166.67	96%
KYBB	7	210,000	10%	20%	12	4	17,500.00	30%
WWI	10	150,000	10%	20%	12	4	12,500.00	287%
MIY	5	150,000	10%	20%	12	4	12,500.00	90%
MSHG	11	400,000	10%	20%	12	1	33,333.33	100%
OJ	16	200,000	10%	20%	12	1	16,666.67	100%
FSHG	7	100,000	10%	20%	12	2	8,333.33	101%
DC	10	250,000	10%	20%	12	3	20,833.33	64%
FS	15	200,000	10%	20%	12	2	16,666.67	80%
WBW	6	100,000	10%	20%	12	1	8,333.33	216%

We can say therefore that AMT loan collection systems for income generation loan repayments appear effective at the present time, and these repayment rates have improved over time.

Conclusions with respect to repayment rates

Repayment with affordability: If rent is used as an indicator of what people can afford to pay for housing on a monthly basis, expected loan repayments appear overly ambitious. Drawing on the household income data from Mukuru, significant numbers living in low-income neighbourhoods pay monthly rents that are less than the lowest monthly repayment rates of the different housing loans analysed in this study. While it is true that addressing the poverty penalty through settlement planning and upgrading processes may reduce the charges made on residents by illegal cartels for water and electricity, it is not clear that this will greatly increase monies available to households. Monthly charges for water and electricity may fall, but other charges may well increase.

While households may be willing to pay more in loan repayments than their previous rent payment, this evidence suggests that lack of income may still be one reason why AMT repayment levels are below target repayment levels, at least for some households. At the same time, addressing collection systems for livelihood loans has resulted in higher levels of repayment, so there may be some reason to believe that stricter housing loan management would address some of the problem. Improved

means of loan rescheduling may also help; if this is implemented, then it becomes less important to get instalment levels right in the first instance.

We considered whether rents are the best indicator of what people can and are willing to afford to repay. We recognise people may be willing to pay over and above their rent on an informal shack in order to live in a better house with access to better services like a toilet and water. AMT's proposal is that repayment rates should be equivalent to rent plus a certain addition that needs to be determined; generally, the Trust aims to keep repayment below KES3000–3500 per month.

A further issue to note is the challenge of raising the funds for the cash collateral. As noted in section 1.3, households may struggle to raise these funds. The Alliance responds by encouraging them to save, lending for income generation activities (if relevant) to increase income and allowing them to delay their loan (and move to a group that is building later) to have more time to collect the funds. The experience of the Alliance is that some very low-income members do manage to do this, although others do not.

Assessing ability to repay: The appraisal forms, and the loan assessment process they represent, do not seem to be effective in assessing a household's ability to afford housing loan repayment, even though this new form-based assessment process does seek to consider family incomes rather than the income of the applicant. AMT is committed to an ongoing process of reviewing the appraisal forms, which have not been in place for long and have only applied thus far to greenfield projects. At the reflection workshop, federation members also recognised the imperfections in this process and the need to strengthen systems.

Collective responsibility: Muungano Federation participants in the reflection workshop focused much of their discussion on savings-group-level systems for encouraging loan repayment. This is because, as pointed out by one participant, the responsibility for the AMT loan lies with the group, not the individual, so the burden is on the group to enforce individual repayments and/or to support individual members at time of personal crisis. The workshop discussion also covered group governance and the importance of strong group leadership; the need for credit management education and methods for gathering credit histories; sanctions against defaulters and whether penalties should be stiffer, including by setting an example for other borrowers. One participant suggested that, if a borrower is behind on housing loan repayments but up to date on livelihood loan repayments, they should be denied access to further livelihood loans until their housing repayments are in order. The workshop also considered ways in which collection of livelihood loans might be simpler and easier than for housing loans: livelihood loan terms are shorter (usually 12 months compared with housing loans' 96–120 months); and livelihood loans by definition support the kind of activity that can generate the additional income needed to cover loan repayments, whereas housing loans may not, or may not do so immediately (but see section 4.4 below on commercial opportunities and tenancy income). It was recognised that livelihood loans are intended to increase incomes and reduce vulnerabilities and, with increased income, housing

loan repayments may be easier. Housing loans have a lower interest rate than livelihood loans to facilitate repayment over a longer period.

External factors: Another key factor affecting repayments is the external context to a local area, settlement, or upgrading project. The progress of *in-situ* projects can be affected by multiple external (and internal) factors, presenting major challenges, leading to uncertainty and affecting housing loan repayments by participating households. For example, between 2015 and 2018, the Ghetto housing project stalled as a result of a proposed redesign of the settlement under the Kenya government's Kenya Informal Settlement Improvement Project (KISIP). Under the KISIP programme, the Ghetto community was supposed to set aside their current settlement layout and adopt high rise development, and the uncertainty about the future of the present Muungano/AMT development greatly affected both households' housing loan repayments and AMT's willingness to push for repayments in such uncertain circumstances.

4.3 What scale of subsidy finance would be necessary for repayments on existing loans to fully meet repayment expectations?

What difference would subsidies make?

AMT's livelihood loan collection systems appear strong, and greater attention to strengthening housing loan management systems appears likely to improve repayment levels. This latter was a need identified and agreed by participants at the reflection workshop. However, affordability may also be part of the problem. High-income and middle-income countries routinely subsidise housing for their low-income citizens. We use this experience with housing loan repayments to explore subsidy requirements. Specifically, we consider changes to loan terms and conditions which could allow for current housing loan repayments to fully meet repayment expectations. In doing this, we do not mean to suggest that there is a single response to ensure affordability and inclusion; rather this is an effort to assess the challenge of securing repayments within a viable housing-finance lending programme. In other words, starting from an assumption that in Nakuru and Ghetto people with housing loans have been repaying monthly what they can afford, what changes in lending conditions would be required for the loan repayment rates to reach 100%?

We estimated what monthly loan repayments would be required from households under different terms and conditions by varying interest rates and the loan period. We recognise the difficulties of maintaining repayments over long loan periods, so we kept these below 12 years during this modelling exercise. This can be contrasted with the current plans for the Affordable Housing Program (see section 1.3).

Table 5 reports our assessment. If, for example, households can afford to repay KES1,750 ($ 17) a month for eight years and one month, and the loan is similar in size to that for the houses at Ghetto, then subsidised loan finance is required to enable

AMT to lend at 3% rather than 6%, and a capital subsidy per household of KES52,882 ($ 517) is also needed.

