

Free State: Informal settlements status



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The Housing Development Agency (HDA)

Block A, Riviera Office Park,
6 – 10 Riviera Road,
Killarney, Johannesburg
PO Box 3209, Houghton,
South Africa 2041
Tel: +27 11 544 1000
Fax: +27 11 544 1006/7

Acknowledgements

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Contents

PART 1: Introduction	3
<hr/>	
PART 2: Data sources and definitions	4
2.1 Survey and Census data	4
2.2 Other Data from Stats SA	8
2.3 National Department of Human Settlements (NDHS) and LaPsis	8
2.4 Eskom's Spot Building Count (also known as the Eskom Dwelling Layer)	8
PART 3: The number and size of informal settlements In the Free State	9
<hr/>	
3.1 Estimating the number of households who live in informal settlements	9
3.2 Estimating the number of informal settlements	12
PART 4: Profiling informal settlements in the Free State	14
<hr/>	
4.1 Basic living conditions and access to services	14
4.2 Profile of households and families	16
4.3 Income and other indicators of wellbeing	16
4.3.1 Income	16
4.3.2 Other indicators of wellbeing	17
4.4 Age of settlements and permanence	18
4.5 Housing waiting lists and subsidy housing	22
4.6 Health and vulnerability	22
4.7 Education	24
PART 5: Conclusions	25
<hr/>	
PART 6: Contacts and references	26
<hr/>	
PART 7: Appendix: Statistics South Africa surveys	27
<hr/>	
7.1 Community Survey 2007	27
7.2 General Household Survey	27
7.3 Income and Expenditure Survey 2005/6	28
7.4 Census 2001	28
7.5 Enumerator Areas	28

List of abbreviations


CORC	Community Organisation Resource Centre
EA	Enumeration Area
GHS	General Household Survey
GIS	Geographical Information Systems
GTI	GeoTerraImage
HDA	Housing Development Agency
HH	Households
IES	Income and Expenditure Survey
LaPsis	Land and Property Spatial Information System
NDHS	National Department of Human Settlements
PSU	Primary Sampling Unit
Stats SA	Statistics South Africa

PART 1

Introduction

In terms of the HDA Act No. 23, 2008¹, the Housing Development Agency (HDA), is mandated to assist organs of State with the upgrading of informal settlements. The HDA therefore commissioned this study to investigate the availability of data and to analyse this data relating to the profile, status and trends in informal settlements in South Africa, nationally and provincially as well as for some of the larger municipalities. This report summarises available data for the Free State province.

¹The HDA Act No.23, 2008, Section 7 (1) k.



PART 2

Data sources and definitions

A number of data sources have been used for this study. These include household level data from the 2001 Census and a range of nationally representative household surveys. Settlement level data was also reviewed, including data from the NDHS, the HDA and Eskom.

There is no single standard definition of an informal settlement across data sources, nor is there alignment across data sources with regard to the demarcation of settlement areas. It is therefore expected that estimates generated by various data sources will differ.

It is critical when using data to be aware of its derivation and any potential biases or weaknesses within the data. Each data source is therefore discussed briefly and any issues pertaining to the data are highlighted. A more detailed discussion on data sources is provided in the national report on informal settlements.

2.1 Survey and Census data

Household-level data for this report was drawn from various nationally representative surveys conducted by Statistics South Africa including 2007 Community Survey (CS)², the General Household Survey (GHS) from 2002 to 2009 and the 2005/6 Income and Expenditure Survey (IES)³. In addition, the study reviewed data from the 2001 Census⁴.

The census defines an informal settlement as 'An unplanned settlement on land which has not been surveyed or proclaimed as residential, consisting mainly of informal dwellings (shacks)'. In turn, the census defines an 'informal dwelling' as: 'A makeshift structure not erected according to approved architectural plans'. In the 2001 Census all residential Enumeration Areas (EAs)⁵ are categorised as either Informal Settlements, Urban Settlements, Tribal Settlements or Farms. In addition, dwellings are categorised as either formal dwellings⁶ or informal dwellings, including shacks not in backyards, shacks in backyards and traditional dwellings. There are therefore two potential indicators in the 2001 Census that can be used to identify households who live in informal settlements, one based on enumeration area (Informal Settlement EA) and the other based on the type of dwelling (shack not in backyard).

² The Community Survey is a nationally representative, large-scale household survey. It provides demographic and socio-economic information such as the extent of poor households, access to facilities and services, levels of employment/unemployment at national, provincial and municipal level.

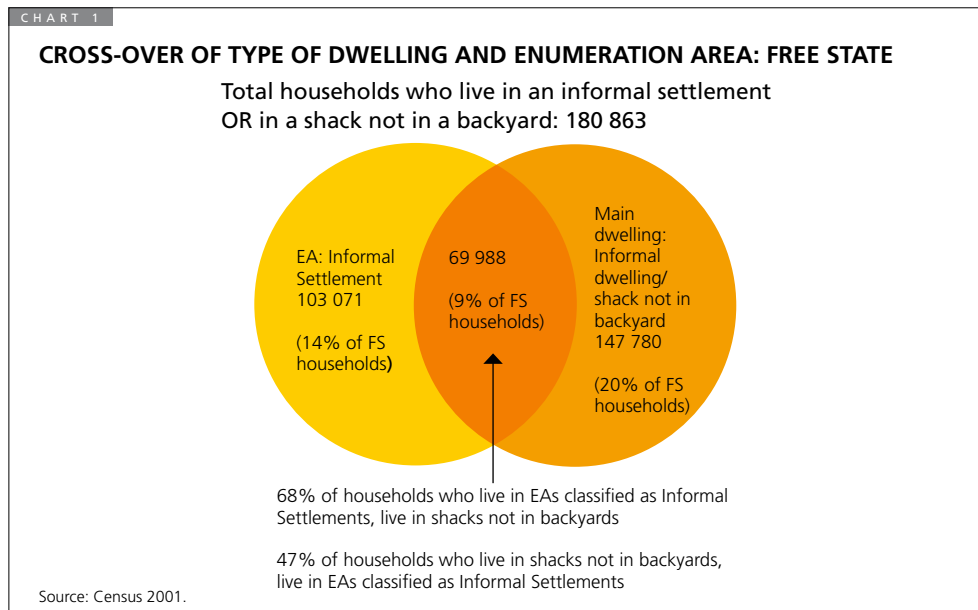
³ The Income and Expenditure Survey was conducted by Statistics South Africa (Stats SA) between September 2005 and August 2006 (IES 2005/2006). It is based on the diary method of capture and was the first of its kind to be conducted by Stats SA.

⁴ The Census data is available for all SA households; where more detail is required the 10% sample of this data set is used. Choice of data set is highlighted where applicable.

⁵ An EA is the smallest piece of land into which the country is divided for enumeration, of a size suitable for one fieldworker in an allocated period of time. EA type is then the classification of EAs according to specific criteria which profiles land use and human settlement in an area.

⁶ Formal dwellings include house or brick structure on a separate stand, flat in a block of flats, town/cluster/semi-detached house, house/flat/room in backyard and a room/flatlet on a shared property.

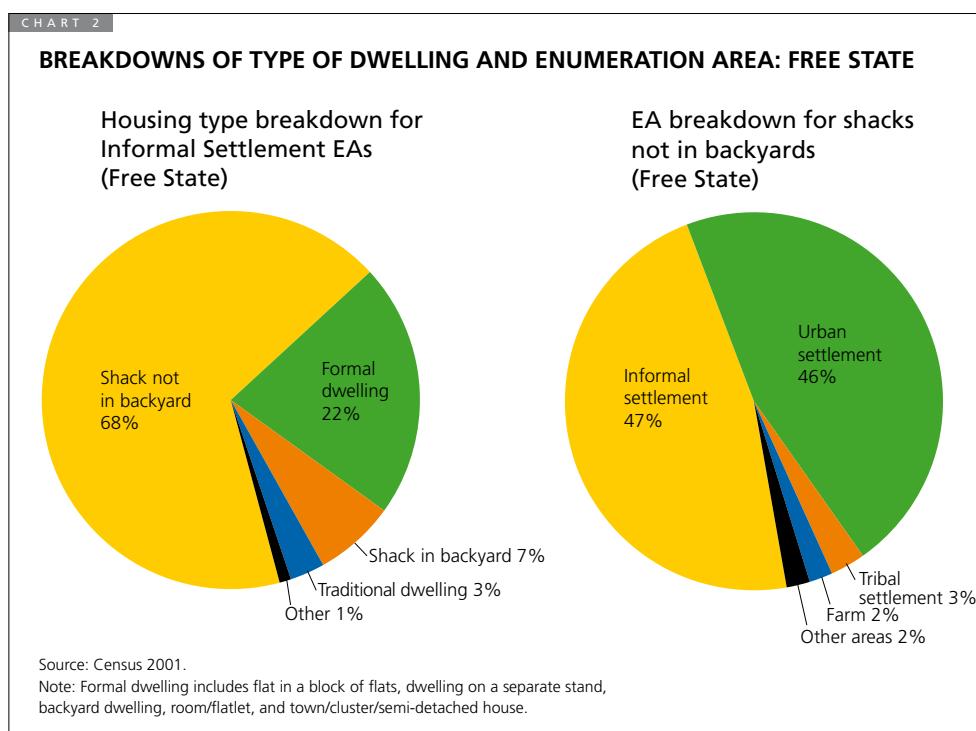
According to the 2001 Census, 148,000 households in the Free State (20% of households) lived in an informal dwelling or shack not in a backyard in 2001 while 103,000 households (14% of households) lived in enumeration areas that are characterised as Informal Settlements. Just under 70,000 households lived in both.



