South Africa: Informal settlements status

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Contents

PART 1: Introduction 4

PART 2: Data sources and definitions 6

2.1 Survey and Census data 6
2.2 Other Data from Statistics South Africa 11
2.3 National Department of Human Settlements (NDHS) 12
2.4 Land and Property Spatial Information System (LaPsis) 13
2.5 Eskom's Spot Building Count (also known as the Eskom Dwelling Layer) 13
2.6 Other providers of data: National Geo-spatial Information, GeoTerraImage and Community Organisation Resource Centre 14
2.6.1 National Geo-spatial Information 14
2.6.2 GeoTerraImage 14
2.6.3 Community Organisation Resource Centre (CORC) 16
2.7 Summary of national data sources 18
2.8 Provincial and municipal data 21
2.9 How to read this report 21

PART 3: The number and size of informal settlements in South Africa 22

3.1 Estimating the number of households who live in informal settlements 22
3.2 Estimating the number of informal settlements in South Africa 31

Contents

PART 4: Profiling informal settlements in South Africa 32

4.1 Basic living conditions and access to services 32
4.2 Profile of households and families 35
4.3 Income, expenditure and other indicators of wellbeing 36
4.3.1 Income 36
4.3.2 Expenditure 41
4.3.3 Other indicators of well-being 43
4.4 Age of dwellings and permanence 43
4.5 Housing waiting lists and subsidy housing 47
4.6 Health and vulnerability 49
4.7 Education 51

PART 5: Concluding comments 53

5.1 Definitions and demarcation of informal settlements 53
5.2 Household surveys 53
5.3 Satellite imagery and aerial photography 54
5.4 Data generated by municipalities or other service providers 55
5.5 Conclusions 55

PART 6: Contacts and references 57

PART 7: Appendix: Statistics South Africa surveys 59

7.1 Community Survey 2007 59
7.2 General Household Survey 59
7.3 Income and Expenditure Survey 2005/6 60
7.4 Census 2001 60
7.5 Enumerator Areas 60

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, 2008[1], 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 the 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.

As per the project Terms of Reference, the scope of the analysis includes:

- Establishing the national, provincial and local databases and information sources where the necessary information can be obtained
- Highlighting the limitations of each of the data sources and the extent of validity and reliability of the data sources as well as possible refinement and further work that would be required to improve the data quality on an ongoing basis, specifically for informal settlements
- Providing a national profile and status quo indication of the informal settlements and, depending on the data, providing inter alia:
  - Number of informal settlements
  - Growth, and development of the settlements
  - Land and land holding information relating to informal settlements
  - Physical conditions of the settlements
  - Services, facilities, infrastructure and access in the settlement (both government and other)
  - Profile of residents/households/families residing in the settlements
  - Income groups residing in informal settlements
  - Employment status and potential
  - Vulnerability in the settlements
  - Disability
  - Migration, mobility of the residents
  - Length of stay and reason for stay
  - Aspirations of residents
  - Education status of residents
- Providing a provincial profile and status quo of informal settlements
- Providing municipal profiles per province of the informal settlement in larger municipalities linked to the provincial and national data
- Provide insight into the overall and specific trends evident in informal settlements in South Africa as well as in specific provinces and well as potential implications of the trends for different sectors
- Provide insight into informal settlement trends as they relate to other housing options, initiatives and developments.

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

Population estimates and other indicators for households that live in informal settlements are generated by Statistics South Africa. Eighty20 conducted a thorough review of all available survey data as well as the 2001 Census data. Findings of this analysis were presented to two working groups for comment and input. The analysis together with that input are summarised in the body of this report. In addition, Statistics South Africa"s latest dwelling frame data[2] was obtained to identify the location and size of informal settlements in the country.

Data was also obtained from the National Department of Human Settlements as well as the HDA both of which rely principally on data collected by other entities such as provincial departments, municipalities and private companies. Provinces and municipalities collect data on informal settlements using survey and non-survey methodologies most typically through aerial photography. While this methodology cannot provide a detailed profile of the households in the settlement it can provide a basis to estimate the number of structures, households and individuals that are in each settlement. In some cases municipalities augment this data with internally generated data on municipal service provision as well as the location of points of service (such as education, health care and transport). Eighty20 engaged with each province and the larger municipalities (where possible) via email and telephonic communications in order to obtain and understand these estimates and methodologies.

Eighty20 also obtained data from other entities that collect data either nationally or at a settlement level. This includes Eskom which maintains a dwelling count database derived from aerial photography as well as community-based organisations such as CORC which enumerate settlements as part of their work.

The aim of this report is to understand and contrast these various data sources, review methodologies, compare estimates and highlight any inconsistencies that may arise. The report will also identify key gaps and weaknesses within the body of data relating to informal settlements and where appropriate make some recommendations relating to data collection going forward.

[2] This data has been used to demarcate enumeration areas for the 2011 Census.

PART 2
Data sources

A number of data sources have been used for this study. These include household level data from the 2001 Census and various nationally representative surveys conducted by Statistics South Africa (Stats SA). Settlement level data was also reviewed, including municipal data, data from the National Department of Human Settlements, the Housing Development Agency and Eskom.

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 in turn and any issues pertaining to the data are highlighted.

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 the 2007 Community Survey (CS)[3], the General Household Survey (GHS) from 2002 to 2009 and the 2005/6 Income and Expenditure Survey (IES)[4]. In addition, the study reviewed data from the 2001 Census[5]. It is important to note that none of these surveys focus specifically on households in informal settlements; questionnaires cover housing and household conditions more generally. While these data sources are all based on interviews with households, estimates are expected to differ given that different research periods and sampling frames are used. In some cases these differences can be quite significant. Data sources are therefore clearly noted.

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'.

The 2001 Census characterises both the settlement type as well as the dwelling type. With regard to settlements, 2001 Census EAs[6] are categorised as one of the following in line with the status of the majority of households in that specific EA:

- Sparse (10 or fewer households)
- Tribal Settlement
- Farm
- Smallholding

[3] 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.
[4] 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.
[5] 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.
[6] An Enumeration Area (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. EAs typically contain between 100 and 250 households.

- Urban Settlement
- Informal Settlement
- Recreational
- Industrial Area
- Institution
- Hostel

The main categories of dwelling types used in the census are listed below:

- House or brick structure on a separate stand or yard
- Traditional dwelling/hut/structure made of traditional materials
- Flat in a block of flats
- Town/cluster/semi-detached house (simplex, duplex or triplex)
- House/flat/room, in backyard
- Informal dwelling/shack, in backyard
- Informal dwelling/shack, NOT in backyard, e.g. in an informal/squatter settlement

There are thus two indicators in the 2001 Census that could be used to identify households living in informal settlements.

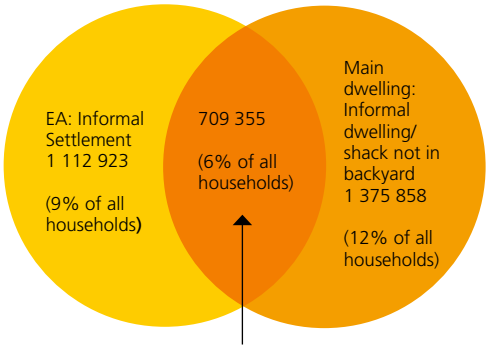
Unlike census data, survey data does not provide an EA descriptor. However, surveys do provide an indication of dwelling types. In the absence of an EA descriptor for informal settlements, the analysis of survey data relies on a proxy indicator based dwelling type, namely those who live in an 'Informal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

An analysis of Census data which contains both variables can be used to assess the robustness of this proxy. According to the 2001 Census, 1.38 million households lived in an informal dwelling or shack not in a backyard in 2001 while 1.11 million households lived in enumeration areas that are characterised as Informal Settlements. Just over 700,000 households lived in both.

CHART 1

CROSS-OVER OF TYPE OF DWELLING AND ENUMERATION AREA: SOUTH AFRICA

Total households who live in an informal settlement
OR in a shack not in a backyard: 1 779 426



64% of households who live in EAs classified as Informal Settlements, live in shacks not in backyards.

52% of households who live in shacks not in backyards, live in EAs classified as Informal Settlements.

Source: Census 2001.

According to the Census, of those households who live in EAs categorised as Informal Settlements, 64% live in shacks not in backyards. A further 18% of households in these EAs live in houses or brick structures, 7% live in shacks in backyards (it is not clear whether the primary dwelling on the property is itself a shack) and 7% live in traditional dwellings. Note that this differs somewhat by province as summarised in the table below.

TABLE 1 **MAIN DWELLING TYPE OF HOUSEHOLDS LIVING IN INFORMAL SETTLEMENT ENUMERATION AREAS**

	Shack not in backyard	Shack in backyard	Traditional dwelling	Formal dwelling	Other
Eastern Cape	63%	6%	8%	22%	1%
Free State	68%	7%	3%	22%	1%
Gauteng	76%	9%	2%	12%	1%
KwaZulu-Natal	43%	7%	14%	34%	1%
Limpopo	66%	11%	10%	12%	2%
Mpumalanga	62%	5%	13%	18%	2%
North West	50%	3%	3%	44%	1%
Northern Cape	64%	8%	3%	16%	10%
Western Cape	79%	6%	4%	10%	2%
South Africa	**64%**	**7%**	**7%**	**21%**	**1%**

Source: Census 2001.
Note: Formal dwelling includes flat in a block of flats, dwelling on a separate stand, backyard dwelling, room/flatlet, and town/cluster/semi-detached house.

Conversely the data indicates that just under half of all households in South Africa who live in shacks not in a backyard do not, in fact, live in EAs categorised as Informal Settlements. 32% live in EAs categorised as Urban Settlements and 10% live in Tribal Settlement EAs. There is significant provincial variation in the location of shacks not in backyards in terms of EA classification as illustrated in the table below. For instance in Limpopo and the North West almost 40% of shacks not in backyards are located in Tribal Settlements while in the Free State and the Northern Cape upwards of 45% of all shacks not in backyards are located in EAs designated as Urban Settlements.

TABLE 2 **ENUMERATION AREA OF THOSE HOUSEHOLDS LIVING IN SHACKS NOT IN BACKYARDS**

	Informal settlement	Urban settlement	Tribal settlement	Farm	Other
Eastern Cape	63%	22%	10%	3%	2%
Free State	47%	46%	3%	2%	2%
Gauteng	58%	37%	0%	3%	2%
KwaZulu-Natal	65%	17%	10%	3%	4%
Limpopo	28%	16%	39%	15%	2%
Mpumalanga	40%	28%	19%	7%	6%
North West	19%	32%	38%	7%	4%
Northern Cape	29%	50%	3%	9%	9%
Western Cape	65%	32%	0%	1%	2%
South Africa	**52%**	**32%**	**10%**	**4%**	**3%**

Source: Census 2001.

Of course it is by no means the case that EA classifications align with official municipal or provincial definitions of informal settlements. It is entirely possible that some households living in shacks within an EA defined by Stats SA as an Urban Settlement or a Tribal Settlement would be regarded as living in an informal settlement by municipal officials.

For the sake of harmonisation and alignment with other national settlement-based estimates, an EA-based definition from the Census should be used. However, given that census data is ten years old it would be undesirable to draw conclusions from that data about conditions of households in informal settlements today. The analysis summarised in the body of this report therefore relies on the dwelling type categorisation (shack not in a backyard). EA level data from the Census is summarised throughout to enable a comparison with other studies drawing on this data source. It is noted that the analysis based on surveys using the dwelling type indicator 'shack not in backyard' to identify households who live in informal settlements should 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. Informal settlements are arguably the most likely settlement type 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.

With regard to trend data, comparisons are made between the 2001 Census and the 2007 Community Survey. In addition, trend data from the GHS, an annual survey conducted since 2002, has been used. While the questionnaire for that survey has remained relatively stable over time, there have been a number of changes across Primary Sampling Units[7]. Three different sample designs were used over the years, over the periods 2002 to 2004, 2005 to 2007 and 2008 to 2009. These changes make it difficult to assess to what extent trends reflect real shifts in settlement patterns as opposed to improved sampling processes.

Geographic dimensions also differ across these data sources. More recent survey data from the GHS is available at a provincial level only with data from 2002 to 2007 available at Main Place level. 2007 Community Survey data and 2001 Census data is available at a Main Place and Sub-Place level[8].