Table 5: Alternative lending Ts&Cs (no grace period)

	Loan size (KES)	Annual interest rate	Monthly loan Repayment (KES)	Length of loan	Capital subsidy required (based on Ghetto) (KES)	Interest rate subsidy required (based on 6%) (KES)
Actual Nakuru average	*219,987*	*8%**	*3,147*	*8 yrs (all 11 phases)*		
Actual Ghetto average	*202,882*	*6%*	*2,429*	*8 yrs (phase 1); 10 yrs (phase 2)*		
Model	150,000	6%	2,000	7 yrs 10 mths	52,882	0
	150,000	3%	1,750	8 yrs 1 mth	52,882	19,450
	200,000	3%	1,750	11 yrs 3 mths	2,882	22,359
	200,000	1.2%	K1,750	10 yrs 2 mths	2,882	45,976
	200,000	1.2%	K1,500	12 yrs	2,882	43,606

*Note: *Except Nakuru phase 1, for which loan interest was 12%.*

Conclusions with respect to modelling of potential subsidies

The experience of the Muungano Alliance suggests that subsidies are needed for housing loans to be affordable to all, especially for informal settlement households with relatively lower incomes. Both capital and interest rate subsidies should be considered.

The model in Table 5 shows that a loan of a similar amount to current AMT housing loans, with an interest rate subsidy but no capital subsidy, will require a far longer repayment period. There is a strong view across the SDI network that shorter loan periods are generally better. Households have other priorities, and social networks, which are key to the way SDI funds lend to low-income groups, may weaken over time. At the fund level, with a limited pot to lend from, longer loan periods also slow down the circulation of AMT capital and the time it takes for other or new groups to access loan finance. However, shorter repayment periods require either higher monthly repayments or smaller loans (all other things being equal) and, if future informal settlement upgrading development requires completed single rooms with toilets on the first floor, then larger loans are required. This suggests that there is a need for capital as well as interest rate subsidies.

Some options for subsidised loan finance for low income groups do exist in Kenya. One such is the availability of interest rate subsidies for registered housing cooperatives. We do not discuss these in detail in this paper as the Muungano Alliance has no experience with it, but it is worth noting that the Alliance is actively exploring the possibility for some federation groups to form cooperatives in order to access subsidised finance.

4.4 Alternative sources of income that support housing consolidation

Are there alternative sources of income that people can access which might support and enable incremental housing consolidation without loan finance? This question is important because the loans offered by AMT are intended to support incremental development, so additional sources of income to enable further development are an important part of their development model.

To explore this question, we first looked at rates of consolidation – measured by the number of stories structures had – of the houses in both Huruma neighbourhoods in the study (Ghetto and Kambi Moto). In Nakuru West, almost all structures are ground floor only. We considered some factors that might explain variations in speeds of consolidation for different households.

We further considered three possible sources of finance for consolidation: (i) using part of a house for commercial activity (ie other than tenancy income); (ii) generating tenancy income through renting; and (iii) accessing other, non-AMT loans to support house-building.

Data analysed in this section draw on a survey of housing consolidation carried out in the two Huruma settlements by a team of SDI Kenya and Muungano federation data collectors, and which was done in two phases, in October 2018 (consolidation and structure use) and March 2019 (rental status).[12]

How does housing consolidation affect repayment rates?

Understanding processes of housing consolidation can reveal at least part of the picture of how quickly people can raise finance, through loans or otherwise, to construct and expand (upwards). Tables 6 and 7 and Figures 4 and 5 show the situation in each of the two Huruma settlements. The basic housing design in Kambi Moto and Ghetto includes a toilet on the first floor but no further first floor consolidation; this is termed ‘ground’/‘G’ below, while this plus one, two, etc additional floor is termed G+1, +2, etc.

[12] It is worth noting an asymmetry between the Kambi Moto and Ghetto data. In Ghetto, analysis is restricted to those structures we know were built by households accessing AMT group loans, and therefore, as mentioned above, ten of the 42 identified structures are excluded. In contrast, because of a lack of up-to-date repayment information about Kambi Moto, our analysis covers all structures in the four-phase upgrading area.

Table 6: Kambi Moto consolidation, October 2018

Phase/Floors	0 (G)	G+1	G+2	G+3	G+4	Data missing	Total # houses
KM Phase 1	8% (3)	10% (4)	33% (13)	43% (17)	8% (3)	–	40
KM Phase 2	4% (1)	–	50% (13)	38% (10)	8% (2)	–	26
KM Phase 3	4% (1)	29% (7)	42% (10)	17% (4)	8% (2)	–	24
KM Phase 4	2% (1)	18% (10)	11% (6)	9% (5)	56% (31)	4% (2)	55
All KM phases	4% (6)	14% (21)	29% (42)	25% (36)	26% (38)	1% (2)	145

Table 7: Ghetto consolidation, October 2018

Floors	0 (G)	G+1	G+2	G+3	G+4	Total # houses
G Phase 1	-	39% (7)	50% (9)	6% (1)	6% (1)	18
G Phase 2	-	21% (3)	36% (5)	43% (6)	-	14
Both G phases	-	31% (10)	44% (14)	22% (7)	3% (1)	32

There has been a considerable investment in both areas. Estimates in Ghetto suggest that each additional storey over G+1 requires an investment of around KES204,000 ($2000). Using this estimate for both Ghetto and Kambi Moto, and aggregating all investment above ground level (since the ground floor was financed through AMT loans) means that there has been an additional investment of some KES86.5 million ($856,000) across the two villages. In Ghetto, the amount owed to AMT in overdue repayments is KES1.3 million ($12,640) but based on these calculations a further roughly KES13 million ($126,000) has been invested in additional construction above ground level. This suggests that, in at least some cases, an inability to repay may not be the cause of low repayment rates and that addressing willingness to pay, for example through stronger loan management systems, may be required (see Box 3).

Kambi Moto's Phase 4 contains many more G+4 buildings than were constructed in the earlier three phases, while its Phase 3 buildings have relatively fewer stories than all its other phases. But a straightforward association between age/phase and consolidation does not appear strong for either Ghetto or Kambi Moto. This is understandable as there are likely to be multiple factors accounting for construction activities and households' choices to consolidate. For example, some plots are better positioned for commercial uses, while other factors (eg local politics, external influences) may have played a role in inhibiting or encouraging investment in consolidation, or some very active but lower-income community members may have been prioritised in early phases of upgrading.

