Strategizing the Decennial Census of Housing for Poverty Reduction in Kenya

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Abstract

As the world gropes for an understanding of and solutions to poverty, one of its typologies that has come to the fore is housing poverty. Housing poverty afflicts developing countries in particular, and solving it may bring about solutions to other forms of poverty. One of the strategies that can be used to promote the understanding of housing poverty, and hence show the way to its reduction, is the decennial census of housing. This essay intends to determine whether the decennial census of housing can be used as a strategy for the reduction of housing poverty in Kenya. It evaluates the whole census business and recommends that some of the missing UN-recommended housing topics be incorporated in order to give a complete picture of housing poverty in the country. It also recommends that the analysis and reporting of the census survey should be more sensitive to the geographical and social extents of housing poverty. This would transform the decennial census of housing into an effective strategy for poverty reduction in Kenya and, for that matter, in any developing country in the world.

Introduction

Poverty is one of the greatest contemporary social challenges to mankind. Considerable attention has been paid to it both by researchers and policymakers at local, national, regional and global scales. On the policy front, various strategies and programmes such as poverty reduction strategy papers (PRSPs) and millennium development goals (MDGs) have been formulated to fight it. On the research front, studies have been initiated in order that poverty should be better understood so that it can be fought effectively. Research or information generation is therefore a prerequisite strategy for the understanding and hence the reduction of poverty. One of the advances in understanding made so far is that poverty has many facets, contrary to the original perception that confined poverty to the income factor only (Wratten, 1995).

One of the typologies of poverty that has come out strongly is housing poverty (Pugh, 1995; Tipple and Korboe, 1995). Housing poverty in this case is defined as any deprivation that an individual, household or community faces in the process of consuming housing; such deprivations arising principally from inadequacies in the housing available. The extreme form of housing poverty is homelessness. Housing can be strategic in poverty reduction in that solving its inadequacies will help solve other aspects of poverty such as poor health (UNCHS, 1996).

Housing poverty or inadequacy has three important aspects: quantity, quality and cost. These three are interrelated as detailed in the following discussion. Information on quantity or the supply aspect is relevant in establishing whether there is enough housing stock to cater to the current level of household aggregate. When the stock is insufficient, certain households are likely to go without housing (homelessness), or share the

available stock (overcrowding), or be forced to consume housing that does not meet the minimum standards of quality specifications (informalism). This last term is a direct reference to informal settlements or slums in developing countries. The housing stock in this category is poor or inadequate in quality. Indicators of quality in this case will include construction materials, and the availability of services like water, sanitation and solid waste disposal.

Cost is also pertinent to the consumption of housing as it is the primary factor that determines accessibility by households. In some cases housing stock may be quantitatively adequate, but, when the cost of accessing it (in terms of purchase prices or rents) is high, then households may be forced to crowd up to share the cost or resort to poor-quality housing as already indicated. Housing costs may also generate other aspects of poverty, as explained in the essay.

The housing market, like any other market, is characterized by factors of demand and supply. Quantity and quality aspects can be put on the side of supply (production factors) while cost — specifically referring to affordability — may be put on the side of demand (consumption factors). Imbalance in these factors may result in housing poverty. Secondly, any imbalances in these factors require policy intervention. To detect these imbalances comprehensive data is required that covers the aspects of quantity, quality and costs. Such data can only be provided by a statistical programme like the decennial census of housing.

A recent African symposium on statistical development held in Cape Town, South Africa, noted that one of the bases for the update of the census programme for the African region is increased policy relevance of topics (Anon, 2006). In the case of housing, one of its most useful policy application areas is poverty reduction. This essay therefore looks at how the decennial census of housing can be tweaked in Kenya so as to contribute to the noble objective of poverty reduction within the sector and over a broader perspective. The UN-recommended housing topics are used as a framework for assessing the coverage of the census topics. From this, the assessment proceeds to current data analysis and presentation practices. In both cases, vital suggestions are made for the improvement of the decennial census of housing in Kenya.

Principles of housing census

Background and definition

Carrying out a population census is a centuries old tradition in the countries of the world. Caven *et al*. (1998) have cited its historical beginnings in the Book of Exodus and attributed its administrative and fiscal usage to the Roman Empire. In the US, the first census was taken in 1790. Kelman (1985) suggested that the US was the first country in the world to take a regular population census, although Diamond (1999) indicated that the first censuses occurred in the Scandinavian countries in the early eighteenth century. However, a census of housing was first taken in the US in 1940 (US Bureau of the Budget, 1963). In the UK, population censuses have been conducted every ten years since 1801, apart from 1941 when they were interrupted by the second world war (Boyle and Dorling, 2004). In the year 2000, China — the most populous country in the world, conducted a remarkable census that involved 10,000 tons of questionnaires and 5 million enumerators (Lavely, 2001).

More often than not, the census is conducted as a population and housing census (Casley and Lury, 1981). According to Benjamin (1970: 31), dwellings and people are inseparable, hence 'it is customary in most countries to conduct the housing census simultaneously with, and as an integral part of, the population census'. Because households are the enumeration units, 'it is difficult to carry out a population census without at the same time carrying out a large part of a housing census' (*ibid.*: 31). Generally, in Africa until 1970, according to Kiregyera (1986), population censuses were

conducted separately from housing censuses. Since then, both censuses have been combined to form a population and housing census, a move that has achieved economy in both financial and logistical resources. This is a boon for developing countries where such resources are scarce.