[7] Statistics South Africa uses a master sample to draw samples for its regular household surveys. This master sample is drawn from the database of enumeration areas established during the demarcation phase of the 2001 Census. As part of this master sample, small enumeration areas consisting of fewer than 100 households are combined with adjacent enumeration areas in order to form primary sampling units consisting of at least 100 households. This is done in order to allow for repeated sampling of dwelling units within each primary sampling unit.

[8] Statistics South Africa does record data at an EA level (although this is not released).

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 is simply too small for detailed analysis as summarised below.

TABLE 3 **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
Eastern Cape	1 537 408	134 824	133 384	35 712	2 074	2 825	146	2 930	145
Free State	757 908	147 780	103 071	15 302	2 058	1 754	228	2 371	168
Gauteng	2 839 067	448 383	339 497	53 776	8 175	2 496	352	4 135	532
KwaZulu-Natal	2 203 350	177 989	268 800	44 160	2 654	4 732	153	4 168	272
Limpopo	1 251 308	56 489	23 666	23 569	955	1 951	57	2 942	56
Mpum-alanga	783 517	92 496	60 541	16 896	1 652	1 687	203	2 430	155
North West	979 217	154 693	57 765	18 369	2 977	1 569	213	2 294	220
Northern Cape	220 537	20 496	9 254	12 409	1 143	1 726	122	1 503	84
Western Cape	1 211 485	142 709	116 944	26 425	2 106	2 404	186	2 530	243
South Africa	**11 783 798**	**1 375 858**	**1 112 923**	**246 618**	**23 794**	**21 144**	**1 660**	**25 303**	**1 875**

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 level[9] although it is possible to explore household-level data at provincial and municipal level depending on the data source and sample size.

[9] It 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.

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 was 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.

2.2 Other data from Statistics South Africa

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 country[10]. It has been collated since 2005 and is approximately 70% complete. The Dwelling Frame is used to demarcate Enumeration Areas for the 2011 Census[11].

There are 1,184 sub-places with at least one EA classified as 'Informal Residential'[12], totalling 5,348 Enumeration Areas (covering a total area of 816 square kilometres). EAs typically contain between 100 and 250 households. The acceptable range in dwelling unit count per Informal Residential EA is 151-185 (Ideal: 168) with no geographic size constraint. There are Dwelling Frame estimates for 870 (73%) of these 'Informal Residential' EAs, totalling 398,169 Dwelling Frames.

Since the Dwelling Frame is only approximately 70% complete, and not all units are counted within certain dwelling types (for example, block of flats or collective living quarters), the count should not be seen as the official count of dwellings or households within the EA Type.

[10] 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.
[11] 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.
[12] The EA descriptor for informal settlements in the 2011 Census is 'Informal Residential'; in 2001 the EA type was 'Informal Settlement'.

2.3 National Department of Human Settlements (NDHS)

The 2009 National Housing Code's Informal Settlement Upgrading Programme[13] identifies informal settlements on the basis of the following characteristics:

- Illegality and informality;
- Inappropriate locations;
- Restricted public and private sector investment;
- Poverty and vulnerability; and
- Social stress

The Upgrading of Informal Settlements Programme applies to all settlements that demonstrate one or more of the above characteristics, subject to certain household and individual qualifiers.

The Department has commissioned the development of two atlases; namely, the Human Settlements Investment Potential Atlas (compiled by the CSIR) and the Informal Settlements Atlas (compiled by AfriGIS). The 2008/2009 Informal Settlements Atlas featured 45 municipalities. In 2010 the Department extended the atlas to incorporate a total of 70 municipalities. The 2009/2010 Informal Settlement Atlas indicates there are 2,628 informal settlement polygons in the country across the 70 municipalities. No household estimates are provided.

Data gathering methods used to create the Atlas differed by area depending on the data available within the municipalities included in the study. In some cases relatively complete data was obtained directly from the municipality (spatial, alphanumeric, imagery, or a combination of these) and was used to develop the spatial layers for mapping. In cases where spatial data did not exist, the informal settlement boundaries were identified and digitised from available aerial and satellite photography. Maps with the informal settlement boundaries were then taken to municipalities where the relevant officers were asked to verify the locations of these boundaries. In this way, additional informal settlements not found from the aerial photography and other attribute data could also be included in the study.

The Department was assisted by AfriGIS, a provider of Geographical Information Systems (GIS) solutions, in putting together the Atlas. AfriGIS was given informal settlements data by the provincial departments of housing to create the map layers[14].

A critical requirement of the Atlas project is that settlement level data is regularly maintained and updated. Latest data must be acquired and incorporated into the project and additional data obtained to augment existing layers so that trends can be identified, both with respect to the size of settlements as well as access to basic services and amenities in these settlements.

[13] 2009 National Housing Code, Incremental Interventions: Upgrading Informal Settlements (Part 3).
[14] AfriGIS has comprehensive data including town and suburb boundaries, postal code regions, street name directory, national address database, sectional schemes, points of interest (including schools, commercial buildings and places of worship), proclaimed towns, built-up areas, gated communities and deeds data.

2.4 Land and Property Spatial Information System (LaPsis)

LaPsis is an interactive online system created by the Housing Development Agency that enables the analysis of land and property data. It incorporates various data sources 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 AfriGIS. It also comprises specific spatial layers such as the Investment Potential layer from the Human Settlements Investment Potential Atlas[15], the location of various housing projects, and the location of 2,754 informal settlements covering 70 municipalities. Ultimately, settlement level data in LaPsis will include counts of the population, households and shacks for each settlement. In addition, land ownership details are being collated as is provision of toilets, taps and electricity, along with access to schools, clinics and transport facilities. LaPsis is very much work in progress: in many cases data fields are unpopulated. Only 3% of the informal settlements have a household or shack count, the majority of which are in Gauteng and the Western Cape.

The HDA is conducting further work on the informal settlements layer this year (2011), and LaPsis will be updated accordingly.

2.5 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. The Spot Building Count (SBC) categorises identifiable structures as dwellings, schools, hostels/townhouses, mines, resorts and Industrial and commercial structures[16]. Where settlements are too dense to determine the number of structures these area 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 1,016 polygons categorised as Dense Informal Settlements, covering a total area of 83.87 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.

Eskom uses the data for planning purposes. It has made the data available to all government departments and academic institutions.

[15] While the Atlas identifies informal settlement polygons, the HDA uses the centroids of each polygon and converted the polygon to a point which is mapped; the source data remains the same.
[16] SPOT Building Count supports informed decisions by Nale Mudau, ESI-GIS, telephonic discussions with Nale Madau, 2011.

2.6 Other providers of data: National Geo-spatial Information, GeoTerraImage and Community Organisation Resource Centre

Various other entities provide the photographic and household data that is used to profile, identify and monitor the growth of informal settlements. Three organisations, a public entity, a private for profit company and a Non-Governmental Organisation, are briefly described.

2.6.1 National Geo-spatial Information

National Geo-spatial Information (NGI), a division of the Rural Development and Land Reform (DRDLR) Department[17], has an extensive archive of aerial photographs captured since the early 1930s. Since 2008 all images have been captured with a digital camera. NGI aims to capture 40% of the country every three years and the remaining areas every five years.

2.6.2 GeoTerraImage

GeoTerraImage (GTI) is a private company specialising in geospatial mapping and remote sensing[18]. In order to classify various uses associated with an area or structure, GTI uses a combination of field work, complimentary data and image interpretation. This methodology enables consistent and complete coverage of a municipality at a point in time. Photography is time stamped and data gathered annually. The earliest data set is from 2001 and the most current from 2009. This allows for quantification of growth and densification of a given area or settlement over time.

In the case of informal settlements, individual structures are mapped using high resolution aerial photography based on spatial patterns or densities and proximity to formalised cadastre[19] and road networks. Structures (formal, informal and backyard structures) are classified manually by putting a point on each dwelling[20]. An informal settlement is then defined as a group of non-permanent structures not on a formally registered residential property[21].

[17] According to its website, the functions of NGI are mandated by two Acts; namely the Land Survey Act 8 of 1997 (which mandates the NGI to regulate the survey of land in the Republic; and to provide for matters connected to that process) and the Spatial Data Infrastructure Act of 2003 which mandates the NGI to 'facilitate the capture, management, maintenance, integration, distribution and use of spatial information'.
[18] Remote sensing is the acquisition of data without physical contact, in this case aerial photography and satellite imagery.
[19] A cadastre is an official register of the ownership, extent and value of property in an area.
[20] Around 20,000 to 25,000 points can be identified in one day by one person.
[21] Where formality is defined by ownership of land/deeds.

Detailed analysis is done on a project-by-project basis for many of the large municipalities. GTI has mapped the informal areas for the following places:

TABLE 4 **MAPPING OF INFORMAL SETTLEMENTS: GTI**

Eastern Cape	• Nelson Mandela Bay* • East London • Queenstown – Ezibeleni • Umtata
Free State	• Bloemfontein • Welkom – Virginia – Odendaalsrus • Newcastle – Madadeni – Osizweni • Denysville – Oranjeville – Vaaldam
Gauteng	• City of Tshwane * • City of Johannesburg * • Ekurhuleni Metropolitan Municipality * • Sedibeng District Municipality * • West Rand District Municipality *
KwaZulu-Natal	• eThekwini * • Pietmaritzburg * • Richards Bay – Empangeni – Eskhawini • Ladysmith – Ezakheni • Qwaqwa (Phuthaditjhaba) – Witsieshoek
Limpopo	• Polokwane
Mpumalanga	• Witbank • Middelburg • Nelspruit • Ermelo
North West	• Potchefstroom • Klerksdorp • Rustenburg • Mmabatho – Mafikeng • Sun City
Northern Cape	• Kimberley
Western Cape	• Cape Town* • George – Mosselbay • Paarl – Wellington • Plettenburg Bay • Knysna • Saldanha – Vredenburg • Hermanus

For most of the areas, GTI has mapped only the informal settlement boundaries; in the areas indicated by the asterisk, GTI has also mapped the physical building structures.

Several municipalities use aerial photography from GTI and not NGI because of quality and frequency. The pixel size of the aerial photographs provided by NGI is reportedly of a lower resolution and municipalities such as the City of Cape Town are able to commission aerial photograph annually, providing a more updated and complete coverage of the municipality.

2.6.3 Community Organisation Resource Centre (CORC)

The Community Organisation Resource Centre (CORC) is an NGO that operates in all provinces across the country with the aim of providing support to 'networks of communities to mobilise themselves around their own resources and capacities'[22]. CORC supports the social processes of community-based organisations that want to work for themselves, by facilitating engagements with formal actors like the State. It also supports the development of 'social technologies,' especially the SDI rituals of savings, enumeration, and community-led development strategies.

CORC supports communities linked through the networks of ISN and FEDUP to collect information as a base to enable communities to develop a strategy and negotiate with the State with regard to service provision and upgrading. Communities profile their informal settlements and undertake household surveys. Other community leaders in the networks of ISN and FEDUP train community members to undertake this practice. Community enumerators are provided with a basic stipend to enable them to do their work. Improvements are made to questionnaires using community consultation and professional verification. This ensures that comprehensive and relevant data is collected. During such activities, communities also gather other settlement level data on service provision including the number and type of toilets and taps. A list of settlements that have been enumerated recently is summarised below, together with household and population estimates.

[22] See http://www.sasdialliance.org.za/about-corc/

TABLE 5

ENUMERATION OF INFORMAL SETTLEMENTS BY CORC

Name of settlement	Region	Date	Number of households	Population
Joe Slovo	Western Cape	May 2009	2 748	7 946
Harolds Farm	Gauteng	July 2009	93	261
Doornbach	Western Cape	September 2009	1 855	4 555
Kliprand	Eastern Cape	October 2009	400	1 209
Alberton	Gauteng	November 2009	265	1 024
Manenberg	Western Cape	December 2009	3 139	1 322
Sheffield Road	Western Cape	December 2009	149	504
Ntuzuma G	KZN	December 2009	1 052	4 039
TT Section	Western Cape	February 2010	272	995
Barcelona	Western Cape	March 2010	2 230	6 600
Umlazi	KZN	July 2010	1 908	1 098
Dunbar	KZN	July 2010	551	1 817
Riemvasmaak	Eastern Cape	July 2010	314	932
Extension 32	Eastern Cape	July 2010	270	1 009
Thulasizwe	Gauteng	July 2010	65	243
Montic	Gauteng	July 2010	50	186
Europe	Western Cape	October 2010	1 832	5 125
Los Angeles	Western Cape	November 2010	325	876
Shukushukuma	Western Cape	February 2011	306	718
Garden City	Western Cape	February 2011	317	753
lungrug	Stellenbosch	February 2011	1 876	4 088
Quarry Road	KZN	February 2011	189	358
Makause	Gauteng	February 2011	In progress	In progress
la Rochelle	Western Cape	February 2011	25	100
Schoopiehoegte	Western Cape	February 2011	19	79
Devon valley	Western Cape	February 2011	10	15
Gif	Western Cape	February 2011	17	41
Kylmore	Western Cape	February 2011	9	26
Meerlust	Western Cape	February 2011	10	25

2.7 Summary of national data sources

A summary of key data sources together with definitions used to identify and profile informal settlements is provided in the table below.

