

Analyses of the Housing Status and Access to Basic Infrastructure in Nairobi City County: Disparities and Deprivation Index

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Introduction

Access to basic infrastructure is a key constituent and a prerequisite for affordable housing. Article 43(1)(b) of the Constitution of Kenya stipulates that access to adequate housing and reasonable sanitation standards is a right for all citizens. Further, the provision of affordable housing is prioritized as one of the National Government's pillars of growth under the "Big Four" agenda, which targets to provide 500,000 decent housing in major cities and towns across various counties in Kenya alongside basic infrastructure to address the housing deficit.

Under the Affordable Housing Project (AHP), Nairobi City County is among the counties prioritized for the initial phase of the AHP as it accounts for the highest housing deficit. About 60 per cent of Nairobi County residents live in informal settlements characterized by inadequate housing and dilapidated infrastructure. One of the critical constituents for affordable housing is access to basic infrastructure and quality housing, often lowly regarded in the planning and development of affordable housing projects. The rate of urbanization in Kenya is projected to remain high, with at least 50 per cent of the population living in urban areas by 2050. This poses a challenge in access to affordable access to basic infrastructure, especially in cities.

Therefore, an in-depth analysis of intra-county disparities in housing conditions and access to basic infrastructure is key for targeted affordable housing policy interventions to match the growing population. A Multidimensional Housing Deprivation Index (MHDI) was developed to capture and evaluate a set of housing deprivations and capture indicators that highly contribute to multidimensional housing deprivation in Nairobi County. The analysis involved defining MHDI dimensions, indicators, deprivation cutoffs and weights, and computation of incidence;

intensity defined over a set of indicators. Further analysis entailed the decomposition of MHDI by household sub-group characteristics, including poverty status, amount of rent paid, and housing ownership status to give a high-resolution lens on deprivation.

Multidimensional Housing Deprivation Index (MHDI) serves as a policy-prescriptive tool in addressing housing deprivation in all its dimensions. The MHDI framework involved defining dimensions, indicators, deprivation cutoffs, and weights. The analysis involved computation of the housing deprivation incidence, intensity, and decomposition of MHDI by sub-groups. Therefore, assessing the current housing status, particularly on housing quality, access to basic infrastructure, and defining the housing deprivation index provides a critical input to the ongoing projects and provides insights into the key areas of policy intervention.

Intra-County Disparities in Access to Basic Infrastructure and Housing Conditions

Access to basic infrastructure

Distinctive disparities show in access to basic infrastructure and housing conditions across sub-counties in Nairobi County. The primary energy source for lighting is electricity, with more than 94% of households across counties using grid electricity. On the contrary, the use of clean cooking fuels compared to lighting sources with 67.2% of housing using clean cooking fuels. Sub-counties with a higher usage of LPG include Embakasi (70.4%), Langata (70.9%), Kasarani (75.1%), Westlands (73.9%), Njiru (68.3%), and Dagoretti (66.7%). Kibra (43.7%), Mathare (46.2%) and Makadara (59.2%) show relatively lower usage of LPG as clean cooking fuel. The penetration of electricity biogas and solar as clean and modern

sources is low across the sub-counties. Nairobi County ranks among the best performing counties in use of clean cooking fuel in Kenya. However, the pockets of energy poverty are evident across the sub-counties, especially in slum areas. Therefore, there is need to undertake a location-specific intervention in promoting LPG by targeting the energy-deprived at a disaggregated level.

Safe and improved water sources are accessed by most of households in Nairobi Sub-counties. However, the share of households connected to piped water into dwelling in Kasarani (34.8%), Starehe (27.4%), Kamukunji (26.9%), and Langata (26.9%) is seemingly higher compared to other improved sources. Notably, sub-counties with a dominant population in slums and informal settlements, including Kibra, Mathare, Makadara, and Dagoretti, mainly rely on public water stands and water vendors, showing that the residents are adversely affected by water scarcity from the providers. Lack and irregular supply of piped water is instigated by poor planning and dilapidated piping system infrastructure.

Access to basic improved and safely managed sanitation is also critical to the health and well-being of individuals and communities. Overall, 72.4% of the population are non-deprived. In comparison, 27.6% are deprived of safely managed sanitation, with more than half of the deprived households situated in Kibra sub-county. Despite a significant proportion having access to basic sanitation, the majority are still using unsafe and unimproved sanitation. Disparities show across the counties such as Kasarani (88.1%), Embakasi (86.0%), Makadara (84.5%), and Westlands (82.9%), with a high proportion of the population having access to organized solid waste collection modalities. Kibra records the highest deprivation across all the sub-counties, with more than half (57.5%) of the population having no access to organized solid waste collection modalities. Most of the households in Kibra dump solid waste in the streets and waterways.

Internet access is also considered a basic critical amenity for households' welfare. The population above 3 years using the Internet stood at 52.4%, with disparities showing across the sub-counties. Regions with a higher proportion of low-income earners such as Mathare, Kibra, Kamukunji, Dagoretti, and Njiru have less than half of the specified population with no access to Internet.

Further, about 28% of the population above three years use desktops/ computers /tablets. The highest proportion of the specified population is in Mathare, Kamukunji, Kibra, Dagoretti, and Njiru, showing lower use levels. This implies that penetration of ICT devices is still low, even in an urban setup.