Unlike census data, survey data does not provide an EA descriptor. However, surveys do provide an indication of dwelling types, aligned with the main categories defined in the census. In the absence of an EA descriptor for informal settlements, the analysis of survey data relies on a proxy indicator based dwelling type, namely those who live in an 'Informal dwelling/shack, not in backyard e.g. in an informal/squatter settlement'.

Census data can provide an indication of the suitability of this proxy. According to the Census, of those households in the Free State who live in EAs categorised as Informal Settlements, 68% live in shacks not in backyards. A further 22% of households in these EAs live in formal dwellings, 7% live in shacks in backyards (it is not clear whether the primary dwelling on the property is itself a shack) and 3% live in traditional dwellings.

Conversely the data indicates that 53% of all households in the Free State who live in shacks not in a backyard do not, in fact, live in EAs categorised as Informal Settlements. 46% live in EAs categorised as urban settlements and 3% live in Tribal Settlement EAs.



The analysis based on surveys using the dwelling type indicator 'shack not in backyard' to identify households who live in informal settlements should therefore be regarded as indicative as there is insufficient data in the surveys to determine whether these households do, in fact, live in informal settlements as defined by local or provincial authorities.

A further challenge with regard to survey data relates to the sampling frame. In cases where survey sample EAs are selected at random from the Census 2001 frame, newly created or rapidly growing settlements will be under-represented. Given the nature of settlement patterns, informal settlements are arguably the most likely to be under-sampled, resulting in an under-count of the number of households who live in an informal settlement. Further, if there is a relationship between the socio-economic conditions of households who live in informal settlements and the age of the settlement (as it seems plausible there will be) a reliance on survey data where there is a natural bias towards older settlements will result in an inaccurate representation of the general conditions of households who live in informal settlements. This limitation is particularly important when exploring issues relating to length of stay, forms of tenure and access to services. A second word of caution is therefore in order: survey data that is presented may under-count households in informal settlements and is likely to have a bias towards older, more established settlements.

An additional consideration relates to sample sizes. While the surveys have relatively large sample sizes, the analysis is by and large restricted to households who live in shacks not in backyards, reducing the applicable sample size significantly. Analysis of the data by province or other demographic indicator further reduces the sample size. In some cases the resulting sample may be too small for analysis (especially in the GHS).

TABLE 1 SAMPLE SIZES IN THE DIFFERENT SURVEYS									
	Census 2001			Community Survey 2007		Income and Expenditure Survey 2005/6		General Household Survey 2009	
	Total number of households	Total number of households living in shacks not in a backyard	Households living in informal settlement EAs	Total survey sample size	Sample size for households living in shacks not in a backyard	Total survey sample size	Sample size for households living in shacks not in a backyard	Total survey sample size	Sample size for households living in shacks not in a backyard
Free State	757 908	147 780	103 071	15 302	2 058	1 754	228	2 371	168

Source: Census 2001 (10% sample), Community Survey 2007, IES 2005/6, GHS 2009; Household databases.

A final consideration relates to the underlying unit of analysis. Survey and census data sources characterise individuals or households rather than individual settlements. These data sources provide estimates of the population who live in informal settlements as well as indications of their living conditions. The data as it is released cannot provide an overview of the size, growth or conditions at a settlement level⁷ although it is possible to explore household-level data at provincial and municipal level depending on the data source and sample size.

The definition of a household is critical in understanding household level data. By and large household surveys define a household as a group of people who share a dwelling and financial resources. According to Statistics SA 'A household consists of a single person or a group of people who live together for at least four nights a week, who eat from the same pot and who share resources'. Using this definition, it is clear that a household count may not necessarily correspond to a dwelling count; there may be more than one household living in a dwelling. Likewise a household may occupy more than one dwelling structure.

From the perspective of household members themselves the dwelling-based household unit may be incomplete. Household members who share financial resources and who regard the dwelling unit as 'home' may reside elsewhere. In addition, those who live in a dwelling and share resources may not do so out of choice. Household formation is shaped by many factors, including housing availability. If alternative housing options were available the household might reconstitute itself into more than one household. Thus, while the survey definition of a household may accurately describe the interactions between people who share a dwelling and share financial resources for some or even most households, in other cases it may not. The surveys themselves do not enable an interrogation of this directly.

⁷It may be possible for Statistics South Africa to match EA level data from the 2001 Census to settlements to provide an overview of specific settlements. Given that the Census data is ten years old, and that conditions in informal settlements are likely to have changed significantly since then, the feasibility of this analysis was not established.

2.2 Other data from Stats SA

A dwelling frame count was provided by Stats SA for the upcoming 2011 Census. The Dwelling Frame is a register of the spatial location (physical address, geographic coordinates, and place name) of dwelling units and other structures in the country⁸. It has been collated since 2005 and is approximately 70% complete. The Dwelling Frame is used to demarcate EAs for the 2011 Census⁹.

There are 62 sub-places in the Free State with at least one EA classified as 'Informal Residential'¹⁰, totalling 227 EAs (covering a total area of 37.79 square kilometres). There are Dwelling Frame estimates for 52 (84%) of these 'Informal Residential' EAs, totalling 20,146 Dwelling Frames. Since the Dwelling Frame is only approximately 70% complete, and not all units are counted within certain dwelling types, the count should not be seen as the official count of dwellings or households within the EA Type.

2.3 National Department of Human Settlements (NDHS) and LaPsis

The 2009/2010 Informal Settlement Atlas compiled by the NDHS indicates there are 208 informal settlement polygons in the Free State. No household estimates are provided.

LaPsis (Land and Property spatial information system), an online system developed by the HDA, builds on the data gathered by the NDHS and overlays onto it land and property data including cadastre, ownership, title documents and deeds (from the Deeds Office), administrative boundaries (from the Demarcation Board) and points of interest from service providers such as AfriGIS¹¹. The data indicates there are 236 informal settlements in the Free State. No household estimates are provided.

2.4 Eskom's Spot Building Count (also known as the Eskom Dwelling Layer)

Eskom has mapped and classified structures in South Africa using image interpretation and manual digitisation of high resolution satellite imagery. Where settlements are too dense to determine the number of structures these areas are categorised as dense informal settlements. Identifiable dwellings and building structures are mapped by points while dense informal settlements are mapped by polygons.

Shape files provided by Eskom revealed 59 polygons categorised as Dense Informal Settlements in the Free State, covering a total area of 12.1 square kilometres. The dataset does not characterise the areas, nor does it match areas to known settlements. Latest available data is based on 2008 imagery. Eskom is currently in the process of mapping 2009 imagery and plans to have mapped 2010 imagery by the end of the year.

⁸ Bhekani Khumalo (2009), 'The Dwelling Frame project as a tool of achieving socially-friendly Enumeration Areas' boundaries for Census 2011, South Africa', Statistics South Africa.

⁹ An EA is the smallest piece of land into which the country is divided for enumeration, of a size suitable for one fieldworker in an allocated period of time. EA type is then the classification of EAs according to specific criteria which profiles land use and human settlement in an area.

¹⁰ The EA descriptor for informal settlements in the 2011 Census is 'Informal Residential'; in 2001 the EA type was 'Informal Settlement'.

¹¹ AfriGIS was given informal settlements data by the provincial departments of housing to create the map layers.

PART 3

The number and size of informal settlements in the Free state

3.1 Estimating the number of households who live in informal settlements

According to the Census, 103,000 households in the Free State (14% of households in the province) lived in EAs classified as Informal Settlements in 2001¹². 62% lived in enumeration areas classified as Urban Settlements and a further 11% in EAs classified as Farms. Free State accounts for 9% of all households in informal settlement EAs in the country (it accounts for 6% of all households overall).

Census data at a municipal level is summarised below for the Free State.