TABLE 6 **SUMMARY OF NATIONAL DATA SOURCES**

Stats SA: Survey and Census data			
Definition of informal settlement	• Informal settlement: An unplanned settlement on land which has not been surveyed or proclaimed as residential, consisting mainly of informal dwellings (shacks) • Informal dwelling: A makeshift structure not erected according to approved architectural plans		
Data coverage	Informal Settlements • No count provided	Dwellings • No dwelling count provided	Households • Data available: Demographics, services, income, expenditure, assets, dwelling, tenure, etc.
Data collection methods	• See Appendix for detailed methodologies		
Comments	• Data spans all of South Africa • Data sources include Census 2001 and surveys (Community Survey 2007, IES 2005/6, 2002-2009 GHS and Labour Force Survey) • Analysis relies on the dwelling type categorisation 'Shack not in backyard'. Data from the Census 2001 based on the EA type classification 'Informal Settlement' is summarised at the start of each chapter • In some cases small sample sizes prevent comprehensive analysis at a detailed geographic level		

Stats SA: Dwelling Frame data			
Overview	• The Dwelling Frame is a register of the spatial location of dwelling units and other structures. It is used to demarcate Enumeration Areas (EAs) for the 2011 Census • The Dwelling Frame count for 2011 Census has been collated since 2005 and is around 70% complete • 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 • EAs typically contain between 100 and 250 households. The acceptable range in dwelling unit count per Informal Residential EA is 151-185 (Ideal: 168) with no geographic size constraint		
Data coverage	Informal Settlements • There are 1,184 sub-places with at least one EA classified as 'Informal Residential', totalling 5,348 EAs and covering a total area of 816 square kilometres	Dwellings • There are Dwelling Frame estimates for 870 (73%) of these 'Informal Residential' EAs, totalling 398,169 DFs	Households • No household count has been provided
Comments	• The Dwelling Frame is only approx. 70% complete and not all units are counted in some dwelling types (e.g. collective living quarters and block of flats) therefore the count should not be seen as the official count of dwellings or households within the EA Type		

Eskom Spot Building Count			
Definition of informal settlement	• Where settlements are too dense to determine the number of structures given the resolution of the satellite imagery the area is categorised as a 'Dense Informal' area. These areas are often informal settlements although Eskom does not have a specific definition in that regard		
Data coverage	Informal Settlements • 1,016 Dense Informal polygons, covering a total area of 83.87 square kilometres	Dwellings • No dwelling count has been provided	Households • No household count has been provided
Data collection Methods	• Annual dwelling count using satellite imagery		

NDHS Informal Settlements Atlas			
Definition of informal settlement	• The 2009 National Housing Code's Informal Settlement Upgrading Programme identifies informal settlements on the basis of the following characteristics: – Illegality and informality; – Inappropriate locations; – Restricted public and private sector investment; – Poverty and vulnerability; and • Social stress		
Data coverage	Informal Settlements • Count of 2,628 informal settlement polygons in 70 municipalities in all provinces • Using other layers one can interpret this with other data (e.g. key services)	Dwellings • No dwelling count has been provided	Households • No household count has been provided
Data collection methods	• Data gathering methods vary depending on area (complete data from municipality, and/or identification from imagery and manual verification) • Where municipal data is incomplete, aerial photography, satellite imagery and verification techniques were used to identify informal settlement polygons • Images are from different years up to 2006 • Assisted by AfriGIS		

LaPsis			
Overview	• A flexible, online system created by the HDA on land and property data including cadastre, ownership, title documents and deeds, administrative boundaries, access to services (toilets, water, electricity) and points of interest (schools, transport) • LaPsis will be updated after further work on the informal settlements layer by the HDA in 2011		
Definition of informal settlement	• Same as NDHS Informal Settlements Atlas above		
Data coverage	Informal Settlements • Data on 2,754 informal settlements in 70 municipalities	Dwellings • 3% of the informal settlements provide a shack count	Households • 3% of the informal settlements provide a household count
Data collection Methods	• Based on the NDHS Informal Settlements Atlas • Informal settlements are identified by the provinces, who forward the data on to the HDA • The data was collected in 2009		

Settlement level data generated by LaPsis, Stats SA's dwelling frame and Eskom can be compared by overlaying spatial data. While a detailed national comparison is beyond the scope of this study the data was compared using Google Earth for a number of areas. The map below for Gugulethu highlights that while there are some areas of overlap, this is not exact.

CHART 2

COMPARISON OF SETTLEMENT LEVEL DATA: GUGULETHU

A number of other observations are worth noting. Aside from variation in the definition of an informal settlement, the basis of settlement demarcation (i.e. determining the boundaries of each settlement) also varies. In the case of LaPsis, demarcations presumably follow municipal conventions, although it is not clear on what basis these are determined. With regard to currency, the year in which the data is gathered is clearly material. For instance, in the Google Earth map above a significant proportion of the area identified as an informal settlement adjacent to the letter 'A' appears to comprise formal housing. While it is not clear why this is the case it is possible that this housing was developed after the settlement imagery was captured (2008 in the case of available Eskom data, 2006 in the case of LaPsis).

2.8 Provincial and municipal data

Provinces and municipalities collect data on informal settlements within their jurisdiction. Data sources include aerial photography, household enumeration, municipal services data and geo spatial data. All provinces and large metros were contacted as part of this research and asked to provide access to available data. Three provinces (KZN, North West and Western Cape) and five municipalities (City of Cape Town, City of Johannesburg, Ekurhuleni, eThekwini and Nelson Mandela Bay) provided data to the project team. A summary of that data is provided in the provincial reports.

2.9 How to read this report

As noted various data sources have been used for this report. Estimates generated by these data sources differ, sometimes significantly. Data sources have therefore been clearly noted throughout the document. In most cases chapters begin with an overview of Census 2001 data. This data is presented for informal settlement EAs and is highlighted in grey to enable readers to compare the data with other references to Census data. The balance of the chapter refers to other data sources. In the case of survey data, this is based on the dwelling type indicator 'Shack not in a backyard'.

PART 3

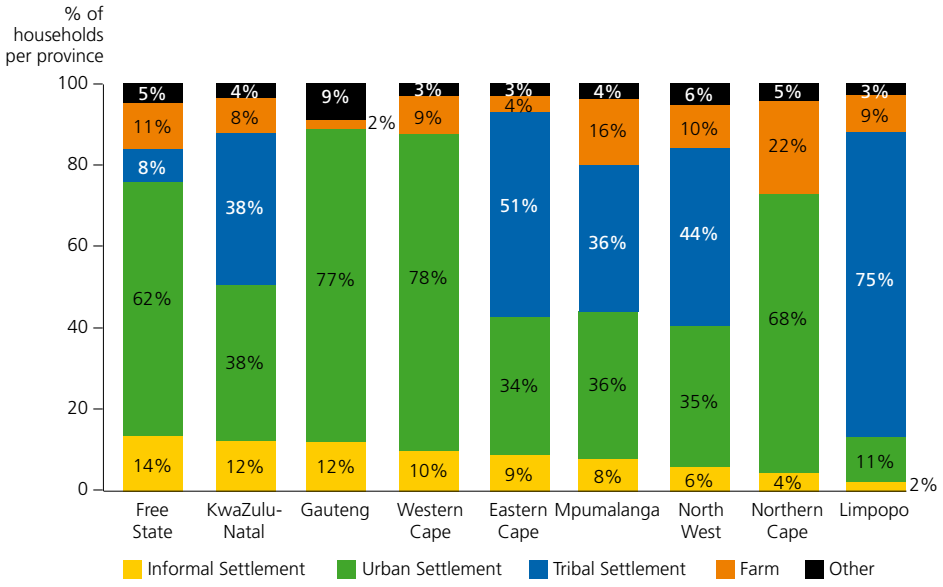
The number and size of informal settlements in South Africa

3.1 Estimating the number of households who live in informal settlements

According to the 2001 Census 1.11 million households in South Africa (9% of all households) live in informal settlement EAs. Of all provinces Gauteng has the highest number of households who live in informal settlement EAs. That province accounts for 31% of all households in informal settlement EAs in the country (it accounts for 24% of all households overall). In terms of penetration, the Free State has the highest proportion of households who live in informal settlement EAs (14% of households in that province live in informal settlement EAs).

CHART 3

TYPE OF ENUMERATION AREA BY PROVINCE: SOUTH AFRICA



Source: Census 2001.
Note: Other includes hostel, institution, industrial area, recreational, smallholding and sparse (10 or fewer households).

Census data at a municipal level is summarised below for those districts with the highest number of households in informal settlement EAs.

TABLE 7 **TOP TEN MUNICIPALITIES WITH HOUSEHOLDS LIVING IN INFORMAL SETTLEMENT EAs**

Municipality	Number of HH in Informal Settlement EA	% of HH in municipality that live in Informal Settlement EAs
eThekwini (KZN)	204 812	25%
Ekurhuleni (GA)	144 733	19%
City of Cape Town (WC)	89 126	11%
City of Tshwane (GA)	87 569	15%
City of Johannesburg (GA)	75 255	7%
Amatole (EC)	55 172	13%
Nelson Mandela Bay (EC)	40 447	15%
Lejweleputswa (FS)	40 379	21%
UMgungundlovu (KZN)	36 973	16%
Sedibeng (GA)	34 474	15%

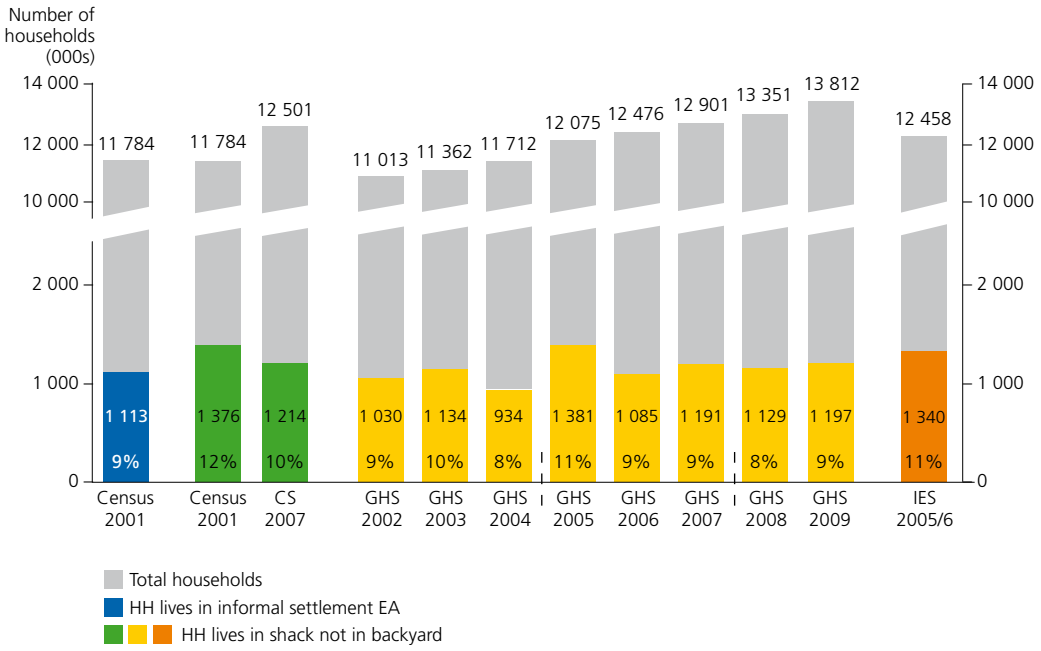
Source: Census 2001.