Figure 4: Kambi Moto layout and consolidation, late 2018 (numbers relate to stories, ie G=ground floor, 1=ground+1 floor, etc)

Figure 5: Ghetto layout and consolidation, late 2018 (numbers relate to stories, ie G=ground floor, 1=ground+1 floor, etc)

For Ghetto, it was possible to compare each house's consolidation with its owner's AMT loan repayment rate (Table 8). Within this small dataset it does seem to be the case that owners of higher structures (eg G+2 and G+3) show better repayment rates than those at G+1 (except for the one G+4 structure). This suggests either that better-off households can both consolidate and repay their loans (ie both observations correlated with higher incomes), or perhaps that, by investing in consolidation,

households can earn commercial and/or rental income that they use to repay their loans (ie direct correlation). Whatever the reason for higher repayments, it is also notable that there is still a gap between anticipated and actual repayment, although households have successfully mobilised capital for construction.

Table 8: Comparing consolidation and repayment in Ghetto (both phases)

Stories	Average repayment rate
Ground	n/a
G+1 (n=10)	53%
G+2 (n=14)	62%
G+3 (n=7)	63%
G+4 (n=1)	41%

Box 2: Ghetto Phases 3 + – a substantively different approach

Clearing and preparing the ground for foundations, Ghetto Phase 3

In Ghetto's current Phase 3 and planned future phases, initial AMT loans are designed only to finance construction of foundations. Reasons for this change are, first, that smaller loans are more affordable, with lower monthly repayment rates and require a smaller cash collateral that is easier to save for. AMT's Phase 3 foundation loans have been set at KES65,000 ($637). Second, the financing is designed so that households can build incrementally, with small repeat loans. Taking multiple, successive small loans for incremental building reduces interest rate charges that have to be paid, thereby also lowering monthly instalments. A third reason is speed: more easily accessible 'starter loans' can empower the community and encourage households to move faster to establish foundations. Everyone can be allocated a plot immediately and 'know their space'—rather than waiting for the construction of 10 or 20 initially unallocated housing units, as in earlier phases. Incremental development, taking place over a longer time, requires communal services and Muungano has already developed a communal toilet block in Ghetto for residents' use.

AMT was aiming to finance the construction of 200 Ghetto foundations in 2018-19, the hope being to give both households and the wider community greater security and confidence in the project. And, importantly, this would also make the neighbourhood planning for provision of sevices such as roads, water and electricity much simpler, since a greater part of the settlement structure would be established at once with plot specifications corresponding to the planned development.[13]

How to fund further construction and consolidations is still a point of discussion. AMT might provide further incremental loans once foundation loans are repaid (in the reflection workshop discussion, it was suggested that incentives to repay are stronger for smaller, repeat livelihood loans because once repaid there is the prospect of another loan). Or the community could be supported to access finance elsewhere, for example by forming a cooperative to access government finance.

Shifting to a more wide-reaching incremental approach reflects AMT's continued work to improve structural incentives for loan repayment; it will be worth tracking further Ghetto phases to see if repayment rates improve and community ungrading outcomes are positive.

[13] See, for example, https://www.sasdialliance.org.za/projects/california-reblocking-project-cape-town/.

What difference does the development of structures for commercial activity make to housing consolidation and repayment?

Continuing to explore the factors that might help explain whether varying speeds of consolidation and/or repayment rates are influenced by the availability of finance, we next looked at the potential contribution of commercial uses of structures, in either all or part of a house. Do structures used for commercial purposes show higher consolidation, indicating a contribution of these commercial activities to households' access to finance?

Note that 'commercial' in this section does not include rental activities.

Table 9 (a) and (b): Ghetto structures by use and consolidation, percentage of each use type (both phases)

(a) GHETTO	Ground	G+1	G+2	G+3	G+4	*Total structures of each use type (all heights)*
Only residential	–	38% (7)	44% (8)	11% (2)	6% (1)	*18 (100%)*
Commercial–residential	–	21% (3)	43% (6)	36% (5)	–	*14 (100%)*
Total structures at each height (all uses)	–	*10 (31%)*	*14 (44%)*	*7 (22%)*	*1 (3%)*	*32 (100%)*

(a) GHETTO	Ground	G+1	G+2	G+3	G+4	*Total structures of each use type (all heights)*
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Commercial–residential	–	21% (3)	43% (6)	36% (5)	–	*14 (100%)*
Total structures at each height (all uses)	–	*10 (31%)*	*14 (44%)*	*7 (22%)*	*1 (3%)*	*32 (100%)*

Table 10: Kambi Moto structures by use and consolidation, percentage of each use type (all phases)

KAMBI MOTO	Ground	G+1	G+2	G+3	G+4	Un-known	*Total structures of each use type (all heights)*
Residential	3 (3%)	13 (11%)	36 (32%)	33 (29%)	28 (25%)	1 (1%)	*114 (100%)*
Commercial-residential	1 (6%)	2 (11%)	3 (17%)	2 (11%)	10 (55%)	-	*18 (100%)*
Unknown use	1 (11%)	6 (67%)	1 (11%)	–	–	1 (11%)	*9 (100%)*
Church/hall	1 (33%)	–	2 (67%)	–	–	–	*3 (100%)*
Commercial/ hall	–	–	–	1 (100%)	–	–	*1 (100%)*
Total structures at each height (all uses)	*6 (4%)*	*21 (15%)*	*42 (29%)*	*36 (25%)*	*38 (26%)*	*2 (1%)*	*145*

KAMBI MOTO	*Total structures of each use type (all heights)*
Residential	*114 (79%)*
Commercial plus residential	*18 (13%)*
Unknown use	*9 (6%)*
Church/hall	*3 (2%)*
Commercial/hall	*1 (1%)*
Total structures at all heights (all uses)	*145 (100%)*

In Ghetto (Table 9), a little under half (44%) the structures have some sort of commercial activity and a little over half (56%) are solely residential. This is partially explained by the first phases of the development, which concentrated on that part of the settlement closest to a major road. Comparing Ghetto's commercial use structures to those in the residential category, a higher proportion of structures used for commercial purposes have been built to G+2 or above (79%), than those that are purely residential (61%).