The UN (1965) defined a census as the total process of collecting, compiling, evaluating, analysing and publishing demographic, economic and social data pertaining, at a specific time, to all persons in a country or in a well-delimited part of the country. It provides a national inventory, a picture of the situation existing at the time of the census (Casley and Lury, 1981). Housing information can be classified under social/economic data for these purposes. A census of housing is useful in making a housing inventory, portraying the state of housing and generally amassing large amounts of data pertaining to the production and consumption of housing at a specific time in a country. The UN (1997: 3) has defined housing census as: 'the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating statistical data pertaining, at a specified time, to all living quarters and occupants thereof in a country or in a well-delimited part of a country'.

A census has four basic characteristics, namely: individual enumeration, universality within a defined territory, simultaneity and regular periodicity (UN, 1997). Individual enumeration means that a census survey, as opposed to a sample survey, covers each and every unit of the population. Universality means that the same data collection instruments and procedures are applied to all units of the population so as to enable aggregation and comparability. This will involve the use of same questionnaire schedule for all units or a particular group of units of population. Simultaneity means that the count is taken at the same time period within the spatial limits of the population. The census must also take place within regular periods of time. The periodicity recommended in most census manuals is ten years, preferably using years ending in 0 or 1 (Casley and Lury, 1981). Decennial census of housing therefore refers to a situation where the census of housing takes place every ten years, as is the case in Kenya.

Housing census models

The four characteristics mentioned above (individual enumeration, universality, simultaneity and regular periodicity) characterize the traditional or conventional census model. The conventional model varies from country to country, but involves field surveys and enumeration of the entire population. Some countries use a uniform schedule. In this case a single form is used to survey and collect data from the entire population. In other cases, a combination of census and sample surveys is conducted, using short and long forms.

The short form is used to collect brief but essential information about every unit of the population (which here means households) while the long form is used to collect more detailed information from a sample of the population simultaneously. In the 2000 census of China, for example, the short form contained two items about housing — i.e. number of rooms and floor area; the long form included questions on the use and age of the dwelling, construction materials, fuel use, source of water, type of sanitary facilities, housing tenure, and the value of monthly rent of the property (Lavely, 2001). In the case of the US, the short form of the 2000 census contained only one question on tenure (rent or own), while the long form included several other questions on housing (Carliner, 2001)

The long form has been in use in the US for a long time and is now being dispensed with (Waite and Reist, 2005). The data from the long form will in future be collected through the American Community Survey, which has a sample size of 3 million housing units (Alexander and Tupek, 2003). The UK used the conventional model in its 2001 census with an innovative mail-back procedure whereby enumerators dropped off the questionnaires to the population and the population filled them in and mailed them back

to the Office of National Statistics (Cook, 2004). Although believed to be the most advanced census operation in the world, the UK's 2001 census was dismissed as a bygone legacy of the 'pen and paper' era (Boyle and Dorling, 2004). This implies that the information the census seeks to find out through field survey could easily be obtained from computerized records (Martin, 2006).

The conventional model has come under serious challenge by alternative models that are already in use in some countries today (UN-DESA, 2004). The alternative models include a combination of administrative sources, household surveys, satellite imagery and use of the internet (*ibid.*). Countries in Western Europe and Scandinavia are routinely moving away from the conventional census model to the utilization of routinely collected data (rolling surveys) plus data from administrative registers (Boyle and Dorling, 2004), although Griffin (1999) believes register-based estimates may never replace censuses altogether, even in Europe.

The logic behind the use of administrative records is that where data on individuals or households already exists, it is cost-effective to rely on this information. In cases of information gaps in these administrative records, then rolling surveys can be used to fill the gaps instead of a complete census (Boyle and Dorling, 2004). The countries that have moved away from the conventional model in this direction include France (Durr, 2005), the Netherlands (Nordholt, 2005), Denmark (Cook, 2004), and Finland (Myrskylä, 1991). France, for example, uses the rolling census model that involves enumeration of population by means of a continuous survey covering the whole country over a period of time rather than in temporal simultaneity (Durr, 2005). Finland on the other hand solely uses administrative registers (Myrskylä, 1991). The country keeps a Register of Buildings and Dwellings from which housing data is obtained. Germany also plans to adopt a new model for its 2011 census, owing to legal problems that have crippled the use of the conventional model (Szenzenstein, 2005).

The topics of a housing census

The contents of the housing component of the Kenyan census can be seen in part D of the 1999 census questionnaire as shown in the appendix. It consisted of ten entries on housing attributes under the following topics: dwelling units, tenure status, construction materials (roof, wall and floor), main source of water, main type of sewage disposal, main cooking fuel and main lighting fuel. The 1989 census did not have questions about the number of dwelling units and rooms (CBS, 2002). The rest of the questions remained the same for the 1999 census. The topics of the 1989 census were selected from a list of topics recommended by the United Nations for investigation in housing censuses (CBS, 1996). According to the CBS, the 1999 Census questionnaire included topics aimed at meeting national needs and international comparison (CBS, 2002).

The current UN-recommended housing census topics are contained in the *Principles of and Recommendations for Population and Housing Censuses Revision 1* (UN 1997). The topics covered in housing censuses are not as controversial as those dealt with in population censuses. In the latter, topics such as ethnicity, religion and income have raised a lot of controversy in the US and UK (see, for example, Aspinall, 2000; Cook, 2004; Schor, 2005). The US census, for example, is always characterized by litigation and political outcry; as discussed by Mitroff *et al.* (1983) on the 1980 census, O'Hare (1992) on the 1990 census and, Weakliem and Villemez (2004) on the 2000 census.