The estimate of the number of households living in shacks not in backyards differs depending on the data source. According to the 2007 Community Survey, approximately 1.2 million households corresponding to 10% of households in South Africa live in shacks not in backyards, down from 1.38 million in 2001 (12% of households) as reported by the 2001 Census. In terms of absolute numbers these data sources indicate a decline of around 162,000 households living in shacks not in backyards across the country. The potential impact of sampling bias should be noted; it is entirely possible that newly formed informal settlements were not included in the sampling fame for the 2007 Community Survey. The trend may therefore reflect changes in well-established settlements, some of which may have been upgraded between 2001 and 2007.

Estimates based on the GHS from 2002 to 2009 indicate that the number of households who live in shacks not in backyards has grown, although this may well reflect changes to the sampling frame rather than underlying dynamics. A comparison of census and survey data based on a number of sources is summarised below.

CHART 4

HOUSEHOLDS BY DWELLING TYPE: SOUTH AFRICA

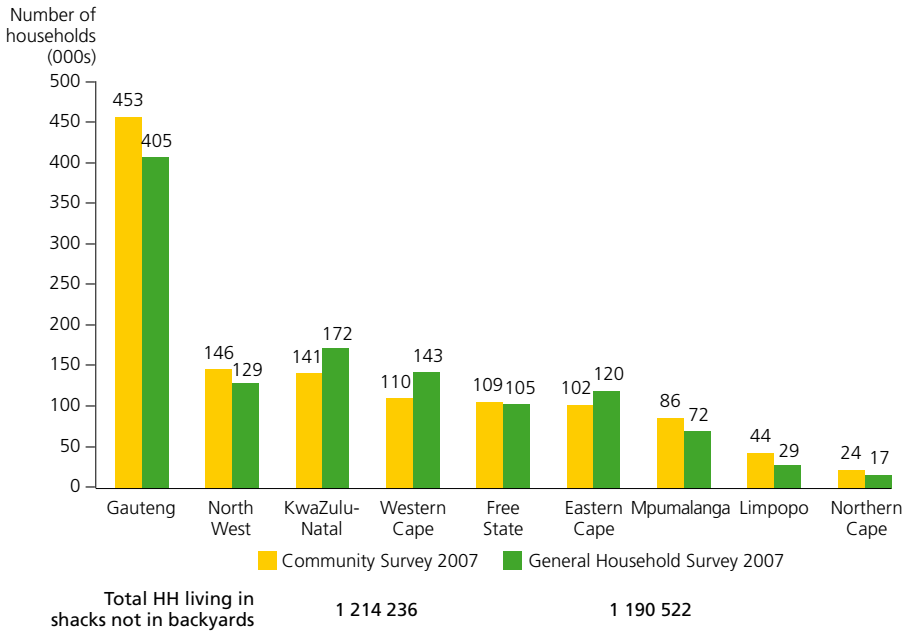


Source: Census 2001 (full database), Community Survey 2007, IES 2005/6, GHS 2002-2009 (reweighted).
Note: Dashed line indicates new sample designs for GHS (2002-2004, 2005-2007, 2008-2009).

As with national estimates, survey-based provincial estimates of the number of households who live in shacks not in backyards vary, sometimes quite significantly. For instance, the 2007 Community Survey estimates around 110,000 households living in shacks not in backyards in the Western Cape while the 2007 GHS estimates around 143,000 such households.

CHART 5

HOUSEHOLDS LIVING IN SHACKS NOT IN BACKYARDS, BY PROVINCE: SOUTH AFRICA



	Community Survey 2007	General Household Survey 2007
Total HH living in shacks not in backyards	1 214 236	1 190 522

Source: Community Survey 2007, General Household Survey 2007.

While all provinces were contacted as part of this research, only three provinces provided relatively recent estimates of the number of households or dwellings in informal settlements. Note that estimates from the Western Cape are provisional. A comparison of this data and survey data is summarised below.

TABLE 8 **ESTIMATES OF HOUSEHOLDS AND DWELLINGS IN INFORMAL SETTLEMENTS (BY PROVINCE)**

	Number of households in informal settlements				Number of dwelling units in informal settlements
	Census 2001: HH in informal settlement EA	Census 2001: HH in shacks not in backyards	Community Survey 2007: HH in shacks not in backyards	Provincial estimates	Provincial estimates
KwaZulu-Natal	268 800	177 989	140 961	306 076	
North West	57 765	154 693	146 143		66 031
Western Cape (excl. City of Cape Town)	27 818	32 561	25 762		51 224

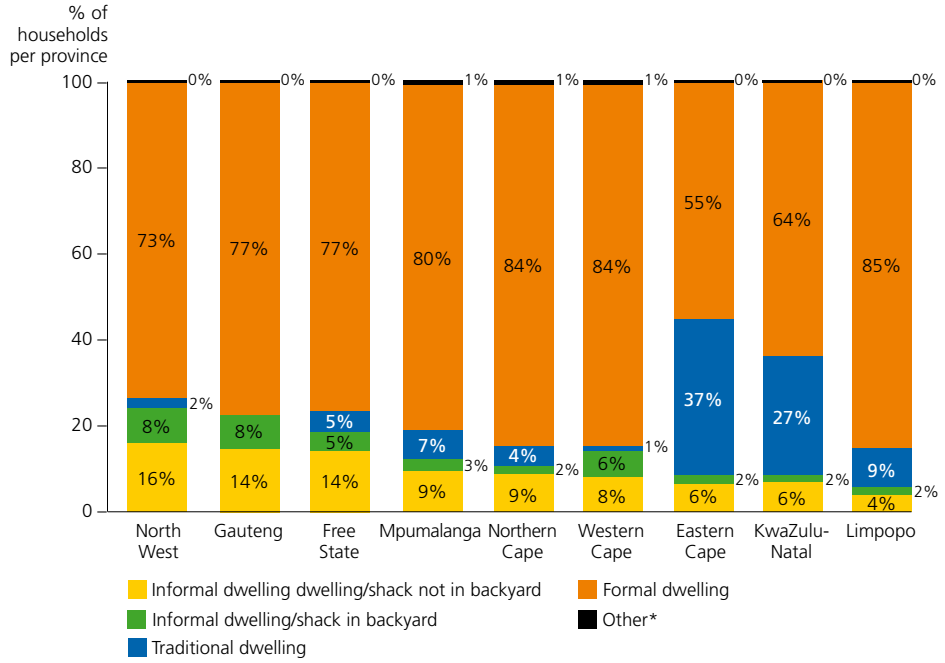
Note: 'Dwelling units' in the Western Cape estimates are shacks.

Census and survey data indicate that the provincial distribution of households living in shacks not in backyards is heavily skewed towards Gauteng. According to the Census and Community Survey roughly a third of households in shacks not in backyards live in this province (roughly one quarter of all households in the country live in this province).

With regard to the penetration of shacks not in backyards, according to the Community Survey, at 16% the North West Province has the highest proportion of households living in shacks not in backyards. Data on the provincial profile of dwelling types is summarised below. In areas such as KwaZulu-Natal and the Eastern Cape, traditional dwellings are prominent while backyard shacks are noticeable in the North West, Gauteng and the Western Cape. Given that dwelling types in informal settlements are not necessarily shacks not in backyards, there may be some justification for the inclusion of other dwelling types in the analysis. However given the limitations of survey data, there is no basis to assess what proportion of other dwelling types should be included.

CHART 6

TYPE OF MAIN DWELLING BY PROVINCE: SOUTH AFRICA

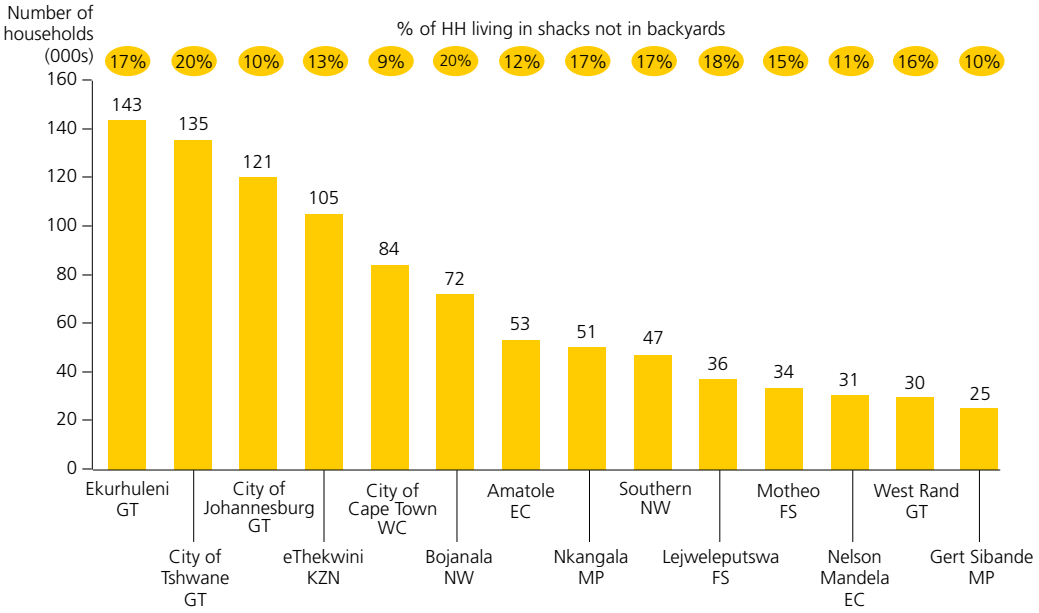


Source: Community Survey 2007 HH.
Note: Other* includes caravan or tent, private ship/boat, and other.

Municipal level data is available in the Census and Community Survey[23]. According to the Community Survey, of all the major metropolitan areas, Ekurhuleni has the highest number of households living in shacks not in backyards at over 143,000. Between them, the five metropolitan municipalities with the highest number of households who live in shacks not in backyards account for 48% of all such households in the country. The chart below summarises this data together with data on the penetration of this dwelling type by municipality. Together with Tshwane, Bojanala (a municipality in which 23% of the employed population works in the mining industry[24]) has the highest proportion of households who live in shacks not in backyards.

CHART 7

HOUSEHOLDS LIVING IN SHACKS NOT IN BACKYARD (BY MUNICIPALITY): SOUTH AFRICA



Source: Community Survey 2007 HH.

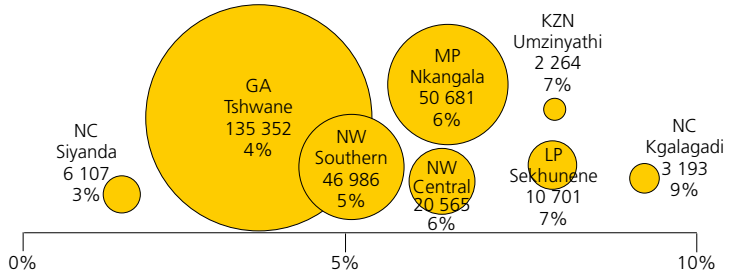
[23] District level data is also available in the GHS up to 2007 although sample sizes are small.
[24] Labour Force Survey 2007 September.

Data from the 2001 Census and the 2007 Community Survey can be used to identify areas where growth in the number of households living in shacks not in backyards has been particularly rapid. 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 (such as Kgalagadi) high growth has occurred off a very low base. For those areas with significant scale, the City of Tshwane has the highest rate of growth at 4% per annum. At the other end of the spectrum, in the Nelson Mandela Bay Municipality the number of households living in shacks not in backyards has declined noticeably. Once again, the impact of possible sampling bias should be noted.