Housing conditions

House renting is the primary form of house tenure in Nairobi sub-counties, as homeownership is far from the reach of most households. Inheritance is more prevalent in Mathare (42.0%), Kamukunji (34.3%), Kibra (28.0%), and Dagoretti, which comprises some of the oldest estates in Nairobi County, with higher level of inheritance. The majority (98.7%) of households have durable roofing material and are spread out across the sub-counties. On the contrary, the wall material presents lower quality standards across the sub-counties, with Kibra (63.4%), Makadara (51.0%), and Dagoretti (57.1%) leading. The deprivation in quality floor material in Kibra and Mathare is significantly high compared to other sub-counties.

Multidimensional Household Deprivation Index in Nairobi City County

Multidimensional Housing Deprivation Index is a product of the incidence of deprivation (percentage of deprived) and intensity of deprivation (average deprivation share of the households that are deprived of housing). The MHDl score for Nairobi County stood at 0.195, which means 19.5% of multidimensionally deprived households are deprived in at least three of the weighted indicators. The incidence (0.407) of housing deprivation indicates that 40.7 per cent of households are multidimensional deprived, suggesting that 4 out of 10 households were deprived. Further Intensity (0.48) showed that, on average, multidimensional deprived households were deprived in 48 per cent of weighted indicators. The indicators that contribute highest to MHDl includes cooking fuel (26.7%), Internet (18.8%), garbage collection (18.7%), and handwashing facility (12.2%). In turn, the indicators that contribute the least to MHDl include lighting source (5.4%), drinking water (1.1%), toilet facility (8.9%) and wall material and floor material contributing 7.0% and 1.3%, respectively.

Decomposition of the Multidimensional Housing Deprivation Index by poverty indicates that deprivation (0.434) among the poor is higher than the overall MPI reported at (0.195) while the non-poor MPI stands at 0.167. Regarding the contribution of each indicator for the poor and non-poor, differences in composition of housing deprivation were revealed. The largest contributor for the poor sub-group stems from clean cooking fuel (26.6%), hand washing facility (11.3%), garbage collection (18.5%), access to Internet (18.5%) contributes more to housing deprivation and similar indicators contributing the highest among the non-poor. Further, the results show a significant difference in Intensity (A) and MHDl and between poor and non-poor households. Notably even non-poor households are deprived in certain components of housing.

Distinctive differences show in the composition of MHDl among the higher and lower rent brackets. The MHDl is larger (0.221) for \leq Ksh 10,000 rent category compared to 0.7 for the $>$ Ksh 10,000 rent category. This indicates that multidimensional housing deprivation is higher among households in the lower rental bracket. The contribution of each indicator across the rent categories indicates that the largest contributor for Ksh \leq 10,000 rent category was cooking fuel (26.7%), hand washing facility (12.2%), garbage collection (18.2%), Internet access (19.2%). Further MHDl for $>$ Ksh 10,000 rent category is primarily influenced by cooking fuel (30.0%), handwashing facility (15.0%), garbage collection (30.0%), and toilet facility (15.0%). Notably, MHDl is not significantly different across the rent categories. Therefore, households paying higher and lower rent experience multidimensional housing deprivation. In addition, the incidence of deprivation is higher among the higher renters and statistically significant.

The MHDl is higher for households not paying rent with consent from the owner at (0.243) than the owner-occupier (0.202) and renters at 0.192. Further, the Incidence (I) of deprivation is high among households not paying rent at 51.9% compared to renters (40.3%) and owner-occupier at 36.7%. The MHDl for the category not renting category is influenced mainly by cooking fuel (28.3%), toilet facility (10.9%) (12.2%), handwashing facility (13.0%), garbage collection (19.6%), and Internet access at 15.2%. The differences in the contribution of indicators and dimensions to MDHI reflect the inequalities and disparities in access to basic amenities and housing conditions in relation to ownership of dwelling units.

Policy Implications

With a significant proportion of households across the sub-counties still relying on non-clean cooking fuels, adopting a location-specific intervention approach in promoting the use of LPG among other cleaner sources is vital in deriving targeted clean cooking solutions at a disaggregated level. There is also need to intensify campaigns on promoting LPG and introducing a direct subsidy on LPG appliances such as cylinders and cookstoves, targeting the energy-poor households to switch from traditional biomass fuels.

A significant proportion of households across the sub-counties have lower access to piped water, especially those with a dominant population in slums and informal settlements. Therefore, there is need for the housing sector regulatory agencies to ensure the enforcement of the existing legal provision on physical planning, land use, and zoning regulations to ensure that designated areas for installation of piped water network are not encroached.

With the contribution of owner-occupier and rental tenure category to MHDl reportedly high, there is need to improve access to basic infrastructure in both areas, with both high and low renters in reducing the multidimensional housing deprivation in Nairobi County. Also, rental housing should follow the planning requirements provided in the Physical and Land Use Planning Act 2019 to ensure compliance in the provision of basic infrastructure.

MHDl indicates cooking fuel, access to the Internet, garbage collection, handwashing facility, toilet facility, and wall material are key priority areas that require policy intervention to reduce the housing deprivation levels in Nairobi County. Therefore, there is need for a multisectoral approach to provide seamless, integrated planning in providing basic infrastructure, with a key focus on basic infrastructure. The County Development Plan should incorporate the specific areas of intervention based on the level of deprivation.

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