The importance of housing censuses

A housing census is a costly and resource-demanding exercise but it has to be conducted because of its importance in social development. The census serves various purposes including the following:

1 Census data is collected on a compulsory 100% basis thereby eliminating the problems of bias and sampling errors associated with other data sources like sample surveys and administrative records (DoE, 1980). Sample surveys and administrative records are particularly inadequate for Africa (Kiregyera, 1986).
2 Because it is a compulsory enumeration, a census is able to provide data down to the smallest geographical area (Boyle and Dorling, 2004). Hence data will be available for planning in any local area.
3 In Africa, a census contributes to the development of national statistical services and to the development of social statistics (Kiregyera, 1986).
4 The census helps in providing baseline information upon which further and specific research may be based.
5 A census presents the opportunity for time series data that allows for longitudinal analysis, inter-temporal comparisons, trend analysis, change detection, etc.
6 It also helps in the rapid assessment of housing requirement that would guide the formulation of housing policy (DoE, 1980).
7 The results of the census also guide the allocation of resources (assuming there are resources to be allocated) both sectorally and spatially: sectorally, when the results indicate the need to allocate more resources to housing, and spatially when results indicate the need to allocate more housing resources to particular areas or regions.
8 In terms of its use, census data is useful to policy-makers in the public sector, private sector decision-makers and housing researchers (O'Hare, 1992).

The last three points have direct implications for poverty reduction. The objective of a rapid assessment of housing requirements is most relevant. This is the objective that would indicate the housing needs of particular regions or particular sections of society. These would then guide the allocation of resources and policy-making in endeavours to reduce housing poverty.

The limitations of housing censuses

The DoE (1980) has pointed out that the limitations of the census as an instrument for the acquisition of useful housing data include: long intervals, a finite capacity for data processing, inadequate content and the inability to capture information on fitness and disrepair. According to the DoE (1980), the census cannot provide direct estimates of unfitness and disrepair under self-enumeration or enumerator-assisted schemes because to do so requires technical judgment. It would require enumerators who are trained in building construction and maintenance if such data were to be captured.

We have seen that, conventionally, censuses are conducted decennially; although in a number of countries including Japan, Turkey, Australia, Canada and South Africa the census is conducted quinquennially (May and Lehohla, 2005). The ten-year intercensal interval is very long, especially for dynamic societies. The gist of the matter is that whatever is happening in between the years is not captured statistically. Furthermore, because the census covers every household, only a limited set of questions can be included in the census schedule for ease of data collection, compilation, analysis and dissemination. The finite capacity of data processing systems is also an issue. It has always caused undue delays in the release of census results, especially in African countries.

Moreover, impossible as it is to separate housing censuses from population censuses because of the disadvantages this would entail, housing censuses are limited by this interconnection. First, as we have seen, the political objectives of a population census result in its being marred with political controversy, which may easily end in legal action. In the US, for example, this has forced the Census Bureau to concentrate on fulfilling legal requirements to the detriment of more pressing social and economic statistics (O'Hare, 1992). Political interference can take place in other ways too. Briscoe (2000) has pointed out that governments can use their monopoly of statistics to political advantage in various ways, such as distorting, suppressing or postponing figures that

portray its own economic performance unfavourably. In this light Huchzermeyer *et al.* (2006) have expressed doubts as to whether governments of developing countries do not deliberately hide or ignore housing poverty through an inadequate portrayal of informal settlements in the official statistics. Lastly, housing has always remained a subsidiary item in the construction and administration of the census instruments.

Overview of the census of housing in Kenya

History of the housing census in Kenya

Housing censuses have their roots in population censuses in Kenya. Population censuses in this case can be historically categorized into the colonial and post-colonial. Kenya has had the experience of conducting a population census six times within a time span of about 50 years. The first census was conducted in 1948 and the last in 1999; the seventh census is due in 2009. In the colonial era two censuses were conducted, one in 1948 and the other in 1962.

In post-colonial Kenya, the census has been held decennially since 1969. Until 1999 the exercise was simply known as the Population Census. But in the 1989 exercise a housing component was included in the population census. The housing component was retained in the 1999 census; hence Kenya has only seen one round of a decennial census of housing. The 1969 census used the short and long forms, while the 1979 one used a single uniform schedule, as was the case in 1989 and 1999.

Prior to the 1989 census, there was no comprehensive national survey of housing in Kenya. The best attempt that had been made at a comprehensive housing survey was the 1983 Urban Housing Survey that covered 32 urban centres. The housing component was introduced in the Kenyan census because of the failure of past housing surveys to provide reliable and comprehensive information for the planning and management of housing. This is the reason why it was necessary to include questions pertaining to housing conditions and amenities in the 1989 census (CBS, 1996).

Census methodology

The Census of Population and Housing is conducted under the statutory provisions of the Statistics Act, chapter 112 of the laws of Kenya (Kenya, 1982). The Act gives the Director of Statistics power to collect information from households through the census. The task usually begins with the mapping out of enumeration areas. Generally an enumeration area contains 100 households. Usually, after the census instruments have been designed, a pilot survey is held to test them. This is then followed by the actual enumeration and a post-enumeration survey (CBS, 2001a).

A *de facto* enumeration approach is generally adopted. In this approach, everybody who is in the country is enumerated according to where she/he spends the night on the census reference date. The 1999 census was conducted using a single schedule that enabled information on population and housing to be integrated; hence housing data could be related to demographic and other socio-economic characteristics of households (CBS, 2002). Other logistic advantages include reduction of the burden on respondents' time and reduction in the cost of census planning and execution. Enumeration is done through enumerator interview. Self-enumeration is not possible due to high levels of illiteracy or semi-literacy.