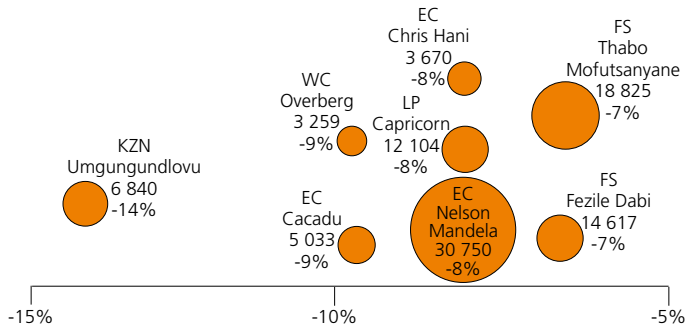
CHART 8

HOUSEHOLDS LIVING IN SHACKS NOT IN BACKYARDS (BY MUNICIPALITY) – CAGR: SOUTH AFRICA

Municipalities with positive compound annual growth (2001-2007)



Municipalities with negative compound annual growth (2001 -2007)



Source: Census 2001 and Community Survey 2007.
Note: Only municipalities with 70 or more observations were included. The top 8 municipalities for positive growth and negative growth were used.

Six major metropolitan municipalities were contacted to obtain estimates of the number of households or dwellings in informal settlements. Data was obtained from five municipalities. This data is compared to survey data in the table below.

TABLE 9 **ESTIMATES OF HOUSEHOLDS AND DWELLINGS IN INFORMAL SETTLEMENTS (BY MUNICIPALITY)**

	Number of households in informal settlements				Number of shacks in informal settlements
	Census 2001: HH in informal settlement EA	Census 2001: HH in shacks not in backyards	Community Survey 2007: HH in shacks not in backyards	Municipal estimates	Municipal estimates
City of Cape Town	89 126	110 148	84 300	173 600	134 055
City of Johannesburg	74 411	133 366	120 701	220 000	
Ekurhuleni	143 673	162 897	143 438	160 336	
eThekwini	204 812	123 450	104 903	239 000	
Nelson Mandela Bay	40 447	51 616	30 750	35 772	

It is noteworthy that in most cases municipal estimates differ significantly from survey estimates. This may reflect the limitations of survey data (arising from sample bias for instance). The discrepancy may also reflect different definitions. Municipalities may include households that live in other dwelling types in their totals.

3.2 Estimating the number of informal settlements in South Africa

While survey and census data provide an estimate based on households, various data sources provide estimates of the number of informal settlements. Available data sources at a settlement level are summarised below. Note that settlements are identified and defined differently in these data sources.

TABLE 10 **ESTIMATES AND/OR COUNTS OF INFORMAL SETTLEMENTS**

Number of informal settlements in South Africa	
Informal Settlements Atlas	2 754 settlements in 70 municipalities (2 628 in 45)
Stats SA: Sub Places with at least one EA classified as 'Informal Residential'	1 184
Eskom: Polygons classified as 'Dense Informal'	1 016

While both LaPsis and Atlas databases rely on provincial data and should therefore be aligned with provincial estimates, there are often differences. For instance, the Ekurhuleni Municipality estimates 114 informal settlements while LaPsis reflects 145 in this municipality. These differences most probably arise as a result of different data currency; provincial or municipal estimates may have been collated more recently than national estimates. Variances may also reflect a lack of alignment regarding the definition of an informal settlement as well as different data collection methodologies.

PART 4

Profiling informal settlements in South Africa

Various nationally representative surveys have been used to create a profile of households living in informal settlements. The analysis of survey data investigates the characteristics of the dwellings and the profile of households and individuals living in shacks not in backyards. Note that 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

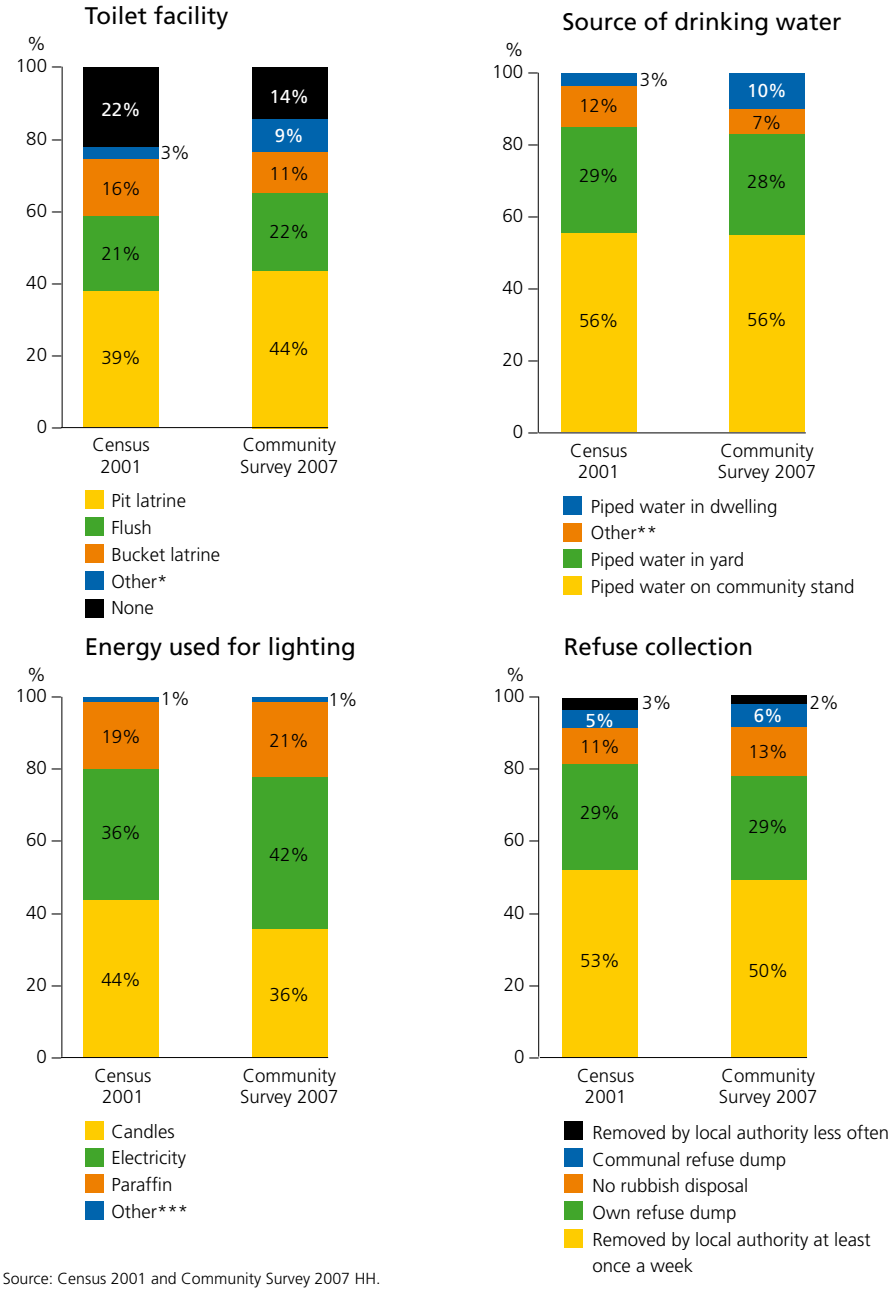
There are a range of living standard indicators in the 2001 Census and available surveys. These indicators include access to key services such as water, sanitation and electricity. In some cases they also include indicators relating to the conditions of dwelling structures themselves.

In 2001, 26% of households living in informal settlement EAs had piped water in their dwelling or on their yard. A further 33% could obtain piped water within 200 metres of their dwellings. 32% 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. 19% of households in informal settlement EAs used flush toilets, 43% used pit latrines, 15% used bucket latrines and 5% used chemical toilets; the remaining 19% had no access to toilet facilities. 32% of households in informal settlement EAs used electricity for lighting and 56% 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 charts below.

CHART 9

ACCESS TO SERVICES: HOUSEHOLD LIVES IN SHACK NOT IN BACKYARD IN SOUTH AFRICA



Source: Census 2001 and Community Survey 2007 HH.
* Other toilet facilities includes Chemical toilet and Dry toilet facility.
** Other water source incudes Borehole, Flowing water, Stagnant water, Well, Spring and Other.
*** Other energy sources includes Gas, Solar and Other.
Note: In the 2007 CS, refuse removed by local authority also includes refuse removed by private company.

A comparison between Census 2001 and the 2007 Community Survey indicates some improvement in access to services. The proportion of households living in shacks not in backyards that had no toilet facilities declined from 22% in 2001 to 14% in 2007. Access to electricity increased noticeably from 36% in 2001 to 42% in 2007. There is no data to assess whether the electricity connection is legal. Nevertheless, access to electricity provides impetus for households to obtain appliances which impact on households' standards of living. According to the Community Survey in 2007, 38% of all households in shacks not in backyards had a television while 29% had a fridge. For those households with electricity[25], 63% had a television and 57% had a fridge.

The national average masks significant provincial variation in access to services. Within a province there is no general relationship across services; provinces with a high or moderate proportion of households receiving one service may have a relatively low proportion of households receiving another. This may reflect municipal priorities, capacity or limited coordination across municipal departments responsible for service delivery. This is summarised in the colour-coded table below.

TABLE 11 **ACCESS TO SERVICES IN 2007: HOUSEHOLDS IN SHACKS NOT IN BACKYARDS**

	Refuse collected by municipality	Piped/tap water in dwelling or yard	Use electricity for lighting	Flush toilet
Eastern Cape	41%	12%	27%	14%
Free State	64%	64%	60%	24%
Gauteng	51%	37%	30%	26%
KwaZulu-Natal	65%	29%	48%	13%
Limpopo	12%	28%	38%	9%
Mpumalanga	37%	57%	45%	23%
Northern Cape	56%	51%	51%	17%
North West	38%	42%	55%	13%
Western Cape	76%	28%	56%	42%
South Africa	51%	38%	42%	22%

Green: 50%+ Yellow: 25%-49% Blue: <25%

Source: Community Survey 2007.

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.

[25] These households use electricity for cooking, lighting or heating.

4.2 Profile of households and families

In 2001, 23% of households living in informal settlement EAs were single person households. The average household size was 3.3. 20% of households were living in over-crowded conditions[26]. The majority of households were headed by males (61%).

According to the 2007 Community Survey, 23% of households living in shacks not in backyards comprise a single individual. This might reflect the preferences of younger, more mobile workers who seek accommodation near their workplaces - 50% of those in shacks not in backyards who live on their own are under the age of 35. On the other hand it may also point to a lack of alternative affordable accommodation that is suitable for families; survey data indicates that around one fifth of individuals who live in shacks not in backyards on their own are married.

There are also, however, larger households living in shacks. According to the Community Survey 38% of households living in shacks not in backyards comprise four or more persons. The average household size of households living in shacks not in backyards is 3.2[27] (compared to 3.8 for those living in formal dwellings) – no change from the 2001 Census. In 2007, 22% of households living in shacks not in backyards lived in over-crowded conditions[28].

Household heads in shacks not in backyards are also noticeably younger than those in formal dwellings; 38% are under the age of 35 compared to 22% in households who live in formal dwellings. Community Survey data indicates very few child headed households living in shacks not in backyards; it estimates around 6,000 households are headed by children under the age of 18 (less than 1% of households living in shacks not in backyards). It would appear that this data source under-counts child headed households in general. For the country as a whole, the survey reports a total of 83,000 child-headed households (less than 1% of all households).

There is a sizable population of 1.4 million children under the age of 18 who live in shacks not in backyards corresponding to over one third of the total population who live in such dwellings. According to the Community Survey 53% of households in shacks not in backyards have one or more children. Thus, while there are, no doubt, many individuals living in shacks not in backyards who live apart from their families because they view their homes as temporary and poorly-suited to bringing up families a sizeable proportion either do not share this view or face alternatives that are even worse.

Data from the GHS can be used to explore the relationships between household members in more detail. While the Community Survey finds that 23% of households are single person households as noted above, the 2009 GHS indicates that roughly one third of households living in shacks not in backyards comprise single persons; within this segment over a half are under the age of 35. That survey indicates that 19% of households living in shacks not in backyards are nuclear families comprising a household head, his or her spouse and children only. Single parent households, at 10% of all households are also conspicuous (85% of single parent households who live in shacks not in backyards are headed by a woman).

[26] 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.
[27] Note there are differences across surveys. According to the 2009 GHS this figure is 2.8.
[28] 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.

27% of households who live in shacks not in backyards contain extended family members or unrelated individuals[29]. GHS data from 2004 to 2009 indicates that for households living in shacks not in backyards, couple and single person households have grown the fastest. Average household size of shacks not in backyards has steadily decreased from 3.1 in 2004 to 2.8 in 2009.