In Kambi Moto (Table 10), where most (79%) structures are solely residential and only 13% have some sort of commercial activity, nearly all commercial structures are at G+2 or above (85%) – but then so are 87% of the solely residential structures. However, the proportion of G+4 structures that are commercial–residential is far higher than at other levels of consolidation.

Table 11: Structure use/repayment rate in Ghetto

	Average repayment rate	Min repayment rate	Max repayment rate
Only residential (n=18)	60%	41%	81%
Commercial use plus residential (n=14)	*58%*	*41%*	*70%*

Looking at Ghetto repayment rates against structure use (Table 11), there is little difference in repayment rates between solely residential and commercial-use structures. Constructing each additional storey costs roughly KES204,000 ($2,000) for the households in this neighbourhood, so is not a small undertaking. The lack of increased repayments for commercial-use structures over the purely residential, even though these are on average at higher levels of consolidation, suggests that, at least for some of these investors, failure to repay AMT loans is not an affordability issue.

The initial individual housing investments for a ground floor structure in Ghetto phase 1 (18 units), funded by AMT and residents' cash collaterals, was KES161,000 ($1,564), and for Ghetto phase 2 (14 units) this was KES250,000 ($2,428). Of the 32 structures included in this analysis, there are no units remaining at this starter unit height. So, for the $62,000 allocated to the initial investment in 32 units at $1,564/$2428, an additional roughly $123,000 of capital investment has been generated by households.

It must be emphasised that the numbers analysed are very small.

We also analysed structures' proximity to major roads (see Figure 6). AMT staff testify that, when a community is planning an upgrade, people always prefer to be allocated plots close to the major roads because of the economic opportunities this presents. A greater proportion of Ghetto structures than in Kambi Moto are situated on a main road and so the opportunities for income generation from commercial activity are also greater (Figure 6).

Figure 6: Location of Ghetto and Kambi Moto relative to three classes of major roads (settlements' minor internal roads not shown)

Here the picture is clear. In both neighbourhoods almost all structures which, from external observation, have at least some obvious commercial use are on the major roads (Tables 12 and 13). Also no purely residential structures in Ghetto are on major roads, which border the area on two sides ('estate main roads'). In Kambi Moto 34 structures in the residential category (30%) are on a major road, but all of these are on the road with the more minor classification ('estates streets') (see Figure 6).

Table 12: Comparing Ghetto structures' commercial uses with their proximity to major roads, using road classification in Figure 6

GHETTO	Commercial–residential (n=14)	Only residential (n=18)
Directly* on only estates main roads	13	–
Directly* on only estates streets	–	–
Only on minor internal roads/paths	1	18

*Note: *Directly = any side of a structure has no other structures between it and the road. A further survey might usefully identify which structures have doors or windows opening onto these roads.*

Table 13: Comparing Kambi Moto structures' commercial uses with their proximity to major roads, using road classification in Figure 6

KAMBI MOTO	Residential	Commercial -residential	Unknown	Church /hall	Commercial/hall	Total structures
Directly on only estates main roads	1	2	–	–	–	3
Directly on only estates streets	34	14	–	2	–	50
Directly on both major road types	–	1	–	–	1	2
Only on minor internal roads/paths	79	1	9	1	–	90
Total structures in use category	114	18	9	3	1	145

Table 14: Proximity to roads and repayment rates, all Ghetto structures

	Average repayment	Min repayment	Max repayment
Structures directly on major roads	59%	41%	70%
Structures not directly on major roads	59%	41%	81%

As before, in Ghetto it is possible to test further against repayment (Table 14); but location within the neighbourhood does not appear to affect repayment rates. It does not appear that involvement in commercial activity is associated with a divergence in repayment rates either (Table 11). Clearly since these datasets are very small, future studies could contribute a lot by testing these ideas in larger areas.

Table 15: Consolidation x proximity to road, both Huruma settlement

	GHETTO	KAMBI MOTO
Average consolidation of structures directly on a major road Percentage of such structures	G+2.2 38%	G+2.7 38%
Average consolidation of structures not directly on a major road Percentage of such structures	G+1.8 62%	G+2.5 62%

In both settlements, structures directly on a major road have more floors on average than those which are not, and this distinction is greater in Ghetto (Table 15). This may be related to the proportionally greater amount of commercial activity in Ghetto (44% of structures) than in Kambi Moto (13%) – does a concentration of commerce drive consolidation in Ghetto in a way it does not in Kambi Moto? Figure 6 shows the differences in this respect between the two Huruma neighbourhoods: Kambi Moto is a larger, rectangular settlement with structures mostly situated on minor internal roads; Ghetto's upgrading phases 1 and 2 are a strip of housing two or three structures deep, concentrated along the part of the informal settlement close to a main road, and therefore with greater commercial potential.

Photo 1: Shops along the main-road edge of Ghetto, Huruma (phase 1 and 2 structures in view)

What do we learn about consolidation and repayment by analysing rental activity?

In this section, we explore the data from the Kambi Moto and Ghetto neighbourhoods to look at the potential of rental income to finance housing investment and by extension to contribute to a household's ability to repay housing construction loans.

The survey questionnaire used by SDI Kenya staff and Muungano data collectors asked residents (1) if a structure was fully owner-occupied or if it was part/fully rented; (2) if the latter, what rent was charged monthly, in total and for each room rented; and (3) how many months in the past 12 the rentable rooms had been let.

The survey also noted the type of staircase a structure uses, since this is a concrete and tangible proxy indicator of renting activity. A structure might only have an internal staircase running through the property, a layout which the owner/occupier may consider too intimate a sharing of space to rent rooms. Or the structure may have a fully external or a 'partitioned' staircase. An external staircase is on the structure's exterior, detached from the structure, as opposed to a partitioned staircase, which is part of the structure through a modification of the original house design, but is located on the periphery – the modified structure usually having two lockable access gates: a main gate to the structure owner's rooms and an additional, small gate providing entrance to a partitioned staircase suitable for tenants or, for example, grown children living semi-independently.

Photo 2: L–R: external staircase, Kambi Moto; external gate of a partitioned staircase; looking through the bars at a partitioned staircase, Ghetto

Figure 7 shows that, according to the data collected, in Kambi Moto, 63 (43%) structures are generating some rental income, in addition to which one structure is a lodging business and rents rooms on a nightly basis. In Ghetto, 22 (52%) structures are generating some rental income.