Municipality	Number of HH in Informal Settlement EA	% of HH in municipality/ province that live in Informal Settlement EAs
Lejweleputswa	40 379	20.5%
Motheo	21 080	10.0%
Fezile Dabi (formerly Northern Free State)	10 651	8.5%
Thabo Mofutsanyane	22 035	11.8%
Xhariep	8 927	22.7%
Free State	103 071	13.6%

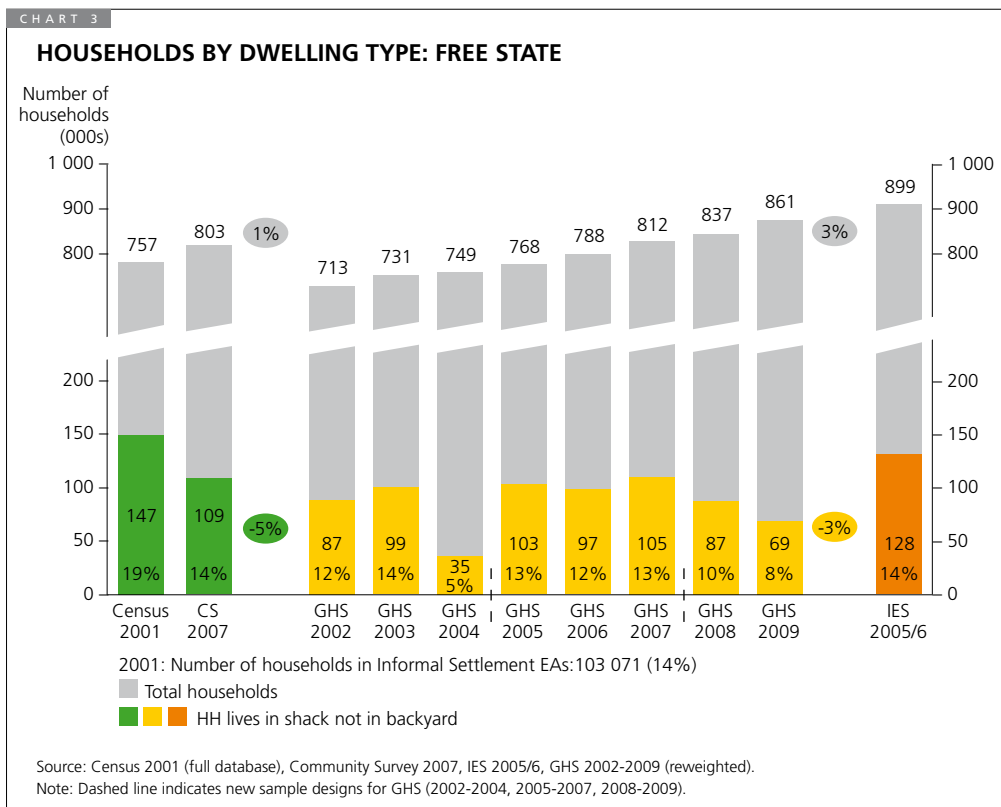
Source: Census 2001.

According to the 2007 Community Survey, 109,000 households (approximately 14% of households in the Free State) live in shacks not in backyards, down from 147,000 households (19% of households) in 2001 as reported by the Census. In terms of absolute numbers there was a decrease of around 38,000 in the number of households living in shacks not in backyards between 2001 and 2007.

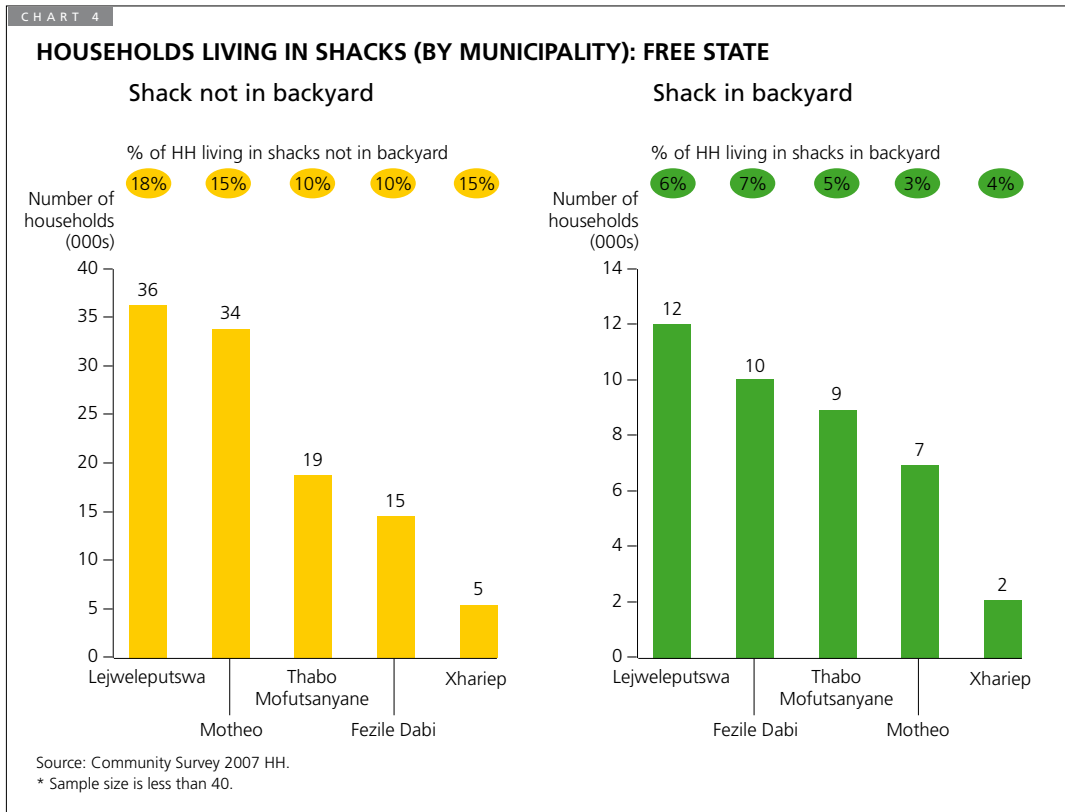
According to the 2007 Community Survey 9% of households in shacks not in backyards live in this province (6% of all households in the country live in this province).

¹² With regards to settlement type, Informal Settlement is one of the ten EA descriptors used.

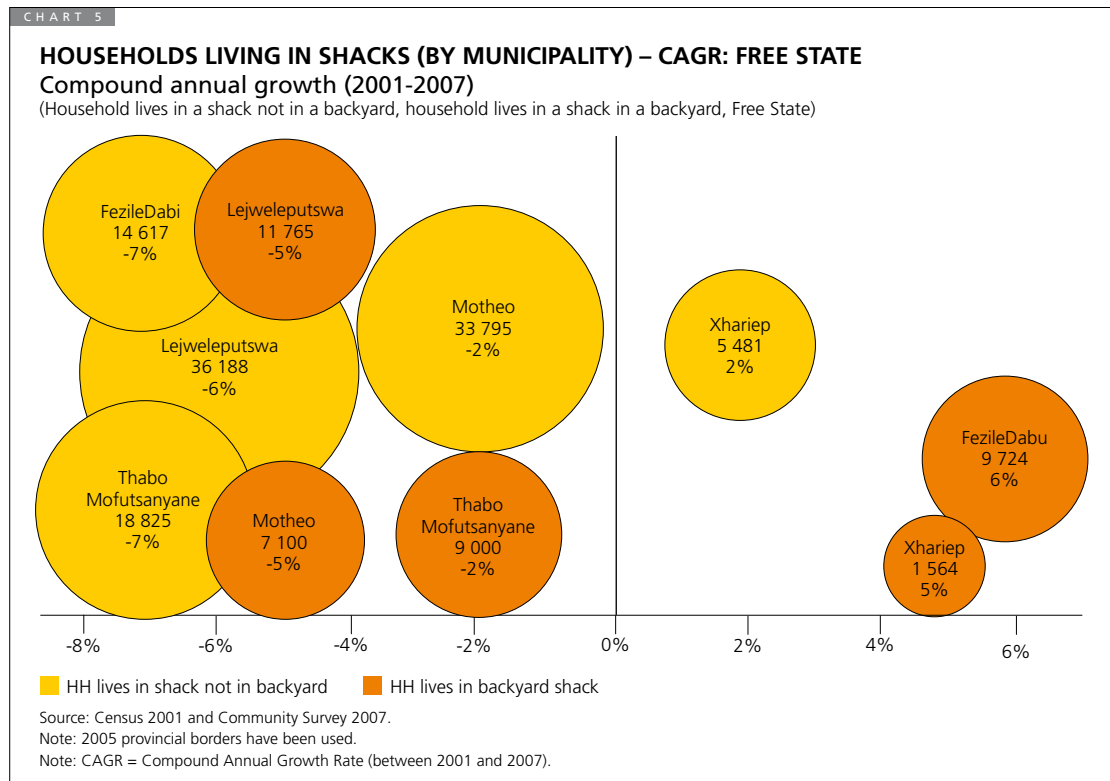
Survey-based estimates of the number of households who live in shacks not in backyards vary, sometimes quite significantly. For instance, in 2001 the Census estimates around 147,000 households living in shacks not in backyards in the Free State while the 2002 GHS estimates around 87,000 such households. Estimates based on the GHS indicate an annual growth of -3% between 2002 and 2009 (note the data appears to be unstable), while estimates based on the Census and Community Survey indicate an annual growth of -5% between 2001 and 2007. A comparison of census and survey data based on a number of sources is summarised below.