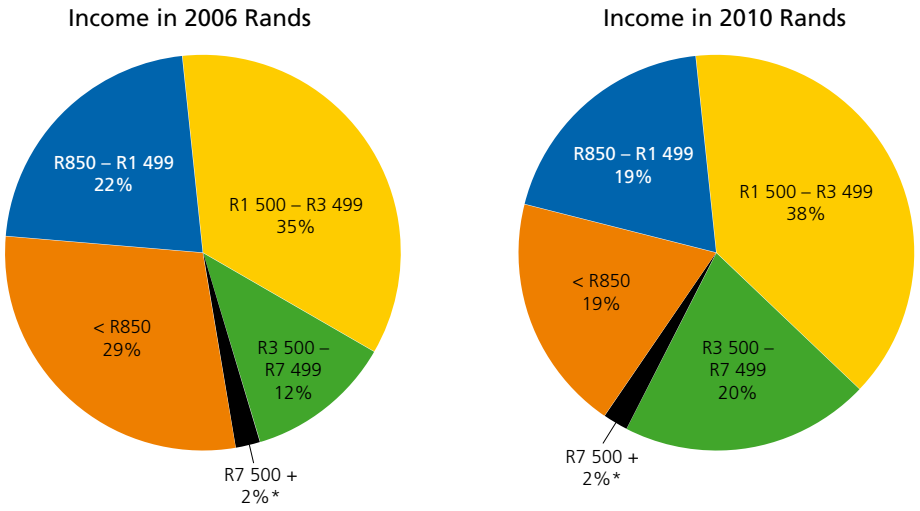
4.3 Income, expenditure and other indicators of wellbeing

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 85% 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 shift in real incomes) 75% of households living in shacks not in backyards earn less than R3,500 per month in 2010 Rand terms.

CHART 10

DISTRIBUTION OF HOUSEHOLDS IN SHACKS NOT IN BACKYARDS BY MONTHLY HOUSEHOLD INCOME (2006 VERSUS 2010 RANDS)



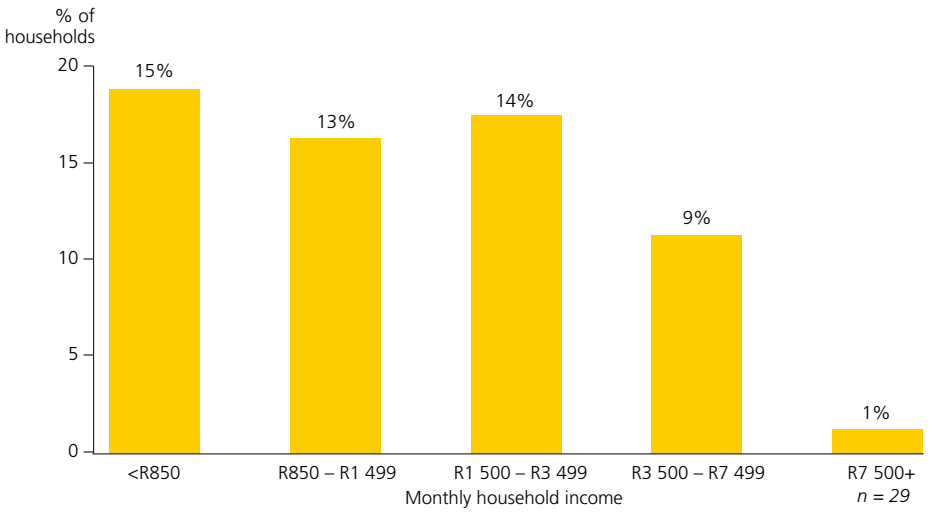
Source: IES 2005/6.
Note: House or semi-detached house includes dwelling/brick structure located on a separate stand/yard/farm, and town/cluster/semi-detached houses. Backyard dwelling includes dwelling/flat/room in backyard. Other includes room/flatlet or larger dwelling/servants' quarters/granny flat, unit in retirement village, workers' hostel, family unit, caravan/tent, other and unspecified.
Note*: Small sample sizes, less than 40 observations.

[29] Compared to households who live in formal housing, the household composition of households in shacks not in backyards differs most noticeably with respect to single person households and households that contain extended family or non-related members. 19% of households in formal dwellings comprise a single individual while 37% include extended family members or non-related members. 21% are nuclear families and 11% single parents – statistics which are not very different from those relating to households living in shacks not in backyards.

As expected, that survey indicates that the proportion of households living in shacks not in backyards declines as incomes increase.

CHART 11

PROPORTION OF HOUSEHOLDS IN SHACKS NOT IN BACKYARDS BY MONTHLY HOUSEHOLD INCOME: SOUTH AFRICA

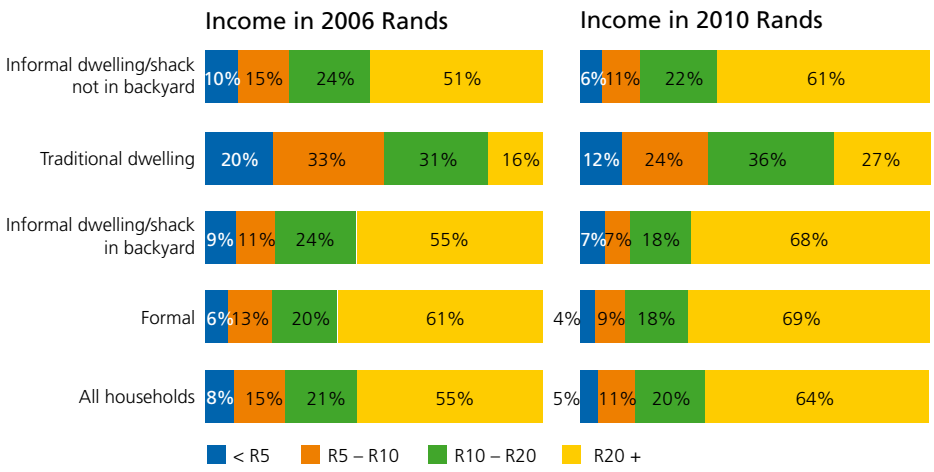


Source: IES 2005/6.
Note: Income is nominal, weighted to April 2006 Rands.

Per capita income can provide a more nuanced indication of wellbeing than household income[30] as it eliminates biases that arise as a result of varying household sizes. Data from the IES indicates that households who live in traditional dwellings are most likely to have very low per capita incomes; 36% have a per capita daily income of less than R10 measured in 2010 Rand terms. Households who live in shacks not in backyards appear on average to be slightly more likely to be extremely poor than those in backyard shacks and those who live in formal dwellings.

CHART 12

DAILY PER CAPITA INCOME BY DWELLING TYPE: SOUTH AFRICA



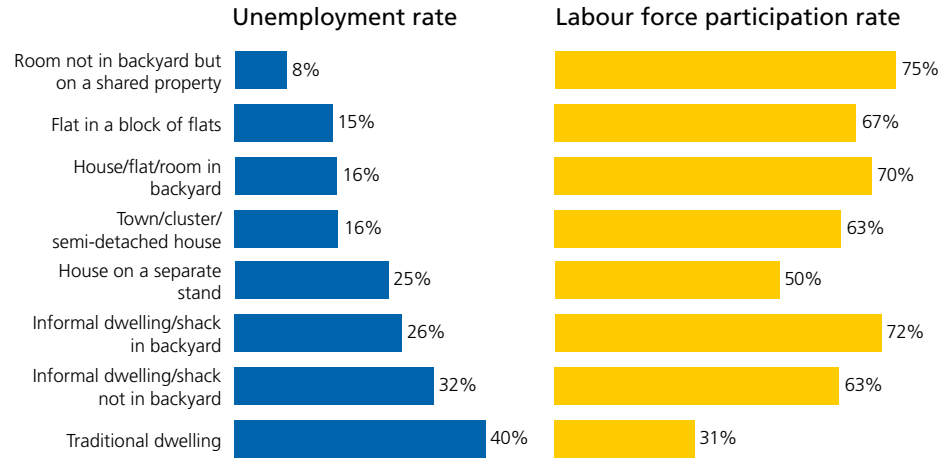
Source: IES 2005/6.
* Formal housing includes dwelling or brick structure on a separate stand/yard/farm, flat/apartment in a block of flats, room/flatlet or a larger dwelling/servants quarters/granny flat, town/cluster/semi-detached house, workers' hostel or family unit, and unit in retirement village.
Note: All households also includes backyard dwellings, caravan/tent, other and unspecified.
Note: Per capita income is calculated as the household income divided by the household size (children under 10 count as half an adult).

[30] Per capita income is calculated as the total household income divided by the adjusted household size, where children under 10 years of age count as half an adult.

Data from the 2007 GHS has been used to explore labour force participation and employment patterns for adults aged 15 and above. According to that data both participation rates and unemployment rates differ noticeably by dwelling type. As per the chart below, at 32% unemployment rates are particularly high for those who live in shacks not in backyards (second only to traditional dwellings).

CHART 13

UNEMPLOYMENT RATES AND LABOUR FORCE PARTICIPATION RATES BY DWELLING TYPE: SOUTH AFRICA

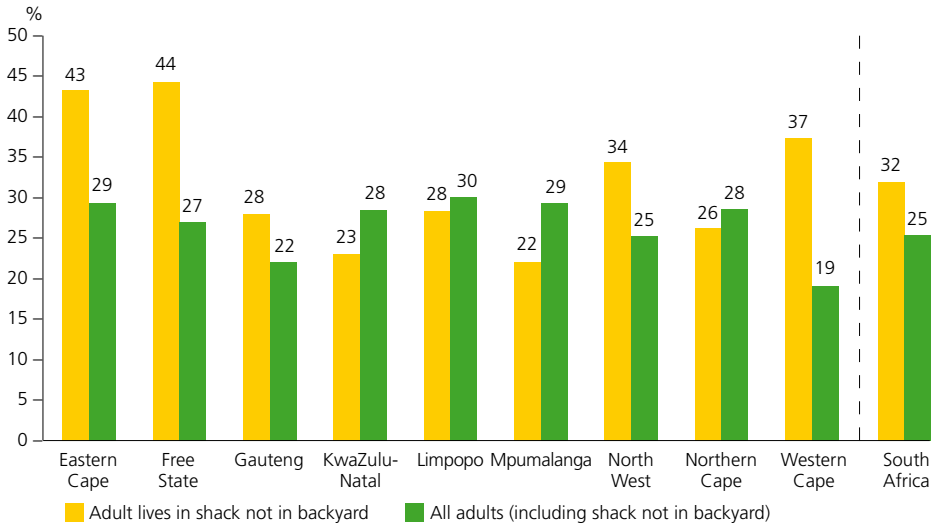


Source: General Household Survey Workers 2007.

The unemployment rate of 32% for those who live in shacks not in backyards is above the national average of 25%. This varies by province. In some cases, for example in KwaZulu-Natal, Limpopo, Mpumalanga and the Northern Cape, unemployment rates are lower for those who live in shacks not in backyards than for the province as a whole. In provinces with noticeably higher unemployment rates in informal settlements than the province at large (such as the Western Cape, the Eastern Cape and the Free State) the data might suggest that it is unlikely that proximity to economic opportunities is the primary reason people live in informal settlements. That said, there is no data on employment opportunities in the next best alternative.

CHART 14

UNEMPLOYMENT RATES BY PROVINCE: SOUTH AFRICA



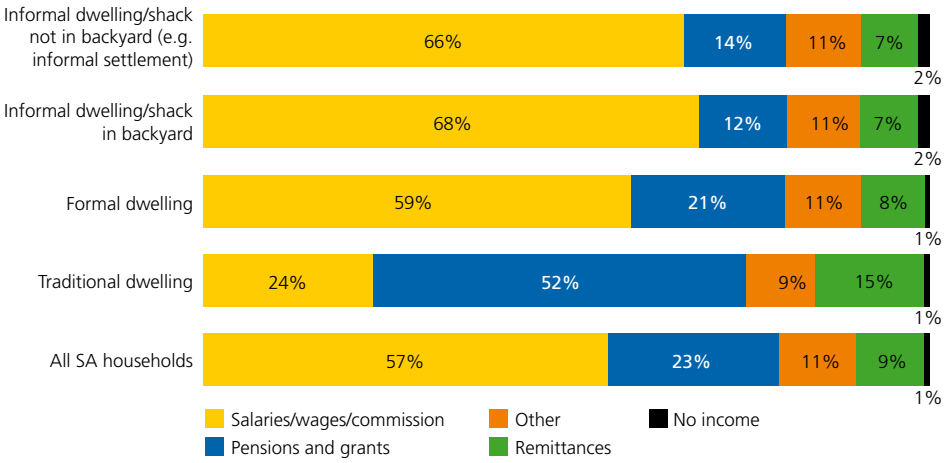
Source: General Household Survey Workers 2007 (adults 15+).