Figure 7: Who occupies Kambi Moto and Ghetto structures (size of circles indicates number of structures)?

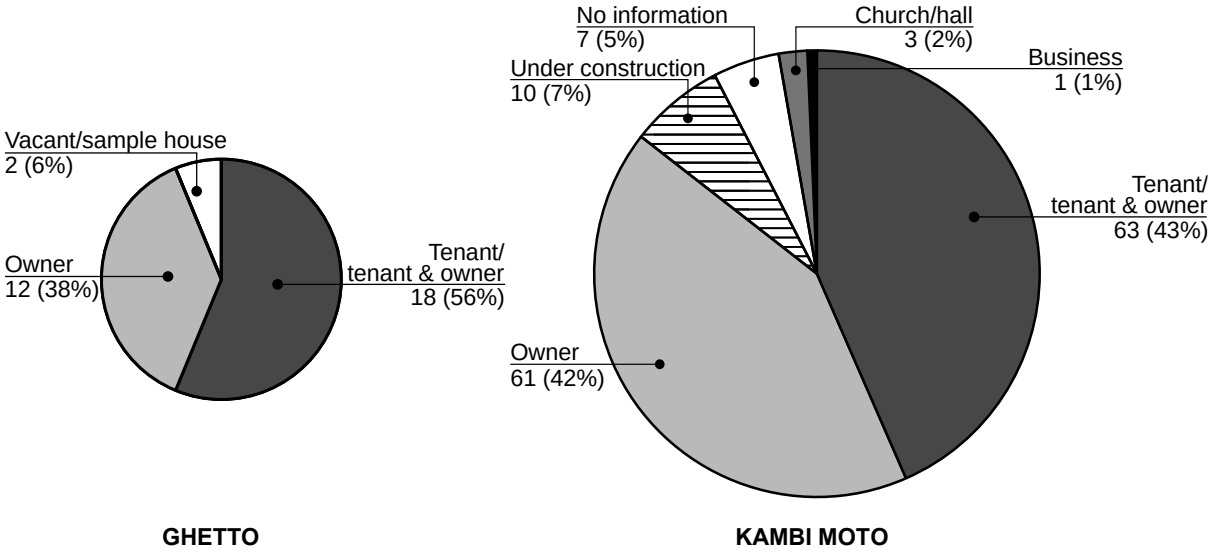
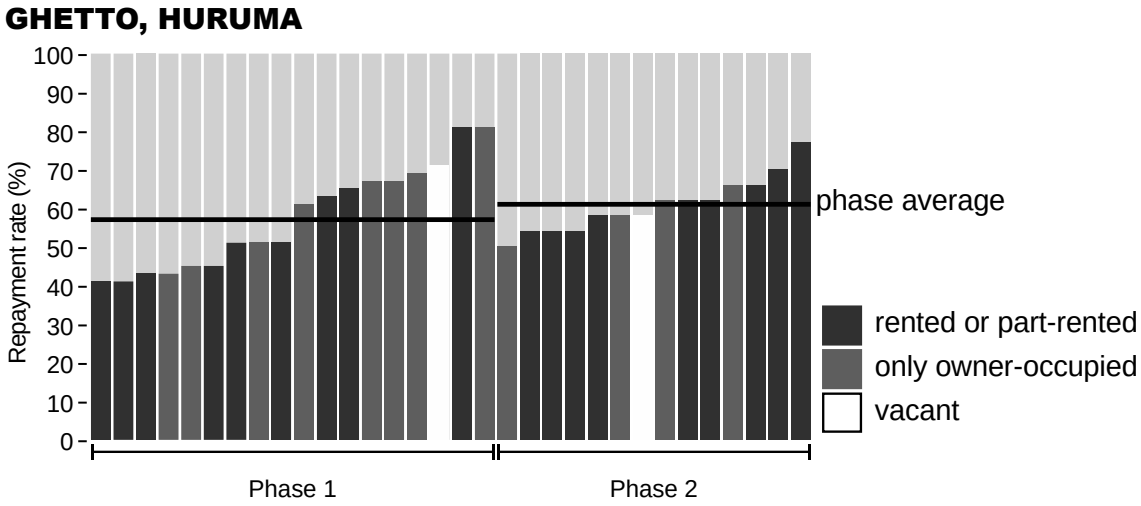


Figure 8 shows the relationship between occupancy classification and repayment rates. An association is not clear, but what does come out is the relatively higher proportion of rented properties in Ghetto Phase 2 (63%) than Phase 1 (50%). We noted in section 3.1 that loans given for Phase 2 were significantly larger than in Phase 1, which might therefore entail a greater need for households to generate income (eg rental) to keep up with loan repayments. (There is a comparable difference in the number of structures with some commercial use in Phase 1 relative to Phase 2 – 33% in Phase 1 as against 57% in Phase 2 – although, again, this is a small dataset, and results could also be related to the fact that far more Phase 2 than Phase 1 structures are located along the main road (see Figures 4 and 5).

Figure 8: Ghetto occupancy mapped onto Figure 2, ie comparing occupancy with repayment rates



Based on the rental income information provided, it appears that of the 63 properties renting in part or full that were identified in the Kambi Moto survey, about 31 are part-renting (an average of 1.1 rooms) and 26 appear to be renting all the rooms in the structure. No information could be gathered on the remaining five. From a similar analysis in Ghetto, we estimated that, of the 18 properties renting in part or full that were identified in the survey, only one appears to be partially renting (one room) and 15 to be renting the full house/all rooms. No information could be gathered on the remaining two. It should be noted that because of the limitations of the survey, these figures are estimates.

Looking at Table 16, which shows average rental income per rented room in the two settlements, rental activity in Kambi Moto appears to be more lucrative than in Ghetto. There is also a greater percentage of staircase-related building modifications in Kambi Moto, which facilitate renting.

From Table 17, we can say that in general it seems that structures that are more consolidated are more likely to be used by owners to generate some rental income.

In Ghetto, the rent for one room can be compared to monthly loan repayments of KES2120–2776 ($20–27, corresponding to annual repayment of KES25,440–33,312 or $240-342) across the two phases. This is the repayment on a ground floor room plus toilet on the first floor. Total rental income for this one room would be KES29,133 if the room was rented for the Ghetto average of nine months of the year.