According to the 2007 Community Survey, at 36,000 Lejweleputswa has the highest number of households living in shacks not in backyards of all municipalities in the Free State. The chart below summarises municipal-level data for the Free State for all shacks, including those not in backyards and those in backyards.



Data from the 2001 Census and the 2007 Community Survey can be used to explore growth rates for households living in shacks at a municipal level. This data is summarised in the bubble chart below. The size of the bubble indicates the size of the segment in 2007 while its location along the x-axis indicates the annual rate of growth. Of course in some of these areas high growth has occurred off a very low base.



3.2 Estimating the number of informal settlements

While survey and census data provide an estimate based on households, various data sources provide estimates of the number of informal settlements. The LaPsis data estimates 236 informal settlements across the province while the Atlas data set from the NDHS indicates 208 informal settlement polygons.

Available data sources at a 'settlement' level are summarised below together with household level data based on the 2001 Census and the 2007 Community Survey. Note that settlements are identified and defined differently in these data sources.

TABLE 3 ESTIMATES AND/OR COUNTS OF INFORMAL SETTLEMENTS AND HOUSEHOLDS

	Number of informal settlements				Number of households in informal settlements		
	LaPsis: Informal settlements	Atlas: Informal settlement polygons	Stats SA: Sub Places with at least one EA classified as 'Informal Residential'	Eskom: Polygons classified as 'Dense Informal'	Census 2001: HH in informal settlement EA	Census 2001: HH in shacks not in backyards	Community Survey 2007: HH in shacks not in backyards
Lejweleputswa	56	44			40 379	52 434	36 188
Motheo	58	56			21 080	38 696	33 795
Fezile Dabi (formerly Northern Free State)	59	59			10 651	22 351	14 617
Thabo Mofutsanyane	55	49			22 035	29 548	18 825
Xhariep	8	–			8 927	4 751	5 481
Free State	236	208	62	59	103 071	147 780	108 906

* Households in informal settlements to be upgraded between 2010/11 and 2013/14 (Outcome 8¹³): 26,400 in the Free State.

¹³ Outcome 8 relates to Sustainable Human Settlements and Improved Quality of Life. National government has agreed on twelve outcomes as a key focus of work between 2010/11 and 2013/14.

PART 4

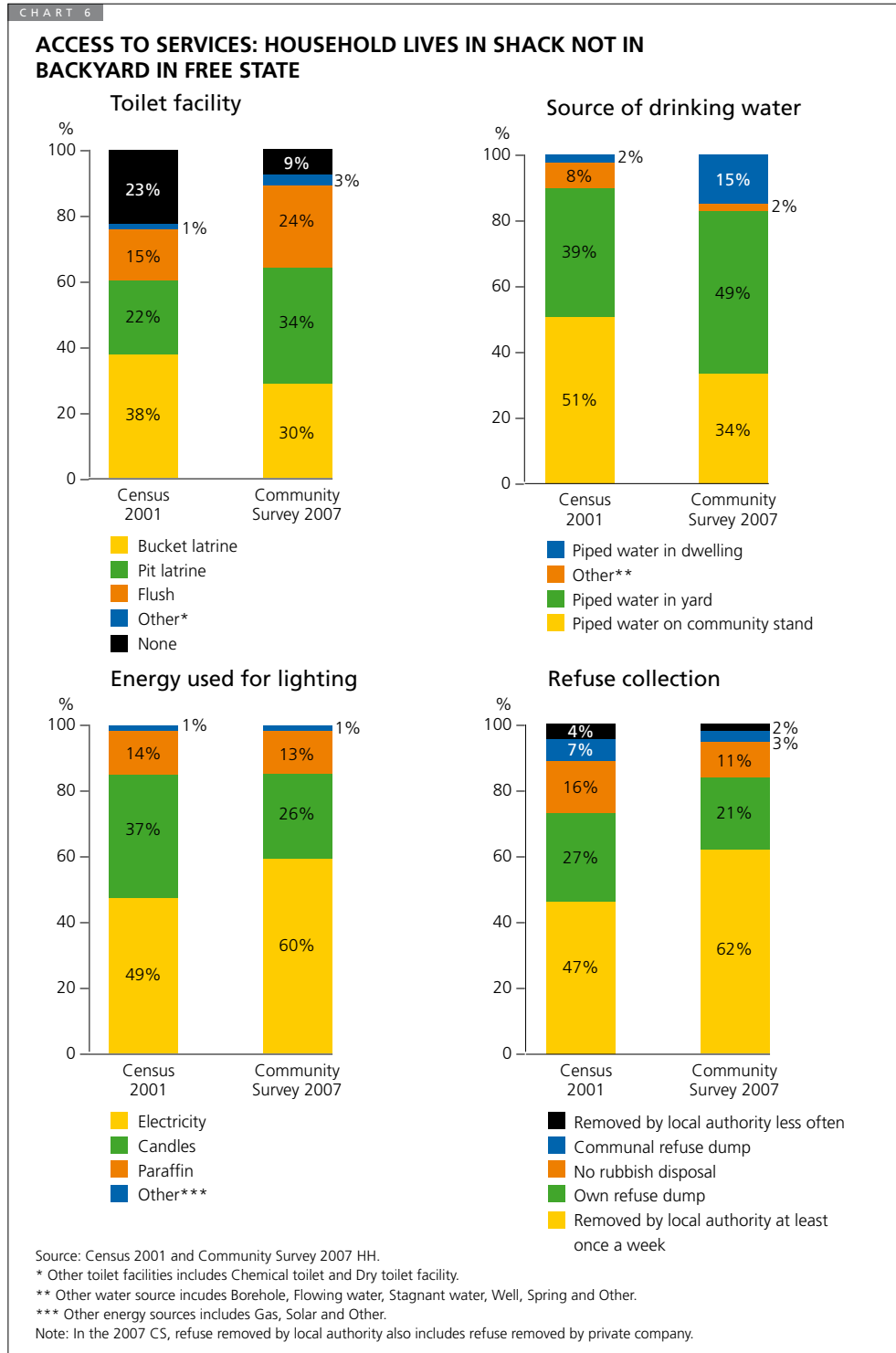
Profiling informal settlements in the Free State

The analysis of survey data investigates the characteristics of the dwellings and the profile of households and individuals living in shacks not in backyards. As noted this variable is a proxy for households who live in informal settlements. Where available, Census 2001 data relating to households who live in Informal Settlement EAs has been summarised in the introductory comments at the start of each sub-chapter.

4.1 Basic living conditions and access to services

In 2001, 31% of Free State households living in informal settlement EAs had piped water in their dwelling or on their yard. A further 29% could obtain piped water within 200 metres of their dwellings. 31% had access to piped water in excess of 200 metres from their dwellings (there is no indication of how far away the water source is) while 9% had no access at all. 14% of households in informal settlement EAs had flush toilets, 23% used pit latrines, 36% used bucket latrines and 1% had chemical toilets; the remaining 26% had no access to toilet facilities. 37% of households in informal settlement EAs used electricity for lighting and 45% had their refuse removed by the local authority.

Key trends relating to access to services for households living in shacks not in backyards are summarised in the chart below.



Access to services appears to have improved between 2001 and 2007; the proportion of households who live in shacks not in backyards who say they have no toilet facilities declined from 23% in 2001 to 9% in 2007. Drinking water access improved significantly while use of electricity for lighting increased from 49% to 60% between 2001 and 2007. In 2001 51% of households that live in shacks not in a backyard had their refuse removed by the local authority. In 2007, 64% of households that live in a shack not in a backyard had their refuse removed by the local authority or a private company.

As has been highlighted, a word of caution is required in interpreting this data given potential biases in the sample design towards more established settlements where service provision is better.

4.2 Profile of households and families

In 2001, 20% of Free State households living in informal settlement EAs were single person households. The average household size was 3.4. 23% of households were living in over-crowded conditions. The majority of households were headed by males (56%).

According to the 2007 Community Survey, 20% of households in the Free State living in shacks not in backyards comprise a single individual. While significant, it is lower than the national average for households living in shacks not in backyards where 23% comprise a single individual. 42% of Free State households living in shacks not in backyards comprise four or more persons. The average household size of households living in shacks not in backyards in 2007 is 3.4 (in 2001 this was 3.3), compared to 3.5 in 2007 for those living in formal dwellings (down from 3.7 in 2001). 28% of households living in shacks not in backyards live in over-crowded conditions¹⁴.

Household heads in shacks not in backyards are also noticeably younger than those in formal dwellings; 34% are under the age of 35 compared to 20% in households who live in formal dwellings.