2004 Labour Force Survey data indicates that 37% of employed adults living in shacks not in backyards are permanently employed in the formal sector, noticeably lower than the national average of 53% for all workers. 27% of employed individuals living in shacks not in backyards are employed in the informal sector, a proportion that is above the national average (21%). It may well be the case that informal sector activity is under-reported; by its nature it is difficult to track.

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.

CHART 15

MAIN SOURCE OF INCOME: SOUTH AFRICA



Source: GHS 2009 HH.
Note: 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.
Note: All households also includes caravan/tent, other.

Trend data from the GHS indicates no significant shifts in main income sources through the 2008/9 recession, with the proportion of households living in shacks not in backyards citing salaries or wages as their primary income source remaining constant at around 66%. This is despite a decline in employment levels from 2008 to 2009, particularly in the informal sector which declined from 2.52 million individuals in Q2 2008 to 2.25 million in Q2 2009. This may reflect high levels of mobility: individuals who lose their jobs or who cannot sustain their businesses may relocate or reconstitute their households in other areas.

4.3.2 Expenditure

There are noticeable differences in expenditure patterns between lower income households who live in shacks not in backyards and lower income households who live in formal dwellings. Restricting the analysis to households earning less than R2,500 per month[31] the data indicates that compared to households who live in formal dwellings, households who live in shacks not in backyards allocate a noticeably smaller proportion of income to housing and related services such as water, electricity, gas and other fuels[32]. In contrast they allocate a slightly higher proportion of income to transport.

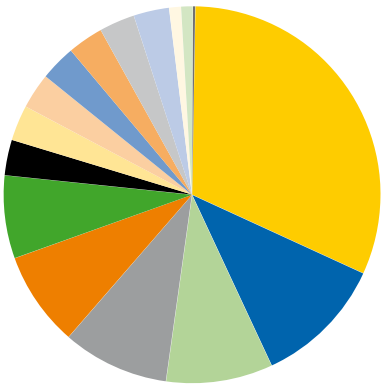
[31] Measured in 2006 Rands. This is not a like-for-like comparison and should be seen only as indicative.
[32] These include liquid fuels (such as paraffin and diesel) and solid fuels (such as firewood, charcoal and dung).

Households who live in shacks not in backyards also allocate a higher proportion of their incomes to transfers to others. According to the IES, the proportion of households living in shacks not in backyards that transfer maintenance or remittances[33] at 46% is well above the average for South African households as a whole (32%). For single person households living in shacks not in backyards, this proportion is even higher at 55%.

CHART 16

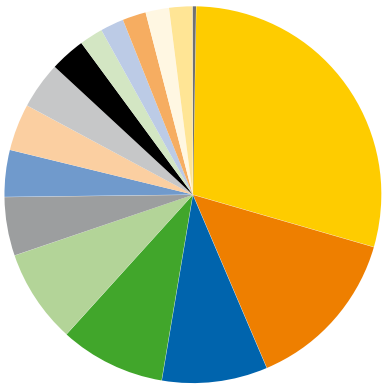
AVERAGE HOUSEHOLD CONSUMPTION EXPENDITURE (NOMINAL MONTHLY HOUSEHOLD INCOME <R2 500): SOUTH AFRICA

HH lives in a shack not in backyard
(Average monthly consumption expenditure: R1 285)



- 31% Food and non-alcoholic beverages
- 11% Transport
- 9% Clothing and footwear
- 9% Transfers to others
- 8% Housing, water, electricity and fuels
- 7% Furniture, equipment and maintenance
- 3% Communication
- 3% Alcohol, tobacco and narcotics
- 3% Insurance and other financial services
- 3% Social protection and other services
- 3% Restaurants and hotels
- 3% Recreation and culture
- 3% Personal care and effects
- 1% Health
- 1% Education
- 0.2% Other unclassified expenses

Formal housing *
(Average monthly consumption expenditure: R1 623)



- 29% Food and non-alcoholic beverages
- 14% Housing, water, electricity and fuels
- 9% Transport
- 9% Furniture and maintenance
- 8% Clothing and footwer
- 5% Transfers to others
- 4% Social protection and other services
- 4% Insurance and other financial services
- 4% Recreation and culture
- 3% Communication
- 2% Education
- 2% Personal care and effects
- 2% Restaurants and hotels
- 2% Health
- 2% Alcohol, tobacco and narcotics
- 0.3% Other unclassified expenses

Source: IES 2005/6.
* Formal housing includes dwelling or brick structure on a separate stand/yard/farm, flat/apartment in a block of flats, room/flatlet or a larger dwelling/servants quarters/granny flat, town/cluster/semi-detached house, workers' hostel or family unit, and unit in retirement village.
Note: Transport excludes purchase of vehicles.

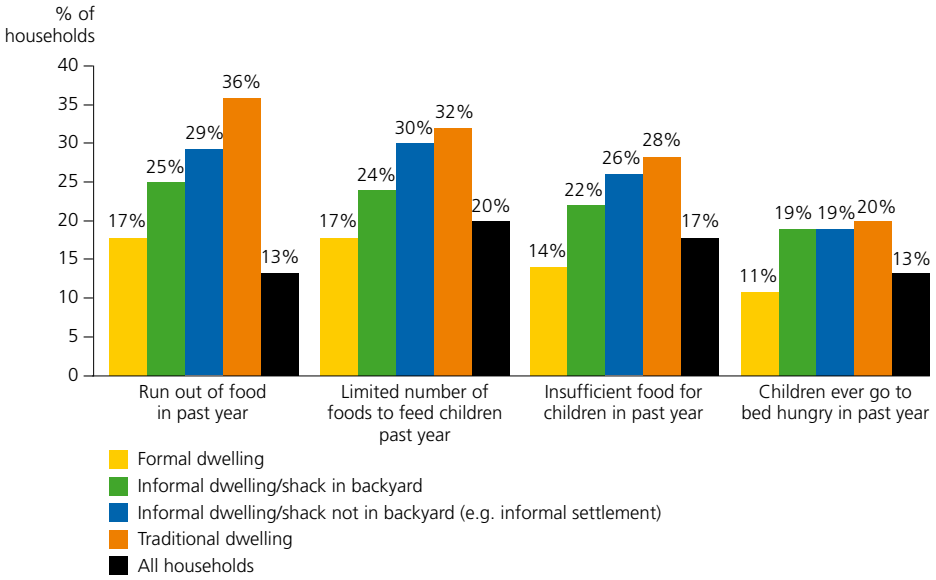
[33] Both cash and in kind payments.

4.3.3 Other indicators of well-being

Aside from income and expenditure 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 children[34]. Over a quarter of households with children who live in shacks in backyards say they have had insufficient food for their children in the past year. Almost one fifth indicate that children in their households have gone to bed hungry in the past year.

CHART 17

MEASURES OF DEPRIVATION: SOUTH AFRICA



Source: GHS 2009 HH.
Note: Those questions referring to children exclude those households with no children.
Note: 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.
Note: All households also includes caravan/tent, other.

4.4 Age of dwellings and permanence

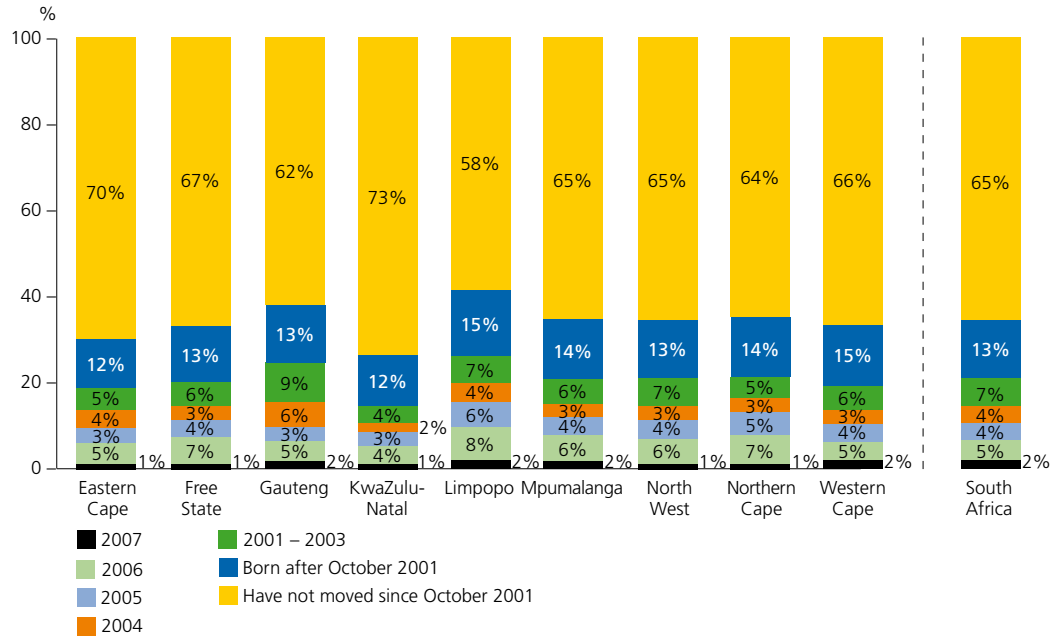
In 2001, the majority of households living in informal settlement EAs (71%) were living there five years previously. In 2001, 36% of households living in informal settlement EAs claimed to own their dwellings; 16% rented and 48% occupied the dwelling rent-free. 18% of households in informal settlement EAs had another dwelling aside from their main dwelling.

[34] '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 becausethere was not enough food/money to buy food?' – Yes/No.

Analysis of data from the 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 country, 65% said they had not moved since 2001. There is some variance in this statistic across provinces but the broad picture remains the same.

CHART 18

YEAR PERSON MOVED INTO CURRENT DWELLING (CURRENTLY LIVES IN A SHACK NOT IN A BACKYARD): SOUTH AFRICA



Source: Community Survey 2007 Persons.

According to the 2009 GHS, of the 1.2 million households currently living in shacks not in backyards, almost 1.06 million or 89% indicated that they were living in a shack not in backyard five years previously. The survey does not indicate whether the dwelling or the broad location of the dwelling is the same. Nevertheless on the basis of this data the imputed maximum compound annual growth rate in the number of households living in shacks not in backyards is 2.4%[35].

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 a settlement and their rights either to remain in the settlement or to benefit from any upgrading programmes, they may well have an incentive to over-state the length of time they have lived in their dwellings.

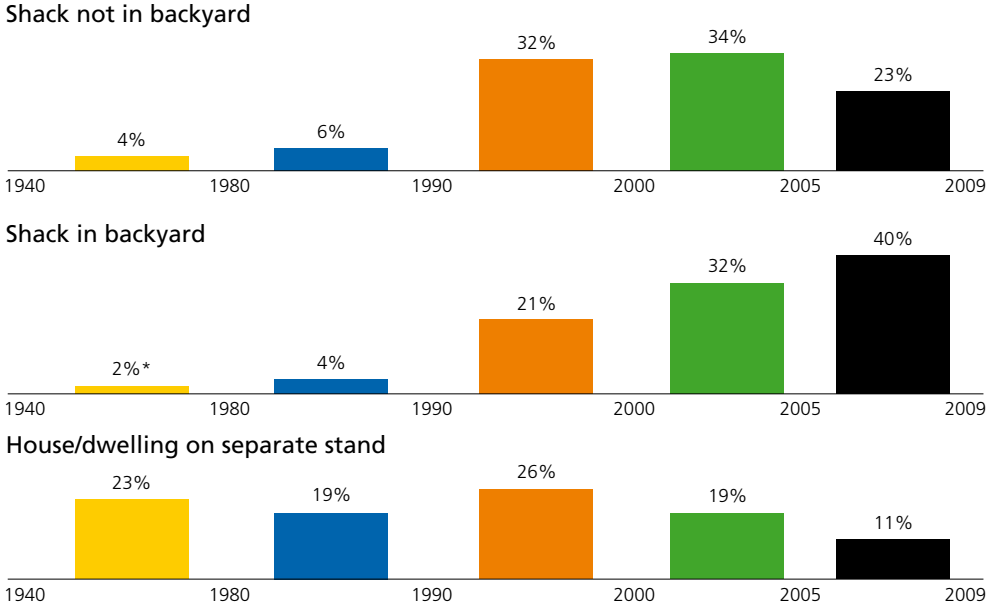
[35] It may be lower if there is high turnover within informal settlements. Some households who have moved into a shack not in a backyard recently may have purchased the shack from a previous occupant who has relocated.