Table 16: Rental income, rental activity in past year, and staircase types in Kambi Moto and Ghetto

	Average monthly income per rented room	Average number of months in the past year that rented rooms were occupied	Ratio of staircase types (% of all houses) External : Partitioned : Internal/no info
Kambi Moto	KES5,320	11	4 : 32 : 64%
Ghetto	KES3,237	9	0 : 29 : 71%

Table 17: Consolidation against occupancy status, Kambi Moto and Ghetto – number of structures which are part or fully rented and rented structures as a percentage of all settlement structures at each level of consolidation

	Ground	**G + 1**	**G + 2**	**G + 3**	**G + 4**
Kambi Moto (rented structures)	4	6	15	11	27
All structures at height	6	21	42	36	38
Rented as % of all structures at height	67%	29%	36%	31%	71%
Ghetto (rented structures)	–	5	8	4	1
All structures	–	10	14	7	1
Rented as % of all structures at height	–	50%	57%	57%	100%

The survey team observed that:

- In Kambi Moto, rent varies depending on the location of the room in the structure. Rooms on the ground and top floors tend to be more expensive, ranging around KES5500–6000 ($53–58) per month. Rooms in the middle levels (ie first and second floors) tend to be let for between KES3500–4000 ($34–39) per month.
- In Ghetto, where much of the construction is relatively recent compared to Kambi Moto, the level of room finishing is a key determinant of rent paid: fully finished, well painted rooms with access to a private toilet fetch a monthly rent of around KES4000 ($39) while rooms without these amenities are rented for around KES3000–3500 ($29–34) per month.
- In Kambi Moto, tenants who rent more than one room in a structure often pay discounted rents per room.

In the design of Kambi Moto, which began in the early 2000s, the assumption was made that rooms would not be rented; hence the structures were designed accordingly, allowing, for example, for very few external staircases. However, after observations about repayment difficulties and household investment in Kambi Moto, the house design was modified by AMT in later developments, such as Ghetto, to allow for the renting of rooms.

Access to other sources of loan finance

As well as generating income from commercial and rental uses of a structure, we also wanted to explore whether people looked for other sources of loan finance to support consolidation. As mentioned above, AMT loans are largely designed to facilitate the expenses of a 'starter portion' of a structure. In other words in the case of Ghetto (Phase 1 and 2) and Kambi Moto, loans were intended to finance a complete ground floor unit plus toilet and shower on the floor above.

Since the survey and financial data did not capture this aspect of households' consolidation efforts, here we draw on narrative from Kambi Moto residents, discussing their experiences juggling multiple loans and/or seeking other sources for financing construction:

> "We would take regular small loans from my husband's employer for various activities and materials during the expansion. At some point, we stopped repaying the Muungano loan. [We prioritised the other loan] because it was a loan from my husband's employer. He would be deducted a small repayment from his salary; something like KES3000 per month." (CN, Kambi Moto)

> *"* [To get finances to complete my house] I joined a merry-go-round SACO [savings and credit organization], so when my turn comes, I am given my pool and I use it to buy raw materials in small quantities … And now my children do help me." (EO, Kambi Moto)

> "I was not able to clear my loan. I have grown-up children that can help to construct another floor. I joined another group whose aim was to buy food, but I insisted instead they gave me money. I used the money to slowly stock stones and sand and put them aside while I looked for more money to pay the constructors." (MW, Kambi Moto)

> "I did not [try to get another loan to finish my first-floor room] … we have learned how to plan and manage ourselves, so what I did was buy building materials in small quantities until the materials are enough." (SW, Kambi Moto)

Conclusions from the analysis of alternative sources of income to support loan repayment and housing consolidation

It is evident that the model for housing developed by the Muungano Alliance is successful in providing a platform of housing accumulation, and the data collected in the surveys of Ghetto and Kambi Moto show that multiple households have made considerable further investment.

Our investigation to see whether households with tenants are consolidating faster than owner-occupied homes enabled us to compare outcomes with an observation made in the reflection workshop, that a reason repayment rates of AMT's livelihood loans seem to be better than those for housing loans is because the loan money is immediately invested in income-generating activity, facilitating access to cash for repayment.

However, this suggestion is not necessarily consistent with our observed outcomes. Instead, and recalling the earlier affordability discussion in this paper (section 3.2), in the reflection workshop some participants made a different point, namely that, given the clear failure to pay represented by households' repayment rates, together with the evidence of housing consolidation taking place in Ghetto and Kambi Moto, there is likely to be a variety of factors and reasons why people are not repaying their loans, despite having access to finance for consolidation. We have summarised some of the possible scenarios in Box 3, presented as a continuum of issues related to both ability and willingness to repay housing loans. This aspect would benefit from further exploration.

AMT housing loans have not been large enough to construct a whole many-storied house, and particularly if a household's income is not very high, rates of consolidation and repayment will therefore be subject to other risks and priorities the household faces, and dependent on its ability to access other sources of income or loan finance. For example, some households may prioritise financing consolidation over loan repayment. Others may take other loans and prioritise the repayment of these.

Are households choosing to prioritise repayment of other loans over AMT loans because, for example, non-AMT loans require securities in the form of personal property? AMT loan responsibilities, in contrast, are spread among the group, because this is the way the Trust aims to protect individuals and make sure Muungano is relevant to people on very low incomes. Along these lines, the workshop discussion suggested that AMT needs to think about further differentiating its systems and approaches to better support households with different levels of incomes and income risk among low-income groups in settlements.

The table in Box 3 presents issues and proposed management options for a range of scenarios, along a continuum that blends two overarching factors: (1) households' ability to repay housing loans ('affordability'); and (2) their inclination to do so ('willingness').