Clear instructions are given to the enumerators in the caution of neutrality. It says: 'Please note that most people are usually polite, especially to strangers. They tend to give answers that they think will please the interviewer. It is therefore extremely important that you remain neutral towards the subject matter of interview. Do not show any surprise, approval or disapproval of the respondent's answer by your tone of voice or facial expression' (CBS, 2001b). But the instruction is also self-defeating in such a

situation of illiteracy. When the enumerator remains strictly neutral, it means that the respondent's answer is taken as given even if it is outright wrong. This might be forgivable in demographic surveys, but not in housing surveys where the enumerator could see things by making his or her own personal observations, such as ascertaining the source of water. This has led to some blatant errors in the final tabulations as I have pointed out (K'Akumu, 2006).

The CBS reports that prior to the 1999 census key users of the housing census data 'provided useful contributions to the information most required for assessing housing conditions and formulation of housing programmes' (CBS, 2002: 5). This is the reason, for example, that the 1999 Census contained two questions about number of dwelling units and rooms per household, which was not considered during the 1989 Census.

Census objectives

The 1989 census that introduced the component of housing to the population census had the following objectives (CBS, 1994a):

1 To provide information on the size, composition and distribution of the population
2 To collect information on current trends and levels of fertility, death rates and migration
3 To ascertain the current rate and pattern of urbanization
4 To determine the size and composition of the labour force
5 To provide information on social amenities available to the population

It is unfortunate that the statement of objectives did not recognize housing. Housing is only implied in the last objective on social amenities. This is so because up to this time the architects of the census did not think of housing as a distinct part of it. The 1999 census on the other hand had the following objectives (CBS, 2001a). To collect data on:

1 The composition and spatial distribution of the population
2 Levels of education attained by population
3 Levels of fertility, mortality and migration rates
4 The rate and pattern of urbanization
5 The size and utilization of the labour force
6 Housing conditions and availability of social amenities

The last objective indicates that the 1999 census went a step further by mentioning housing as one of its data objectives despite the prominence of population objectives. It also had the appropriate title: Population and Housing Census. This was the first time housing was recognized as part of the traditional population census. Special note should be taken of the fact that the 1989 census introduced the housing topics into the census but its title remained Population Census.

Housing census topics in Kenya

The UN-recommended census of housing topics is used as the framework for the evaluation of topics covered in the Kenyan census. Table 1 represents the range of topics and the extent of their coverage in Kenya.

Part D of the census questionnaire has the entries for housing, but other topics are also covered within the rest of the questionnaire, which shows the advantages of using a uniform schedule. The range of topics starts with the building type. This topic, classified under Building, is not covered in Kenya. A building type, for residential purposes, refers to the type of structure; that is, whether the unit is attached, detached or storeyed and whether it is a single dwelling or a multi-dwelling. This, however, may not be particularly relevant in housing poverty indexing.

Table 1 UN recommended housing census topics and coverage in Kenya

Unit of Enumeration	UN-Recommended Topics	Kenyan Coverage
Building	1 Building − type of	Not covered
	2 Construction material of outer walls	H13-H15
	3 Year or period of construction	Not covered
Living Quarters	4 Location of living quarters	Covered
	5 Living quarters − type of	Covered
	6 Occupancy status	Not covered
	7 Ownership − type of	H12
	8 Rooms − number of	H11
	9 Floor space − useful and/or living	Not covered
	10 Water supply system	H16
	11 Toilet and sewerage facilities	H17
	12 Bathing facilities	Not covered
	13 Cooking facilities	H18
	14 Lighting − type of and/or electricity	H19
	15 Solid waste disposal − type of	Not covered
	16 Occupancy by one or more households	Not covered
	17 Occupants − number of	Covered
Households/occupants of living quarters	18 Demographic and economic characteristics of head of household	
	Age	P12
	Sex	P11
	Activity status	P30
	Occupation	P30
	19 Tenure	H12
	20 Rental and owner-occupied housing costs	Not covered

Source: Constructed with information from UN (1997) and CBS (2001a/b)

The second topic, construction material of outer walls, is covered (see H13–H15). In the Kenyan census more questions on the materials used for housing elements (the floor and the roof) are included, which is good. The topic, year of construction, however, is not touched. This would be a very good indicator of the stock of housing produced in each year, which could then be contrasted with the annual rate of household formation to ascertain the shortfall in housing provision. This is very important for the quantitative aspects of housing poverty, although it may not be useful where renters are concerned.

Under Living Quarters, the topic of location may be derived from the entries on province, district, division, location and sub-location. These are administrative locations which have no urban reference, while housing poverty is known to be acute in urban areas. For housing purposes, these have been criticized for hiding the geographical identity of the urban phenomenon of informal settlements (K'Akumu, 2006).

Type of living quarters is another recommended topic that has been covered. It corresponds to 'household type' in the Kenyan census questionnaire. CBS (2001a; 2001b) divides households into conventional and non-conventional. Non-conventional households involve groups of persons who live together but cannot be said to belong to an ordinary household: examples include hospitals, schools, colleges, barracks, prisons etc. But the scope of the UN's topic, living quarters, goes beyond this to include structural details, for example whether the unit in question is a conventional, temporary, mobile or marginal housing unit. The UN classifies informal settlements under marginal housing units and defines these as 'those units that do not have many of the features of a conventional dwelling and are generally characterized as unfit for human habitation' (UN, 1997: 103). A classification of dwelling units is therefore necessary in Kenya to ascertain the informal settlements or non-conventional, hence inadequate, housing.

The topic, occupancy status, refers to whether a conventional dwelling is occupied or vacant at the time of the census. This information may be useful in demonstrating which geographic regions or housing classes (low-, medium- or high-income) are oversupplied.