149,000 children under the age of 18 live in shacks not in backyards corresponding to 40% of the total population who live in such dwellings. According to the Community Survey 63% of households in shacks not in backyards have one or more children.

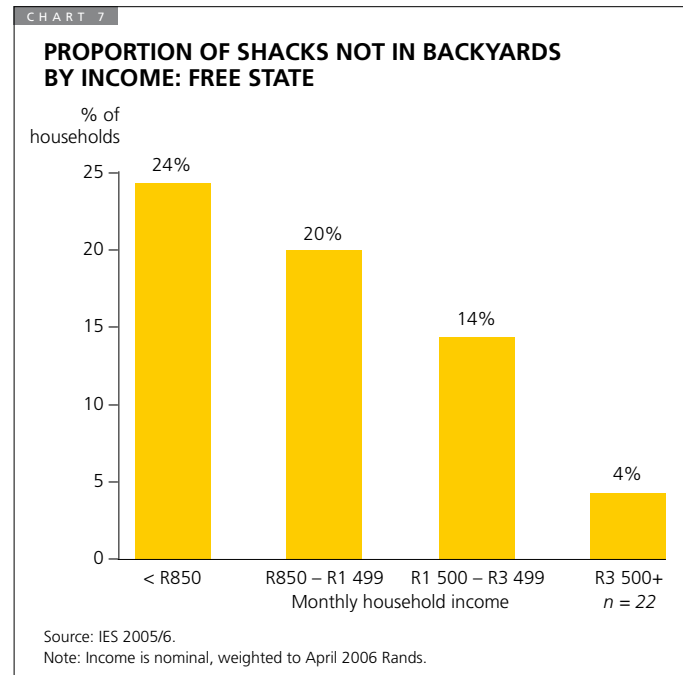
4.3 Income and other indicators of wellbeing

4.3.1 Income

While both the 2001 Census and the 2007 Community Survey gather some data on income, the quality of this data is relatively poor. A far more reliable source of this data is the 2005/6 Income and Expenditure Survey (IES). That data source indicates that over 90% of households who live in shacks not in backyards have a household income of less than R3,500 per month measured in 2006 Rand terms. Inflating incomes to 2010 Rands (and assuming no real shift in income) 83% of households living in shacks not in backyards earn less than R3,500 per month in 2010 Rand terms.

¹⁴ A household is considered over-crowded if there are more than two people per room. It is possible that this estimate is understated in the case where more than one household inhabits the same dwelling.

As expected, the survey indicates that the proportion of households living in shacks not in backyards declines as incomes increase. Around one in five of all households earning less than R3,500 (in 2006 Rands) live in shacks not in backyards.



The 2007 GHS indicates that 70,000 adults aged 15 and above living in shacks not in backyards are employed. That same data indicates an unemployment rate of 44%, above the provincial average of 27% for adults aged 15 and above. While unemployment rates are high, according to the 2009 GHS, the primary income source for households in shacks not in backyards is salaries and wages (53%). 27% say their main income source is from pensions and grants and a further 11% of households indicate remittances as the main income source.

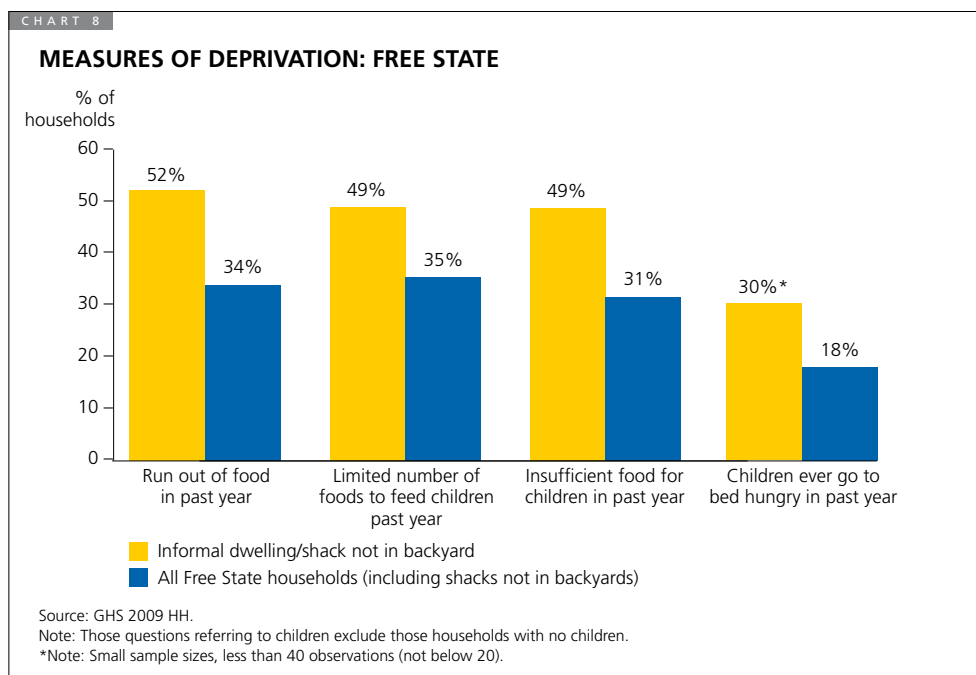
2004 Labour Force Survey data indicates that 28% of employed individuals living in shacks not in backyards are employed in the informal sector, a proportion that is above the provincial average (16%). 57% are employed in the formal sector (57% of these are permanently employed) and a further 15% are domestic workers¹⁵.

4.3.2 Other indicators of wellbeing

Aside from income data, food security indicators from the GHS can be used to assess levels of poverty. These highlight high levels of deprivation in informal settlements, particularly with respect to children¹⁶.

¹⁵ Sample sizes are too small to assess employment in agriculture.

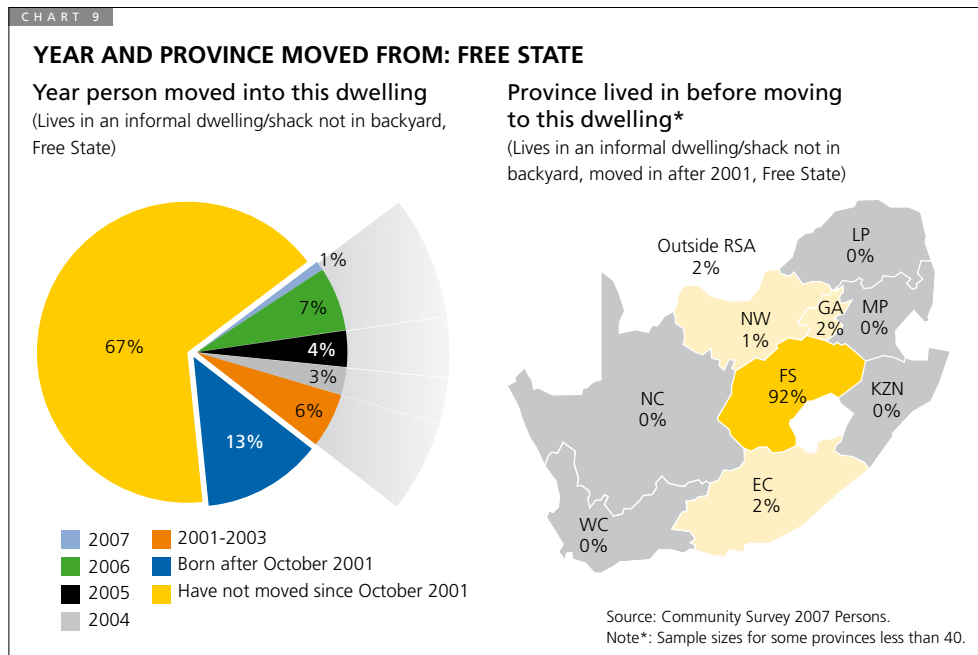
¹⁶ 'Did you rely on a limited number of foods to feed your children during the past year because you were unable to produce enough food/are running out of money to buy food for a meal?'; 'Did your children ever say they are hungry during the past year because there was not enough food in the house?'; 'Did any of your children ever go to bed hungry because there was not enough food/money to buy food?' – Yes/No.



4.4 Age of settlements and permanence

In 2001, the majority of households living in informal settlement EAs in the Free State (62%) were living there five years previously. In 2001, 42% of households living in informal settlement EAs claimed to own their dwelling; 14% rented and 44% occupied the dwelling rent-free. 12% of households in informal settlement EAs had another dwelling aside from their main dwelling.

Analysis of data from the 2007 Community Survey indicates that the majority of people living in a shack not in a backyard in 2007 had been living there for an extended period of time. Across the province, 67% said they had not moved since 2001. The vast majority of those who have moved since 2001, moved within the Free State.



According to the 2009 GHS, 81% of households living in shacks not in backyards indicate that they were living in a shack not in backyard five years previously¹⁷. The survey does not indicate whether the dwelling or the broad location of the dwelling is the same.