Box 3: Continuum of affordability and willingness to pay

Issue/scenario	Detail/management of the issue
Scenario A: Repayments are unaffordable and household is unable to pay	
Repayments are always too high	Eg significantly higher than rent (see discussion)
Repayments are sometimes too high:	Need more flexibility across a specific time period
- *Across the month*	Likely with many informal trades, where a three- to five-day cycle is common; need daily/weekly/part-weekly loan repayments
- *Across the year*	Likely when income is strongly seasonal, eg tourism; need flexible repayments month-by-month
Repayments were once affordable but no longer	Eg job loss, family member coming to stay so renting out a room no longer possible, death of partner, ill-health. Need a system that can cope with this, including through loan rescheduling opportunities
Scenario B: Repayments are partially affordable and there is a willingness to pay (something)	
Willing to pay something but not fully able to afford	Individuals may be ashamed to continue with partial repayments and this may reduce repayments even further. Need loan rescheduling opportunities; note that those requiring loan rescheduling may not be able to afford the costs associated with it
Scenario C: Repayments are affordable to household but there is unwillingness to pay	
At the household level	
Husband does not let wife pay	This has happened in some SDI locations when the husband thinks the house should be for free,[14] and/or when they take the funds set aside for repayment
Borrower could repay based on expenditure obligations when they first took out the loan, but with a new home they have taken on new loan obligations (eg furniture) with more stringent conditions (than AMT's), hence these repayments are prioritised	Not a lack of affordability in the same way that not having enough income – ie without any changes in expenditure — leads to loan default
At the neighbourhood level	
Withholding payment as a way to express discontent with internal federation processes	Eg lack of democracy within the savings scheme, dissatisfaction with the allocation of plots
Local politicians instigate to disrupt federation processes, eg by suggesting repayment is not needed and/or making it difficult to repay	
At the loan fund/loan management level	
Limited effort to collect repayments	
Efforts are made to collect repayments, but there is limited ability to coerce 'free riders'	
Inadequate information means that people do not pay, as they are uncertain how much they still owe; that uncertainty leads to non-payment	There may also be no clear understanding of the cost of building and hence non-payment thanks to a belief that construction charges are not accurate; this is also part of a weak management system
Borrower concerns about corruption mean that they do not make repayments even though there is a relatively strong system to collect repayments. No alternative means of repayment are provided	

[14] One example is Crowborough, Zimbabwe.

4.5 Mobilisation, savings and non-housing loans

> "To make sure my savings and loan repayment remained healthy [while I was building the first floor and still repaying the AMT loan], I had set a target of KES50 daily. I would ensure I kept this amount every day. So I would rather eat vegetables without meat than skip saving this KES50 for loan repayment." (SW, Kambi Moto)

The Muungano Alliance asked us to analyse recent savings mobilisation to understand better the potential for savings to support loans for housing. We selected Mukuru, as this is the area in which the Alliance has been concentrating mobilisation in recent years. In this section, we return to Mukuru to discuss Muungano's ongoing work to mobilise residents into savings groups for these reasons, and to support the community to organise and engage with ongoing planning processes. What do we learn from this experience with respect to the speed with which savings can accumulate and provide the basis for investment?

Residents in Mukuru have responded rapidly to the opportunities generated by Muungano's mobilisation efforts. Starting with small loans helps savings group members increase earnings, strengthens their systems, and builds their confidence to take on bigger projects such as the purchase of land and the construction of houses (Weru et al, 2018). AMT's loaning model is designed for inclusivity: by giving loans to a group, collective support and security is provided for those who might be struggling. In other words, the stronger carrying the weaker is part of the design, in order to leave no one behind in the process of developing Kenya's informal settlements.

As at the end of December 2018, the Muungano Alliance had already succeeded in mobilising the Mukuru community (of around 100,000 households) to form 438 savings groups, each with an average of 16 members, and this work was continuing in 2019. We looked at data from 61 of these savings groups, all of which had formed before April 2018, and analysed their savings activity between April and September 2018 (Table 18). Several of these groups are already taking small and large AMT loans for livelihood activities and most are saving for this purpose.

Table 18: Savings data on 61 Mukuru savings groups, for savings activity that took place between April and September 2018

Average number of group members	15
Overall ratio women to men (%)	54:46
Average year of formation	2014
Average total group savings (KES)	120,993
Min total groups savings (KES)	700
Max total group savings (KES)	2,583,818
Average individual savings (KES)	6,753

As many groups are relatively recent, some even formed in 2018, we also looked in more detail at three more mature Mukuru groups and tracked their savings activity over three to four years between 2015 and mid-2018 (Table 19). This highlights the difficulty that groups face if their goal is inclusive development; while many members of the groups manage to maintain their savings, several other group members face difficulties in saving in at least some months.

Table 19: Savings activity of three Mukuru savings groups between January 2015 and June 2018

Group	2015	2016	2017	2018
KUB (all men)	25 members. All save KES2800/month except four members. Shortfalls in April, May, June and July	25 members. All save KES2800/month except two members, who both saved KES2700 in all months: these two members both saved the set amounts in 2015	26 members. All save KES2800/month except two members. These two do not save at all. One of these had problems the previous year but not in 2015	25 members: one who joined 2017 has left. Monthly amount has increased to KES3150. All have saved this from Jan–Jun 2018 except for five members. Of these five, three had no problems previously; one had problems in a previous year; one had problems in two previous years.
MDSHG (mixed)	26 members; 11 men, 15 women. No set savings requirement: savings range from KES50–1,000 a month. Seven people save in all months. One member does not save at all	21 members; seven men, 14 women. No set savings requirement. Savings range between KES25 and KES1000 a month. Four save in all 12 months. Two members do not save at all	17 members; 3 men, 14 women. There is no established savings requirement. Savings range between KSh 50-1000 a month. Only one person has saved in all 12 months. Savings has fallen	11 members; three men, eight women. Two members have saved in the five recorded months
GGSHS (all women)	Five members began saving in July: four saved KES200/month; one saved this amount for three months then withdrew their savings and in 2016 left group	Seven members. None saved in December. Savings range from KES50–400/month	Ten members. Saving is irregular, ranging between four to nine months. No one saved in December	Ten members: two new and two have left. Savings still irregular although two have saved for all of the five months recorded

5 Conclusion and areas for further research

Promoting scaled-up housing development among lowest income populations in neighbourhoods that are being upgraded calls for flexible and affordable financing mechanisms. Such mechanisms need to stimulate innovative incremental housing development; provide a mix of common/shared basic services and finance for private services; encourage both financial and in-kind contributions; leverage subsidies from

public and private sectors; and provide permanent access to finance for generally enhancing livelihoods and household income. Despite the scale of need across towns and cities in the global South, there has been very little considered analysis of the financial and construction processes that can ensure adequate quality shelter for low-income households. The emphasis on housing finance to date has been on the acquisition of dwellings by individual households and does not provide substantive lessons for inclusive residential developments.

This paper has looked at the lessons emerging from the Muungano Alliance's innovative approaches to secure inclusive housing in Kenya and explored what can be learned from its interventions to date. These efforts include two informal settlement upgrades (Kambi Moto and Ghetto) as well as greenfield developments in Nakuru.