Unfortunately, capturing this data in a population and housing census is impractical because the census is based on households. Where households do not exist, no information is collected. The topic, ownership, on the other hand is related to that of tenure and is adequately catered for in the Kenyan census questionnaire on tenure status. Tenure will distinguish homeowners and renters and give the distribution of capital wealth in housing. From these distributions we can infer gender, racial and some other disparities in housing wealth distribution.

The topic, number of rooms, is also covered for Kenya under H11. Number of rooms can be analysed against household size to give an indication of overcrowding, which then demonstrates degree of housing inadequacy. Where conventional housing is concerned, the number of rooms is a sufficient indicator since the rooms are subject to certain minimum size standards. But where informal settlements are concerned, the rooms are not built to any minimum standards, hence the need for a different measure — in this case the UN-recommended topic, floor space. In Kenya, this topic is not included, but ought to be. The topics, water supply system and sewerage facilities, are well covered under H16 and H17 for Kenya. Bathing facilities, on the other hand, are not covered as recommended by the UN. But this is not a critical indicator of housing poverty. Cooking and lighting facilities are also well covered in H18 and H19.

Under the living environment one critical recommended topic that is not covered by the Kenyan census is the method of solid waste disposal. This is a very important indicator of the level of solid waste pollution, which is a characteristic problem of informal settlements. Another topic that is not covered is occupancy by one household or more. This is an indicator of overcrowding, especially when one dwelling unit is occupied by more than one household. The number of occupants, as required under recommended topic 17, can, however, be summed up from the household totals in the census questionnaire.

As far as the occupants of the living quarters are concerned, their demographic and economic characteristics such as age, sex and occupation, can be derived from parts A and B of the census questionnaire covering population aspects. One pertinent topic is that of rental and owner-occupied housing costs. The consumption of housing can also induce other forms of poverty, for example if a household is spending more of its disposable income on housing, it is left with less to purchase other goods and services such as clothing, food and healthcare, thereby compounding its poverty status. Data on housing expenditure is therefore necessary so as to reflect this, as explained in the introduction under demand factors.

The Kenyan questionnaire also has a slot on dwelling units, regarding how many dwelling units the household occupies (H10). This was added when the contents of housing topics were improved for the 1999 census. But the practical importance of this information is not entirely apparent. This information may not be necessary at this stage, hence the slot could be given to more pertinent questions.

Generally, the census in Kenya covers certain vital topics as recommended by the UN and as necessary for the monitoring of housing poverty. But at the same time, it does not cover others that are equally vital, as pointed out in the foregoing discussion. These therefore need to be included in the census so as to improve its strategic position as an instrument for the monitoring of housing poverty.

Reporting the census of housing in Kenya

The Population and Housing Census of Kenya is usually reported at two levels: general and analytical reports. The general reports are usually in two volumes. Volume I of the 1999 census for example gives statistics on population distribution by administrative areas, age, sex, and urban centres. Volume II on the other hand presents basic results on educational attainment, labour force participation, type of housing and

source of water. The analytical reports on the other hand present statistics on specific social and economic aspects of the population. There are nine analytical reports that cover the following:

1 Population dynamics
2 Fertility and nuptiality
3 Mortality
4 Migration and urbanization
5 Population projections
6 Education
7 Labour force
8 Housing conditions and household amenities
9 Gender dimension

Census data is reported according to administrative regions, namely provinces and districts. There are eight provinces: Nairobi, Coast, Central, Eastern, Northeastern, Rift Valley, Western and Nyanza. The provinces are divided into smaller administrative units known as districts. The district is the local planning level of the central government. It is also the main stop point for policy implementation of the central government. Urban centres fall under specific districts, hence there is no specific data for them. Their data is subsumed in the district data that combines both urban and rural areas. Only Nairobi and Mombasa have not suffered this fate, thanks to the former being a province and the latter a district town.

I have pointed out elsewhere (K'Akumu, 2006) that aggregation of data according to districts camouflages the acute housing problems in urban areas. The CBS has admitted, regarding the 1999 census, that their analysis could not be taken to the level of slums/informal settlements because the enumeration areas that fall within these settlements were not uniquely coded during the mapping exercise (CBS, 2002). This is an indication that housing is not given proper attention in the census design and execution since the critical elements that require immediate development intervention like spatial location of informal settlements are not given priority.

The 1989 Census did not produce a general report on housing. Its volume two report was on urbanization, which was the main theme of the census (CBS, 1994b). In any event, it had not been intended to be a housing census. For the 1999 Census, volume II is dedicated to a socio-economic profile of the population and gives details on housing conditions and amenities. Tables are available for the number of households by:

1 Main type of roof materials for the main dwelling unit
2 Main type of wall materials for the main dwelling unit
3 Main type of floor materials for the main dwelling unit
4 Main source of water

For 1, statistics are given in terms of number of households and percentages for type of roof materials: iron sheets, tiles, asbestos, grass, makuti, tin, and other. These statistics are banded for the whole of Kenya and for provinces. Under each province, apart from Nairobi, figures are disbanded into districts.

For 2, statistics are given in terms of number of households and percentages for types of wall materials: stone, brick/block, mud/wood, wood only, iron sheets, grass/reeds, tin, and other. The banding and disbanding of statistics are as in 1.

For 3, statistics are given in terms of number of households and percentages for type of floor materials: cement, tiles, wood, earth, and other. The same banding and disbanding of statistics are repeated.

For 4, statistics are given in terms of number of households and percentages for main source of water: pond, dam, lake, stream/river, spring, well, borehole, piped, jabias/tanks. *Jabias* is said to refer to 'rain water harvested from any catchments into a hole/tank and used for domestic purposes' (CBS, 1996). The banding and disbanding of statistics are repeated as in the rest.