There may be some basis for a degree of scepticism when looking at this data. As noted in the overview of data sources, there may well be a sampling bias towards older, more established settlements. In addition, if households in informal settlements believe there is a link between the duration of their stay in that settlement and their rights either to remain in the settlement or to benefit from any upgrading programmes they may well have an interest in over-stating the length of time they have lived in their dwellings.

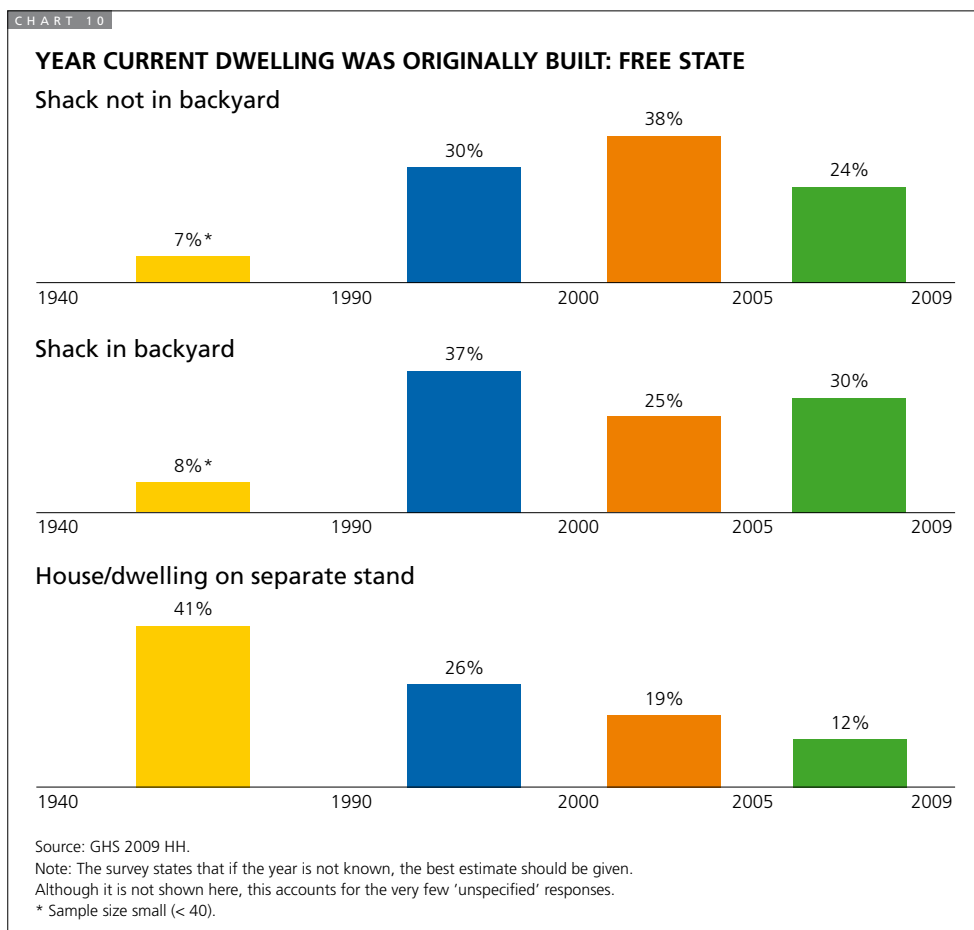
The 2009 GHS asks respondents when (i.e. in what year) their dwellings were originally built¹⁸. The data indicates that 24% of shacks not in backyards in the Free State were built within the past five years. At first glance this would appear to be at odds with the statistic cited above that 81% of households living in shacks not in a backyard were living in that same type of dwelling five years ago. However, as already noted, the data does not necessarily imply the household lives in the same dwelling, or in the same location. Further, given the poor condition of many shacks (discussed in Section 4.6 below) and the vulnerability of many settlements to fire and flooding, it is entirely plausible that many shacks are completely rebuilt frequently¹⁹.

¹⁷ For all South African households in shacks not in backyards, the proportion is 89%.

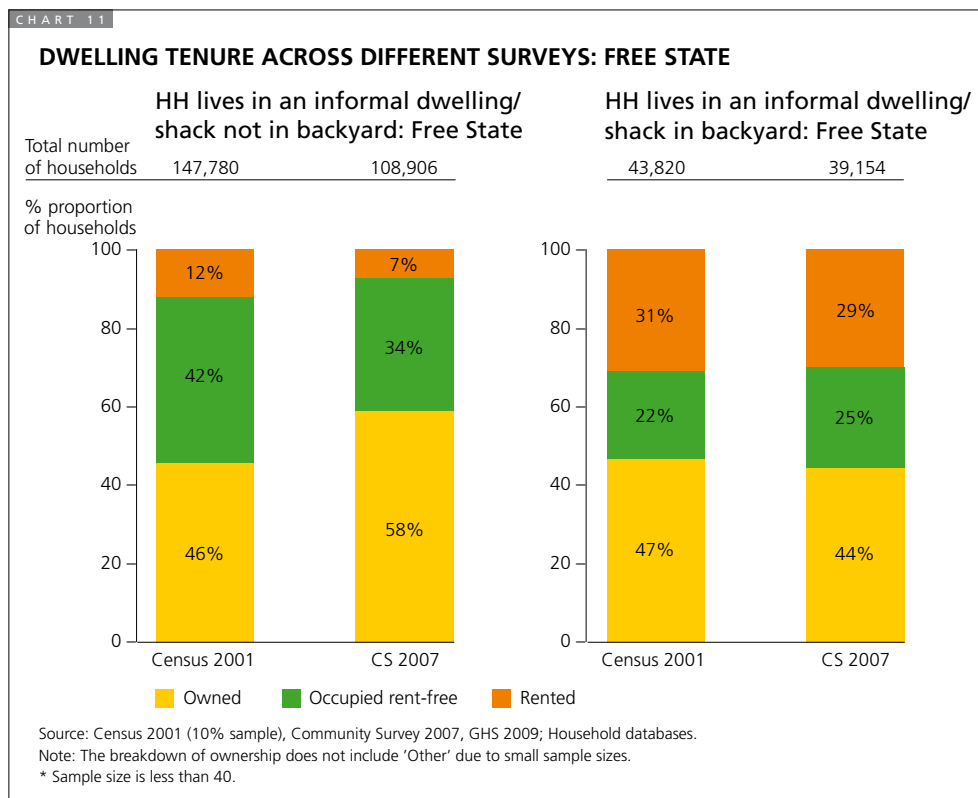
¹⁸ It would be unsurprising if many households, particularly those that rent their dwellings or those that occupy older dwellings, do not know when their dwellings were constructed. In such cases, the questionnaire directs respondents to provide a best estimate. There is no indicator in the data as to whether the household has estimated the answer or knows the answer.

¹⁹ The exact survey question is: 'when was this dwelling originally built?'. Enumerators are instructed to 'mark the period in which the dwelling was completed, not the time of later remodeling, additions or conversions. If the year is not known, give the best estimate.' It is not entirely clear how a household who has recently rebuilt its shack following its destruction in a fire would answer the question. Does the year in which this dwelling was originally built refer to the original dwelling or to the rebuilt dwelling?

The survey data indicates that shacks not in backyards tend to be slightly older than backyard shacks as summarised below. This corresponds to trend data relating to main dwelling types which indicates a higher growth rate for backyard shacks compared to shacks not in a backyard. This in turn may reflect sampling biases discussed above or a greater determination on the part of municipal officials to prevent the creation of new informal settlements.



Data on tenure status can also provide an indication of permanence. The primary survey categories include rental, ownership (with or without a mortgage or other form of finance) and rent free occupation. Survey data on tenure from the 2001 Census and the 2007 Community Survey is summarised below. These sources indicate that while rental is relatively uncommon for shacks not in backyards (in contrast to backyard shacks where rentals are more prominent) a majority of households say they own their dwelling.



Data on tenure status can be difficult to interpret. On the one hand those who say they own their dwellings may be communicating a strong sense of belonging and permanence despite the informal nature of the dwelling. Alternatively those who say they own their dwellings may simply be referring to their ownership of the building materials used to construct their dwellings. While some respondents who own the physical materials used to build their dwellings, but not the land on which it is located, may indicate they occupy their dwellings rent free, others may justifiably indicate that they own their shacks. Data on rentals is also difficult to interpret. Some households who say they rent their shacks may own the building materials but rent the land; if they were to be evicted from the land they would still retain possession of the dwelling materials. Other renter households may rent both the structure and the land.

4.5 Housing waiting lists and subsidy housing

According to the 2009 GHS, 30,000 (44%) of Free State households in shacks not in backyards have at least one member on the waiting list for an RDP or state subsidised house. Conversely, of the 114,000 Free State households with at least one member on the housing waiting list, 27% live in shacks not in backyards; 42% live in a dwelling/structure on a separate stand and 20% in a backyard shack. Around 50% of households in shacks not in backyards have been on the waiting list for less than a year.