Comparing existing loan instalments with current repayment levels in informal settlements in section 4, together with information such as the narrative testimonies of housing loan beneficiaries in Kambi Moto, Huruma, expected loan repayment levels have not been met in all cases. Where data were available, we found that average repayments for housing loans in the neighbourhoods studied varied from 57% to 74%.

Loan management systems for livelihood loans have been strengthened in the past five years and this has been successful in raising average repayment rates across the livelihood loan portfolio from 76% in 2012 to 93% in 2016. In Mukuru – a recent area of expansion for AMT livelihood lending which has benefited from the stronger systems from the beginning – numerous groups have repaid multiple loans on time. The Alliance has committed to working to strengthen its loan management systems for housing, too, anticipating that this can improve levels of repayment. Participants at the reflection workshop emphasised the importance of good accountability at the savings group level, which goes back to groups' structures and systems, and made commitments to learn from the evidence presented to them.[15] Savings groups must be responsible for their own practice, while their structures and systems must make it possible to deliver the results communities and AMT want to deliver. However, community systems must also balance accountability for repayments with the need to avoid increasing the vulnerabilities related to debt for very low-income households, recognising that informal settlement communities are hugely diverse and heterogeneous places (see Box 3).

As illustrated in section 4.2, housing subsidies appear to be needed if the commitment to 'leave no-one behind' is to be realised and housing loans are to be affordable to all. Our analysis suggests that there is value in considering both interest rate and capital subsidies, and both may be needed. It is important that loans do not exceed 12 years;

[15] Indeed, the impact of this report on internal loan management already appears to be significant. Six months after the reflection session, repayments from Nakuru (excluding the first group) rose to 77%, and those for Ghetto are now around 70%. The increase includes both higher monthly repayments and significant amounts being contributed by some households to cover previous shortfalls. The repayments appear to reflect greater awareness in groups of their lack of payments and a willingness to address this situation.

ideally, they would be shorter. Securing subsidy finance requires the Alliance to engage actively with relevant government agencies. Community loan management systems cannot do the impossible and secure repayments from very low-income households if subsidies are not available. While the Kenyan government's Affordable Housing Program plans to provide subsidy finance, the level of repayments and length of loans both appear to be high, based on the experience reported here.

Early in section 4 we discuss AMT's housing loan assessment process, which we recognise is a work-in-progress. This does not seem to be effective in assessing a household's ability to afford a housing loan. The loan appraisal form does not fit well with the realities of extended families. This is a difficult task in a context where many people work informally or without steady incomes, and where other extended family members sometimes help with loan repayments. Notwithstanding this shortcoming, the form has not helped to identify high-risk loans. AMT is using an innovative approach in Ghetto and is just offering funding for foundations to see if this secures the housing consolidation with less debt (and hence better repayments).

Housing consolidation has been considerable (Section 4.4). Ninety-six per cent of dwellings in Kambi Moto and 100% of households in Ghetto have had made additional investment beyond the ground-floor 'starter unit' financed by the AMT loan. Fifty-one per cent and 25% have reached three or more floors in Kambi Moto and Ghetto, respectively. The value of these investments is roughly $856,000.

There is some evidence of an association between higher repayment rates and greater housing consolidation in Ghetto, although the numbers are small. Considerable investment in commercial space has taken place but there is no evidence of an association between commercial activity and repayment levels. A considerable amount of renting is taking place; 43% of dwellings in Kambi Moto have some rental activity, as do 52% in Ghetto. There is no evident association with repayment levels. Accounting for periods of non-occupancy, rental income in Ghetto is similar to the required loan repayment. In Kambi Moto rents are higher than loan repayments.

Outstanding challenges remain for the Alliance, to which this paper has contributed additional information.

1. External recognition of the affordability crisis: For AMT, the approach used for financing any housing project should consider affordability/unaffordability. The Muungano Alliance recognises the need for subsidy finance. How is the government involved? To what extent and how would this have an impact on loans and loan repayment? What is the potential of the President's Affordable Housing Programme?
2. External factors and their impact on loan management: What are the relevant external factors that influence repayment? For example, is construction fully or partly donor-funded? How does this influence people's expectations and are there any misconceptions with this? Do institutional changes or management of projects and/or the group, or Muungano internal politics, affect repayments?

3. Heterogeneity of housing expectations vs leaving no one behind: Have the people who have benefited to date from the projects highlighted in these data included the most vulnerable and lowest-income in their settlements? Is this analysis relevant to them and what else should be factored in? If some people are unable to take a housing loan because of the cost, or are unwilling and prefer to continue to rent and invest their savings elsewhere, what can be done to ensure that no one is left behind in an upgrading, especially *in-situ*?
4. Capital constraints: Muungano's current mobilisation efforts in Mukuru and elsewhere to establish new savings groups and strengthen existing ones – including the savings groups discussed in section 4.5 – represent, among other things, an enormous pool of new demand for AMT's livelihood and housing loans. Can AMT afford to go to scale at the current financing model, to meet demand for livelihood and housing loans represented by its current and new members in ways that are affordable? How can it raise both the subsidy finance and the loan capital to support all Muungano members to achieve the decent housing and dignified lives they need?
5. Longer term financing options: In Weru et al (2017), the Trust acknowledges that serving low-income people is an expensive affair, and AMT currently lacks adequate capital for its lending, community training, capacity development and operations. The ambition is that AMT, while building its own capital base with which to strengthen new Muungano groups by creating technical capacity and giving smaller starter loans, will also focus more on fostering linkages to enable community groups access to an increased range of financial services and government funds for larger loans. What, if anything is the potential of housing cooperatives? How, if at all, can the considerable finance that residents have invested in the area be captured for the common good (as well as benefiting individuals)?

Sharing lessons to influence the country's housing programmes: Beyond focusing on weaknesses and failures in the current systems and outcomes, it is important to acknowledge that Muungano and AMT do what others have failed to but which is central to development goals: ie to leave no one behind. The challenges Muungano needs to address are there because others have failed. The Alliance has gone a long way in its process and is now in a new phase of learning that responds to the political opportunities it has already been able to create. It is critical that this learning become central to the development of Kenya's Affordable Housing Program as well as to new federation housing projects, particularly *in-situ*.

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