The next section presents a detailed review of the analytical reporting of the census of housing in Kenya.

Analysis of indicators

Household characteristics

The analytical report considers household data which was not part of the housing census data but, as has been noted, this is an advantage of joining a population census with a housing census. The analytical report for the 1999 Census, for example, provides a tabulation of household heads by sex, so we can isolate female-headed households from male-headed ones. The intention, evidently, is to show gender-related vulnerabilities arising from housing needs. This is commendable, but analysis according to age is also necessary so as to isolate child-headed households. The 1989 analytical report came closer to this by giving tabulation on median age for household head by district. However, it would be useful to distribute households according to actual ages or age cohorts of household heads. The 1999 report also provides a tabulation of rates of household formation, which would be useful in the projection of housing needs, especially in urban areas. The report provides a discussion of household sizes, but no tabulation is given.

Accommodation size

The report considers accommodation characteristics under various attributes. Tabulation is available for total number of dwelling units countrywide, in urban or rural regions, and at provincial and district levels. For these categories columns exist for number of dwelling units, as has been said, and for number of rooms, number of households, population figures, rooms per dwelling unit, average household size, average persons per room and median household size. This tabulation is useful in determining the adequacy of housing in quantitative terms. For example, it is easy to see the level of overcrowding by glancing at the average number of persons per room. But this statistic is not precise, as it talks of rooms in a dwelling unit, which would include the kitchen and the living and dining rooms according to the census definition. More precise statistics can be found in the tabulation of percentage distribution of households by number of rooms occupied in selected towns. This tabulation takes a range of 1-7 rooms. A 7-roomed house would typically be a 4-bedroomed house with the kitchen, living and dining rooms as three extra rooms. The tabulation reveals, for example, that 66.6% of the households in Nairobi live in single rooms. This is an expression of dire housing need given that the same report found the average household size for Nairobi to be 3.24. Tabulation for the whole country also exists, giving national and provincial figures with urban and rural bandings.

Housing tenure

The analytical report for the 1999 Census provides data on tenure status (either owned or rental) for housing according to male- or female-headed households. National and provincial figures are given for these. A detailed tabulation on the distribution of households by tenure and number of rooms occupied is also available. The number of rooms range from 1 to 5+ in columns. The numbers of households are given both in absolute figures and in percentages. Statistics are given in national or provincial bands and according to rented or owned housing in the rows. This is a complex cross-tabulation that gives useful comparative information regionally (urban or rural) and provincially. Housing tenure, as has been noted under census topics, provides a vital indication of the geographical and social distribution of housing wealth or lack of it.

Table 2 Housing quality scores

Score	Roof	Wall	Floor	Water	Sewage	Cooking	Lighting
1	2 and 3	1 and 2	2	8 and 9	1, 2 and 3	1	1 and 6
2	1 and 4	4 and 5	1	5	4	6 and 3	2
3	5 and 6	3	3	6 and 7	5	2	3
4	7	6 and 8	4	4 and 3	6	5	4
5		7		2 and 1		4	5

Source: CBS (2002: 42)

Construction materials and social amenities

Construction materials can give a rough indication of the quality of housing. For example, if the floor is made of earth, this is a clear indication of inadequate housing. Also, building materials have been standardized in the building codes, which makes it easy to determine whether shelter meets set standards or not. The report presents tabular analysis of materials used in the construction of the main dwelling house. This is in terms of percentage distributions of households by roof materials, by wall materials, and by floor finish for selected urban areas: Nairobi, Mombasa, Nakuru, Kisumu, Eldoret, Thika, Ruiru, Nyeri, Malindi and Kakamega.

For social amenities, tabulations are given in terms of percentage of households by:

1 Two main sources of water (piped and boreholes) in selected towns
2 Two main types of human waste disposal facilities (main sewer and pit latrines) in selected towns
3 Two main type of lighting fuel (electricity and paraffin) in selected towns

Energy consumption statistics are not presented at all in the general report. They are only presented in the analytical report. Apart from 3 above, there are tabulations on distribution of households by main type of lighting fuel by province and distribution of households by main type of cooking fuel. Statistics are given for national, regional (urban and rural), and provincial categories. Both tabulations also give the 1989 data alongside data for 1999, which is useful for time series comparison. The availability or not of these amenities have implications for the environmental conditions of housing and hence housing poverty.

Housing quality index

There has been an attempt to construct a multiple-criteria housing quality index under the chapter on Consolidated Approach to Housing Quality both in the 1989 and 1999 analytical reports. This is intended for analysing the housing situation in the country and as an indicator of the standard of living of the population. The 1999 census analysis has used a consolidated quality matrix for housing and related amenities (CBS, 2002). The quality matrix includes variables on construction materials and basic social amenities. The variables are given scores that are consolidated for every household, as shown in Table 2. The numbers in each table column except the first represent the materials as coded in the questionnaire (see appendix). Since there are seven items, the top consolidated score (score 1 for each item) would be 7, while the lowest score (score 5 for each item) would be 35. The consolidated scores are aggregated and then ranked. Ranking is done as follows: 1 for scores 7-11; 2 for scores 12-16; 3 for scores 17-21; 4 for scores 22-26; 5 for scores 27-31; and 6 for scores 32-35. Rank 1 has the attribute of high-quality housing; 2 good-quality; 3-4 average-quality; and 5-6 poor-quality.