Data from the 2009 GHS explores whether any household members have received a government housing subsidy. For households living in shacks not in backyards a very low percentage (1%) report having received a subsidy. Of course many households living in informal settlements that have received a subsidy are unlikely to own up to this.

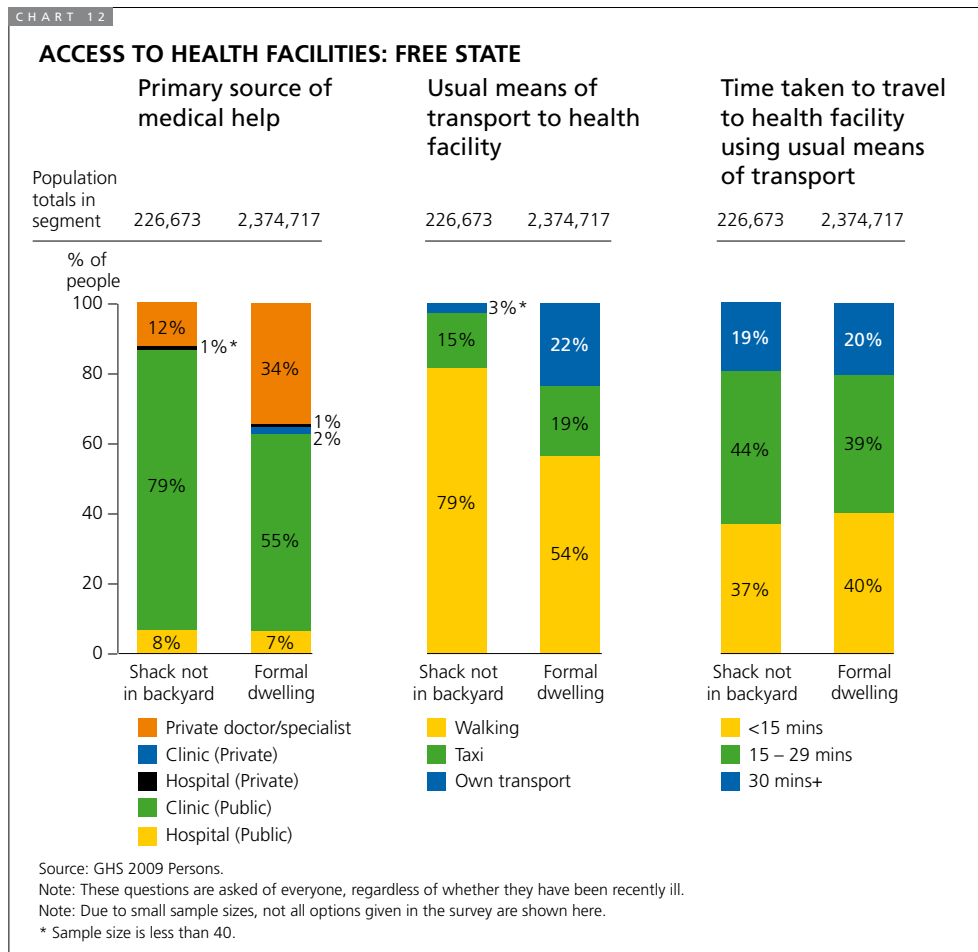
Data from the same survey can be used to explore how many households who live in shacks not in backyards might be eligible to obtain a subsidised house. Criteria include a household income of less than R3,500 per month, a household size of more than one individual, no ownership of another dwelling, and no previous housing subsidy received. Using these criteria, around 43,000 households living in shacks not in backyards (62% of households in this category) appear to qualify to be on the waiting list.

When interpreting this data it is important to recall the definition of households used in surveys. Households are not necessarily stable units nor are they necessarily comprised of individuals who would choose to live together if alternative accommodation was available. It is therefore plausible that some households may reconstitute themselves if one current household member were to obtain a subsidised house.

4.6 Health and vulnerability

The 2009 GHS indicates that approximately 20% of individuals who live in a shack not in a backyard in the Free State say they have suffered from an illness or injury in the past month. This is slightly lower than the disease burden reported by those living in formal dwellings (23%). Of course the subjective 'norm' may differ across communities. More affluent individuals living in formal dwellings in well-serviced neighbourhoods who are generally in good health may have a lower 'sickness threshold'; the symptoms they experience when they report being ill may not warrant a mention by an individual whose immunity is generally compromised. It should also be noted that there may be an age skew; those who live in informal settlements are on average younger. Holding other things constant, one should expect a lower burden of disease for those living in shacks not in backyards.

Those living in shacks not in backyards are more likely than those who live in formal dwellings to use public clinics as their primary source of medical help. Just under 80% walk to their medical facility and over 80% take less than 30 minutes to get there using their usual means of transport. This is not noticeably different from those who live in formal dwellings. Once again a word of caution is in order; the data may be biased towards better established dwellings that have access to facilities.



Contrary to strong anecdotal evidence, respondents who live in shacks not in backyards in the Free State appear to be only slightly more likely to report being a victim of crime compared to other households. 22% of households in shacks not in backyards have a member who was a victim of crime in the last year, slightly higher than 20% for the province as a whole.

The data on crime is incomplete – while it records whether there has been an incident it does not explore how many incidents have taken place. Those who live in shacks not in backyards who have been victims of crime may be targeted more often than victims who live in other dwellings. It is also plausible that those who live in shacks not in backyards might be more reluctant than other households to report having been a victim of crime. For instance, they may not want to draw the attention of law enforcement officials to their area given their own illegal status. Alternatively the lack of privacy within informal settlements may increase respondents' concern that neighbours (or the perpetrators of crime) might overhear their conversations with enumerators.

Another critical issue within informal settlements relates to risk of fire and flooding; the higher the density of the settlements and poorer the quality of building materials the greater the risk. None of the nationally representative surveys explore past experience of such events, exposure to these risks or ability to mitigate these risks should they occur. However there is some survey data relating to the

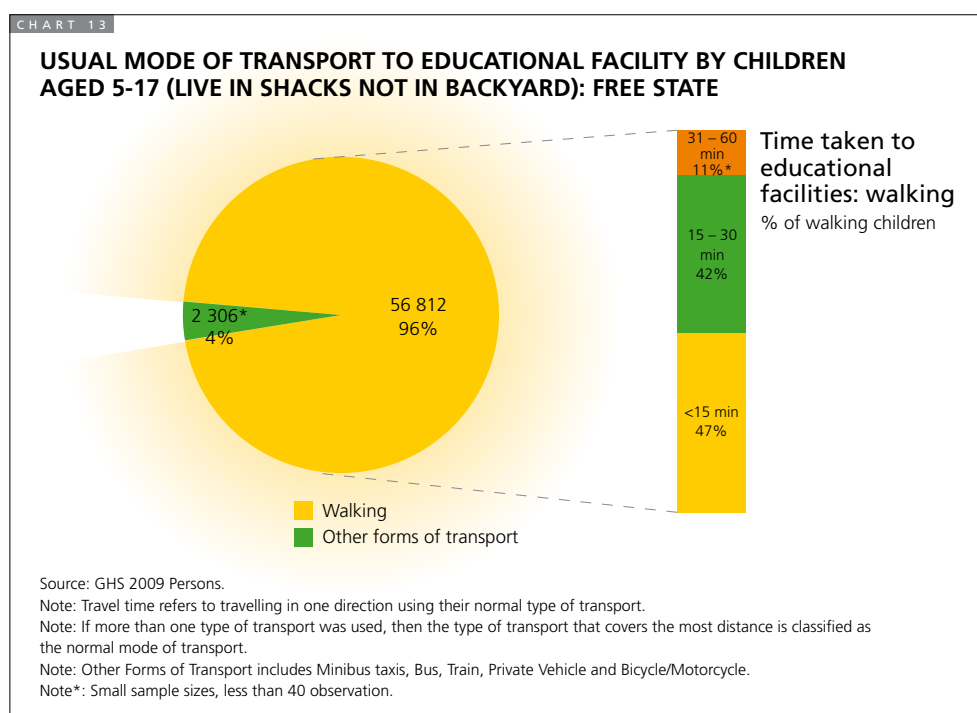
durability of the dwelling structure. According to the GHS, 54% of households living in shacks not in backyards live in dwellings where the conditions of the walls or the roof is weak or very weak. This is lower than the corresponding percentage for households who live in traditional dwellings (76% have weak or very weak walls or roofs), and for shacks in backyards (70% have weak or very weak walls or roofs). The corresponding statistic for formal housing²⁰ is 14%.

4.7 Education

In 2001, 19% of Free State adults aged 18 and above living in informal settlement EAs had no schooling; 10% had a Matric and a further 1% completed Technikon, University or other Post Matric.

According to the 2009 GHS, 86% of adults aged 18 and above living in shacks not in backyards have not completed matric; 10% have no schooling. 97% of children aged 5 to 18 who live in shacks not in backyards go to school in line with the provincial average of 96%²¹.