The results of these scores are unbelievable. They indicate that only 0.6% of urban households live in poor-quality housing, with a majority of 66.2% enjoying high- to good-quality housing; quite an incredible picture for a country where over 60% of the urban population live in informal settlements. With results like these, who needs to bother about improving urban housing conditions in the country? The same report under a table of Households with Number of Rooms indicates that 58.9% of households in urban areas live in single rooms (CBS, 2002: 19). All these rooms are most likely to be found in informal settlements where housing conditions are known to be inadequate. The ranking requires serious revision to reflect the actual housing conditions of the population. As it is now, it is skewed to reflect good housing conditions.

Homelessness index

Homelessness is the extreme case of housing poverty, as noted earlier. The analytical report on housing considered a homelessness index for urban centres in Kenya. In the analysis, the homelessness index was expressed as 'the number of people per thousand of the urban population who sleep outside dwelling units' (CBS, 2002: 13). The analysis reported low rates (an average of two homeless persons per thousand) for the urban population in Kenya, noting that high rates of homelessness were recorded in transit towns. This is because those who were travelling, hence were not spending the night at home, were captured as homeless persons. This is an inaccurate position and brings into question the method of census used in Kenya.

As has been noted, Kenya uses the *de facto* enumeration. This is in contrast to the *de jure* method used in other countries such as Israel whereby household members are enumerated according to their recent or permanent residences (Kamen, 2005). The *de facto* method could be suitable for a population census, especially where the objective is just to count in a stock-taking way by freezing everything just to establish how many people there are. However, this method is not ideal for a housing census inasmuch as anybody who did not spend the night in a dwelling on the date of the census is considered as homeless, regardless of the reasons for being without a dwelling, such as travelling overnight. In this case a *de jure* census is appropriate since it would establish who lives where, even if that person is not present on the night of the census.

Conclusion

The essay has taken a comprehensive look at the organization and execution of the decennial census of housing in Kenya. The main objective is to assess its suitability as an information–gathering strategy for the purposes of understanding and monitoring the magnitude and character of housing poverty in the country. It indeed presents great potential for monitoring housing poverty in these respects, given its longitudinal character that creates potential for the build-up of time series data. Nevertheless, it is also characterized by certain shortcomings, especially concerning census topics, reporting and analysis.

The topics covered by the census of housing in Kenya fall short of the UN recommendations, particularly with respect to topics that have a serious bearing on the character and magnitude of housing poverty. These have been discussed in detail and appropriate recommendations made for each case. Likewise, in the analysis and reporting of census results, certain shortcomings have been pointed out and recommendations made with the object of making the census exercise more suitable for portraying housing poverty in Kenya.

By portraying housing poverty more accurately and hence enabling policy-makers and investors to make informed decisions, housing poverty would be effectively reduced. The reduction of housing poverty on the other hand would contribute to poverty

reduction in general. In this way, the decennial census of housing in Kenya could form an effective strategy for poverty reduction. But the Kenyan situation is not different from that of many developing countries in the world. The housing poverty situation is common to developing countries (Aldrich and Sandhu, 1995; Pugh, 2001). Consequently, Kenya's achievement could be replicated in other developing countries where the census of housing could be utilized as a primary strategy for poverty reduction.

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Résumé

Tandis que le monde cherche à comprendre la pauvreté et à lui trouver des solutions, l'une des typologies manifeste aujourd'hui est la pauvreté du logement. Elle affecte notamment les pays en développement et sa résolution pourrait permettre de résoudre d'autres formes de pauvreté. L'une des stratégies qui servirait à faciliter la compréhension de ce type de pauvreté, donc à ouvrir la voie vers son recul, est le recensement décennal de l'habitat. Cet article vise à établir si un recensement décennal de l'habitat pourrait servir de stratégie pour le recul de la pauvreté du logement au Kenya. Il évalue l'ensemble de l'activité de recensement et conseille que certaines rubriques de logement qui manquent dans les recommandations de l'ONU soient intégrées afin de donner une image complète de la pauvreté du logement national. De plus, il propose que l'analyse et le compte rendu du recensement tiennent davantage compte des champs géographiques et sociaux de la pauvreté du logement. Cela ferait du recensement décennal de l'habitat une stratégie efficace de diminution de la pauvreté au Kenya et, d'ailleurs, dans tout autre pays en développement au monde.

REPUBLIC OF KENYA

Population and Housing Census – 24/25 August 1999 (CONFIDENTIAL)

Province □	District □□	Division □□	Location □□	Sub-Location □□	E.A. Number □ □ □	Structure No.:S_____
				Household Totals:	Males: □□□□	Household No. □ □ □ Household Type □ Females: □□□□ Total: □□□□

A: Information Regarding All Persons

Serial Number of Form: **3342941**

Name (P-00)	Serial No.	Relationship (P-10)	Sex (P-11) Male	Sex (P-11) female	Age (P-12)	Tribe Nationality (P-13)	Religion (P-14)	Marital Status (P-15)	Birth Place (P-16)	Previous Residence (P-17)	Duration of Residence (P-18) (P-19) Month	Duration of Residence (P-18) (P-19) Year	Orphaned (P-20) (P-21) Y	N	DK	Is...'s mother alive? Y	N	DK
What are the names of all persons who spent the night of 24/25 August 1999 in this household? (Record two names of all pesons young and old, starting with the head of the household)	What is ....'s relationship to the head of the household? 1-Head 2-Spouse 3-Son 4-Daughter 5-Brother/Sister 6-Father/Mother 7-Other relative 8-Non relative 9-NS/DK	What is ....'s Sex Mark X in the appropriate box		How old is......? (Record age in completed years using two digits. If under one year write '00')	What is ....'s tribe or nationality? (Write tribe code for Kenyan Africans and country of origin code for other Kenyans and & non Kenyans. The code list is shown inside front and back side covers).	What is ....'s Religion? 1-Catholic 2-Protestant 3-Other Christian 4-Muslim 5-Traditionalist 6-Other Religion 7-No Religion 8-NS/DK	What is ....'s marital status? 1-Never married 2-Monogamous 3-Polygamous 4-Widowed 5-Divorced 6-Separated 7-NS/DK	Where was .... born? (Indicate district code if in Kenya or country code if outside Kenya. The code list is shown inside the front and back covers). Mark X in the box if the same district as houshold district.	Where was ....Living in August 1999? (Indicate district code if in Kenya or country code if outside Kenya. The code list is shown inside the front and back covers). Mark X in the box if the same district as houshold district.	When did ....move to this district? (Code '00' in P-18 & P-19 if enumerated in district of birth. Write '99' in P-18 & P-19 if not known).			Is........'s father alive? Y-Yes N-No DK-Don't Know Mark X in the appropriate box			Is........'s mother alive? Y-Yes N-No DK-Don't Know Mark X in the appropriate box		
□	□ 1	□	□	□	□□	□□	□	□□□	□□□	□□□	□□	□□	□	□	□	□	□	□
□	□ 2	□	□	□	□□	□□	□	□	□□□	□□□	□□	□□	□	□	□	□	□	□
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Appendix – The Kenya 1999 population and housing census questionnaire

B: Information Regarding Persons aged 5 years and above

Serial No.	Education (P-22)	(P-23)	(P-24)	Labour force Particulars (P-30)
	What is the school attendance status of ....? 1-At school 2-Left school 3-Never went to school 4-NS/DK 5-Under 5 years	What is the highest level reached by .....? (Write appropriate code using the categories shown inside the front cover) (Code 97 If P-22 = 3)	What is the highest level completed by ....? (Write appropriate code using the categories shown inside the front cover) (Code 97 If P-22 = 3)	What was .... Mainly doing during the last 7 days preceding the Census night? 01-Worked for pay 02-On leave/sick leave 03-Worked on own/family business 04-Worked on own/family Agricultural holding 05-Seeking work available 07-Full time student 08-Retired 09-Incapacitated 10-Homemaker 11-Other
□ 1	□	□□	□□	□□
□ 2	□	□□	□□	□□
□ 3	□	□□	□□	□□
□ 4	□	□□	□□	□□
□ 5	□	□□	□□	□□
□ 6	□	□□	□□	□□
□ 7	□	□□	□□	□□
□ 8	□	□□	□□	□□
□ 9	□	□□	□□	□□
□ 0	□	□□	□□	□□

C: Information Regarding Females aged 12 years and above

Particulars of all Live Births

(P-40) Boys	Grils	(P-41) Boys	Grils	(P-42) Boys	Grils	(P-43) Boys	Grils	(P-44) Boys	Grils	(P-45) Boys	Grils	(P-46) Boys	Grils	(P-47) Boys	Grils

(P-40) How many children have you born alive? Mark X in the box and fill single digit only for 10 and above.

(P-42) How many children have you born alive who usually live in this household? Mark X in the box and fill single digit only for 10 and above.

(P-44) How many children have you born alive who usually live elsewhere? Mark X in the box and fill single digit only for 10 and above.

(P-46) How many children who have died? Mark X in the box and fill single digit only for 10 and above.

Particulars of Last Live Birth

(P-48) Boys	(P-49) Grils	(P-50)	(P-51)

(P-48) When was your last child born?

(P-50) Was it a male or female? 1-Male 2-Female 3-Male twins 4-Female twins 5-Male-female twins 6-Multiple births 7-Don't know

(P-51) Is this child still alive? 1-Yes 2-No 3-Both twins 4-One of the twins 5-All the multiples 6-Two of the multiples 7-One of the multiples 8-None of the multiples 9-Don't know

D: Housing Conditions and Amenities. To be Asked of the Household Head or Any Other Responsible Persons

Dwelling Units (HD)	(H11)	Main Dwelling Units Tenure Status (H12)	Dominant Construction Materials of Main Dwelling Units (H13)	(H14)	(H15)	Main Source of Water (H16)	Main Type of Human Waste Disposal (H17)	Main Cooking Fuel (H18)	Main Type of Lighting (H19)
How many dwelling units does this household occupy?	How many habitable rooms does (do) this (these) dwelling units contain?	If owner occupied state whether 1.Purchased 2.Constructed 3.Inherited 4.Government 5.Local Authority 6.Parastatal 7.Private company 8.Individual 9.Other form of tenure	ROOF: 1.Corrugated iron sheet 2.Tiles 3.Concrete 4.Asbestos sheets 5.Grass 6.Makuti 7.Tin 8.Other	WALL: 1.Stone 2.Brick/Block 3.Mud/Wood 4.Mud/Cement 5.Wood only 6.Corrugated iron sheets 7.Grass/Reeds 8.Tin 9.Other	FLOOR: 1.Cement 2.Tiles 3.Wood 4.Earth 5.Other	1.Pond 2.Dam 3.Lake 4.Stream/River 5.Spring 6.Well 7.Borehole 8.Piped 9.Jabias/Tanks 10.Other	1.Main sewer 2.Septic tank 3.Cess pool 4.Pit latrine 5.Bucket latrine 6.Bush 7.Other	1.Electricity 2.Paraffin 3.gas 4.Firewood 5.Charcoal 6.Solar 7.Other	1.Electricity 2.Pressure lamp 3.Lantern 4.Tin lamp 5.Fuel wood 6.Solar 7.Other
□□□	□□	□	□	□	□	□	□	□	□

Structure No. of continuation form: □□□□□□□