96% of school-going children in the Free State who live in shacks not in backyards walk to school, the vast majority in less than 30 minutes. As has been highlighted above, a word of caution is required in interpreting this data given potential biases in the sample design towards more established settlements. There is no data to determine whether these schools were built to service a newly created informal settlement or whether the school was originally built to meet the needs of more formal communities in the vicinity. In the case of the latter, the existence of a school may have been part of the impetus for the creation of an informal settlement.



²⁰ Formal housing includes dwelling/house or brick structure on a separate stand/yard, flat/apartment in a block of flats, room/flatlet on a property or a larger dwelling/servants quarters, town/cluster/semi-detached house, dwelling/house/flat/room in backyard.

²¹ 26% of children in South Africa aged 0-4 living in shacks not in backyards currently attend an Early Childhood Development Centre (ECD) compared to 29% for the country as a whole while 88% of children in South Africa aged 5 to 18 who live in shacks not in backyards go to school compared to the national average of 93%.

PART 5

Conclusions

By their nature, informal settlements are difficult to monitor. They can change more rapidly than the systems designed to monitor them. Nevertheless, there is some data available.

The schema below summarises some of the most common indicators associated with individuals, households, dwellings and settlements. While the importance of the indicators depends on the analysis required, those indicators in red are thought to be particularly important to track over time in order to assess priorities for upgrading purposes. To populate this data, a range of data sources is required, including photography, household surveys, municipal data relating to services provided and available infrastructure as well as location and capacity indicators relating to facilities such as schools, hospitals and law enforcement.

CHART 14

INFORMAL SETTLEMENT INDICATORS

Individuals	Household level	Dwelling level	Settlement level
<ul style="list-style-type: none"> • Number • Age • Gender • Place of birth • Highest level of education • School attendance • Occupation • Marital status • Spouse live in the dwelling • Relationship to household head • Perception of key risks • Experience of key risks • Health levels • Experience of crime • Date moved to the settlement • Date moved into the dwelling 	<ul style="list-style-type: none"> • Number of households • Household size • Household composition • Household income • Year household moved to the settlement • Year household moved into the dwelling • Household level access to water, sanitation, electricity and refuse removal • Rental/ownership of land • Basis of land ownership (formal title or other) • Rental/ownership of dwelling • Number of people employed in the household • Number of grant recipients in the household 	<ul style="list-style-type: none"> • Number of dwellings • Dwelling size (rooms and squ. meterage) • Type of dwelling • Materials used to construct the dwelling 	<ul style="list-style-type: none"> • Number of settlements • Boundary and square meterage • Dwelling count and densities • Household count • Key community based organisations active in the settlement • Facilities, density and capacity indicators within/near settlement <ul style="list-style-type: none"> – Health – Safety – Social services – Education – Transport and roads – Commercial facilities • Proximity to and capacity of bulk service infrastructure • Burden of disease (as per health records) • Reported crime (as per police records or community forums) • Reported incidents of fire • Reported incidents of flooding • Land ownership • Geo technical characteristics
Household survey	Household survey	Household survey Aerial photography	Satellite photography Aerial photography Household surveys Municipal data Other agency data

PART 6

Contacts and references

List of key contacts

Alwyn Esterhuizen, AfriGIS (email and telephone)
Isabelle Schmidt Dr., Statistics South Africa (telephone and email)
Maria Rodrigu, Chamber of Mines Information Services (email and telephone)
Niel Roux, Statistics South Africa (email and telephone)
Pieter Sevenshuysen, Remote Sensing and GIS Applications, GTI (email and telephone)
Rob Anderson, Statistics South Africa (email and telephone)
Stuart Martin, GTI (email and personal interview)

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PART 7

Appendix: statistics South Africa surveys

7.1 Community Survey 2007

The 2007 Community Survey, the largest survey conducted by Stats SA, was designed to bridge the gap between the 2001 Census and the next Census scheduled for 2011. A total of 274,348 dwelling units were sampled across all provinces (238,067 completed a questionnaire, 15,393 were categorised as non-response and 20,888 were invalid or out of scope). There is some rounding of data (decimal fractions occurring due to weightings are rounded to whole numbers, therefore the sum of separate values may not equal the totals exactly) in deriving final estimates. In addition, imputation was used in some cases for responses that were unavailable, unknown, incorrect or inconsistent. Imputations include a combination of logical imputation, where a consistent value is calculated using other information from households, and dynamic imputation, where a consistent value is calculated from another person or household having similar characteristics.

Several cautionary notes on limitations in the data were included with the release of reports on national and provincial estimates in October 2007²². The October 2007 release adjusted estimates of the survey at national and provincial levels to ensure consistency by age, population group and gender. Estimates at a municipal level were reviewed due to systematic biases (as a result of small sample sizes). These revisions used projected values from the 1996 and 2001 Censuses. Adjustments were made to the number of households separately to the number of individuals.

Direct estimates from the Community Survey are therefore not reliable for some municipalities. However, measurement using proportions rather than numbers is less prone to random error. Therefore the Community Survey is useful for estimating proportions, averages and ratios for smaller geographical areas.

7.2 General Household Survey

The target population of the General Household Survey consists of all private households in South Africa as well as residents in workers' hostels. The survey does not cover other collective living quarters such as students' hostels, old age homes, hospitals, prisons and military barracks. It is therefore representative of non-institutionalised and non-military persons or households in South Africa.

²² More details on this can be found in the Community Survey statistical release provided by Stats SA (P0301.1).

The sample was selected by stratifying by province and then by district council. Primary Sampling Units (PSUs) were randomly selected from the strata and then Dwelling Units were randomly selected from within the PSUs. For the 2007 GHS, a total of 34,902 households were visited across the country and 29,311 were successfully interviewed during face-to-face interviews. For the 2009 GHS, a total of 32,636 households were visited across the country and 25,361 were successfully interviewed during face-to-face interviews. To arrive at the final household estimate the observations were weighted up to be representative of the target population.

7.3 Income and Expenditure Survey 2005/6

The Income and Expenditure Survey is a survey of the income and expenditure patterns of 21,144 households. This survey was conducted by Stats SA between September 2005 and August 2006. It is based on the diary method of capture. It is the most comprehensive nationally representative source for data on household income; however income estimates in this survey are lower than estimates in the national income accounts reported by the Reserve Bank. The Analysis of Results report published by Stats SA highlights that respondents will under-report income 'either through forgetfulness or out of a misplaced concern that their reported data could fall into the hands of the taxation authority'²³. No adjustments have been made.

7.4 Census 2001

The Statistical Act in South Africa regulates the country's Censuses. In general a census should be conducted every five years unless otherwise advised by the Statistics Council and approved by the Minister in charge. The Act also allows the Minister to postpone a census. In the case of the census meant to follow that of 2001, a postponement was granted in order to examine the best approach to build capacity and available resources for the next census. Consequently the next Census will only take place in late 2011.

7.5 Enumerator Areas

All EAs, which are mapped during the dwelling frame and listing process for Census, have a chance to be selected for the master sample used in the Stats SA sample surveys. Once an EA is listed, the listing is maintained, and it has a chance to be selected for a survey based on the Stats SA stratification criteria. Thus, the EA is chosen regardless of the classification that was done in Census 2001.

²³ Statistics South Africa (2008), Income and Expenditure of Households 2005/2006: Analysis of Results, Report No. 01-00-01, 2008.

TABLE 4 2011 ENUMERATION AREA TYPES				
2011 EA types	EA land-use/zoning	Acceptable Range in Dwelling Unit (DUs) Count per EA	Ideal EA Dwelling Unit Count (DUs)	Geographic size constraint
Formal residential	Single house; Town house; High rise buildings	136-166	151	None
Informal residential	Unplanned squatting	151-185	168	None
Traditional residential	Homesteads	124-151	137	None
Farms		65-79	72	< 25km diameter
Parks and recreation	Forest; Military training ground; Holiday resort; Nature reserves; National parks	124-151	137	None
Collective living quarters	School hostels; Tertiary education hostel; Workers' hostel; Military barrack; Prison; Hospital; Hotel; Old age home; Orphanage; Monastery	>500	500	None
Industrial	Factories; Large warehouses; Mining; Saw Mill; Railway station and shunting area	113-139	126	<25 km ²
Smallholdings	Smallholdings/ Agricultural holdings	105-128	116	None
Vacant	Open space/ Restant	0	0	<100 km ²
Commercial	Mixed shops; Offices; Office park; Shopping mall CBD	124-151	137	<25 km ²

Source: Statistics South Africa.

The Housing Development Agency (HDA)

Block A, Riviera Office Park,
6 – 10 Riviera Road,
Killarney, Johannesburg
PO Box 3209, Houghton,
South Africa 2041
Tel: +27 11 544 1000
Fax: +27 11 544 1006/7



www.thehda.co.za