The 2009 GHS asks respondents when (i.e. in what year) their dwellings were originally built[36]. The data indicates that just over 23% of shacks not in backyards were built within the past five years. At first glance this would appear to be at odds with the statistic cited above that almost 90% of households living in shacks not in a backyard were living in that same type of dwelling five years ago. However, as already noted, that 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 frequently[37].

The survey data indicates that shacks not in backyards tend to be 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 is turn may reflect increased vigilance on the part of municipal officials and a greater determination to prevent the creation of new informal settlements.

CHART 19

YEAR CURRENT DWELLING WAS ORIGINALLY BUILT: SOUTH AFRICA



Source: GHS 2009 HH.
Note: The survey states that if the year is not known, the best estimate should be given. Although it is not shown here, this accounts for the very few 'unspecified' responses.
* Sample size small (< 40).

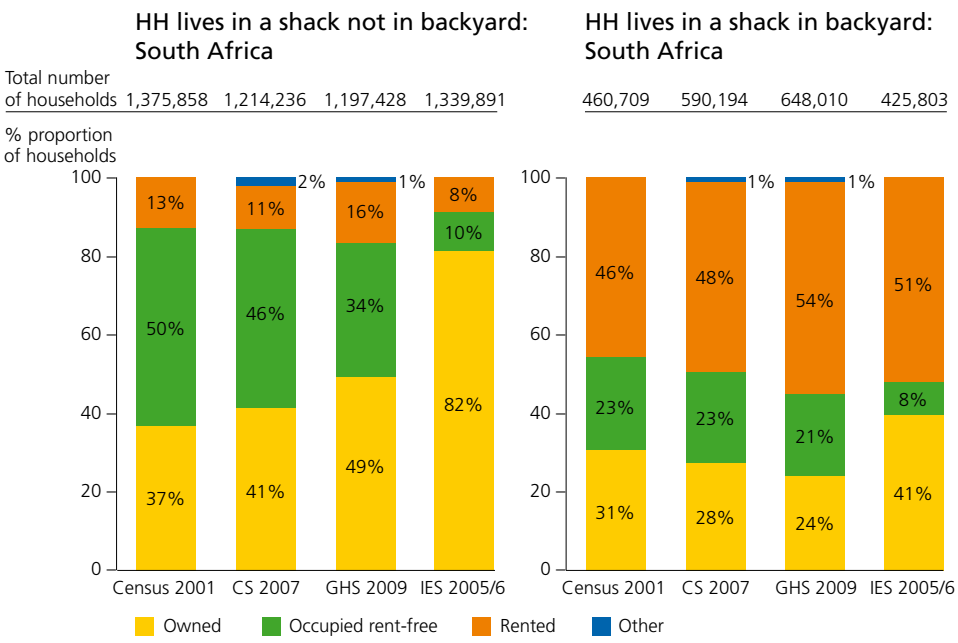
[36] It would be unsurprising if many households, particularly those that rent their dwellings or those that occupy older dwellings, do not know when their dwellings were constructed. In such cases, the questionnaire directs respondents to provide a best estimate. There is no indicator in the data as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

[37] 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 dwellingor to the rebuilt dwelling?

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 various data sources is summarised below.

CHART 20

DWELLING TENURE ACROSS DIFFERENT SURVEYS: SOUTH AFRICA



Source: Census 2001 (10% sample), IES 2005/6, Community Survey 2007, GHS 2009; Household databases.
Note: 'Other' contains small sample sizes.

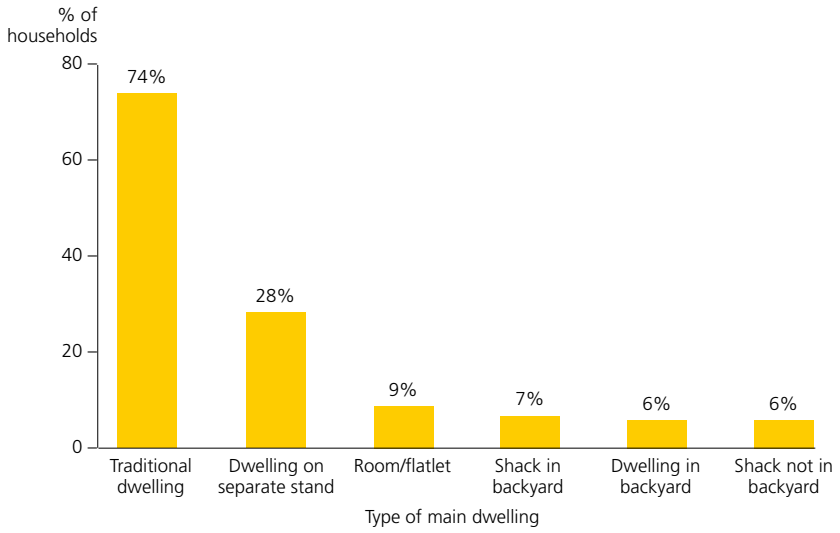
Broadly speaking, data from the 2001 Census, the 2007 Community Survey and the 2009 General Household Survey paint a similar picture. These sources indicate that while rental is relatively uncommon for shacks not in backyards (in contrast to backyard shacks where rentals dominate) there is a fairly even split between households who say they own their dwelling and households who say they occupy it rent free. Data from the Income and Expenditure Survey differs markedly. It is not clear why this is the case.

Data on tenure status can be difficult to interpret. There is no indication whether ownership is formal (i.e. whether there is a title deed). Further, it is not entirely clear what 'ownership' means to the household. 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. 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 physical structure. Other renter households may rent both the structure and the land.

Ownership of other dwellings may be an indication of non-permanence and is therefore of interest. According to the 2009 GHS, for the country as a whole roughly one quarter of households say they have another dwelling aside from their main dwelling. Households who live in traditional dwellings are most likely to say they have another dwelling (74% of households whose main dwelling is a traditional dwelling say they have another dwelling). In most cases (85% of the time) these households indicate that their other dwelling is also a traditional dwelling. For those whose main dwelling is a shack not in a backyard 6% say they have another dwelling, noticeably lower than for those whose main dwelling is a formal structure on a separate stand.

CHART 21

HOUSEHOLDS HAVING ANOTHER DWELLING ASIDE FROM THEIR MAIN DWELLING (BY TYPE OF MAIN DWELLING): SOUTH AFRICA



Source: GHS 2009 HH.
Note: Main dwelling types omitted due to small sample sizes include town/cluster/semi-detached house, flat/apartment, caravan/tent, other.

4.5 Housing waiting lists and subsidy housing

According to the 2009 GHS, 458,000 (38%) of 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 1.8 million households nationally with at least one member on the housing waiting list, 45% live in a dwelling/structure on a separate stand, 12% in a traditional dwelling and 10% in a backyard shack. Around one quarter live in shacks not in backyards (note that 9% of all households live in shacks not in backyards).

The table below summarises data pertaining to households living in shacks not in backyards with at least one member on a waiting list by province. In the Western Cape and Gauteng more than 50% of the households have been on the waiting list for five or more years. In the Eastern Cape more than 50% of the households have been on the waiting list for seven or more years.

TABLE 12 **WAITING LIST INDICATORS FOR RDP HOUSES, BY PROVINCE: HOUSEHOLDS IN SHACKS NOT IN BACKYARDS**

	Estimated number of households with at least one member on waiting list	% of households with at least one member on waiting list	Reported number of years on waiting list**			
			Mean	Lower quartile	Median	Upper quartile
South Africa	**457 559**	**38%**	**5.01**	**1**	**4**	**8**
Eastern Cape	52 911	51%	6.02	2	7	9
Free State	30 120	44%	2.99	0	1	5
Gauteng	215 890	45%	5.57	2	5	9
KwaZulu-Natal	43 380	25%	4.32	2	4	5
Limpopo *	13 036	33%	2.73	0	2	3
Mpumalanga	25 609	40%	3.22	0	2	6
North West	20 523	18%	3.27	1	2	5
Northern Cape	8 289	49%	3.06	1	2	4
Western Cape	47 801	36%	6.10	2	5	9

Source: GHS 2009 HH.
** Sample size with at least one member on waiting list <40.*
*** Sample size in any given year is <40, except when looking at 2000 and 2004 - 2009 in South Africa as a whole.*

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 (3%) report having received a subsidy. Of course, there may be a response bias in this data; households living in informal settlements that have received a subsidy are unlikely to admit 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 506,000 households living in shacks not in backyards (42% 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 if one current household member were to obtain a subsidised house; some members of the household may move into the new house while others may remain in the shack.

4.6 Health and vulnerability

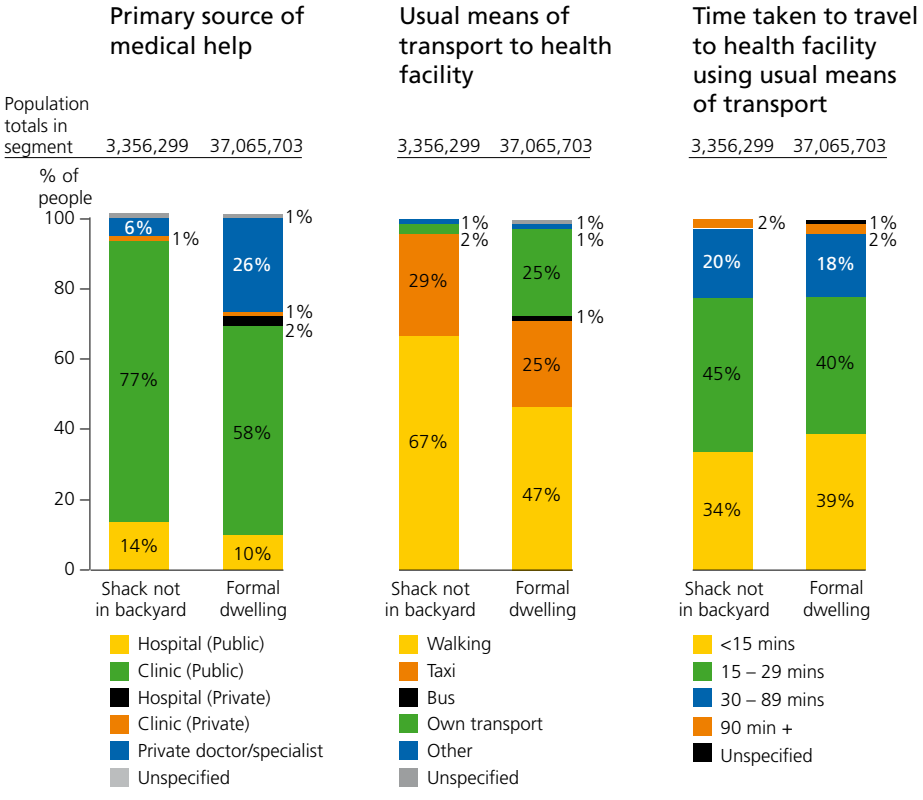
The 2009 GHS indicates that approximately 17% of individuals who live in a shack not in a backyard say they have suffered from an illness or injury in the past month. This is not noticeably different to the disease burden reported by those living in formal dwellings. Of course the subjective 'norm' may differ across communities. More affluent individuals living in formal dwellings 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; 3% of the population who live in shacks not in backyards are 60 or older compared to 8% of the population as a whole. Holding other things constant, one should therefore expect a lower burden of disease for those living in shacks not in backyards.

For those who live in shacks not in backyards the most common type of illness or injury suffered is flu or acute respiratory infection. Less prevalent illnesses indicated are TB, high blood pressure and diarrhoea. Contrary to what might be expected this pattern is not noticeably different for those households that have access to running water in the dwelling or on their yard.

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. About two-thirds walk to their medical facility and just less than half take between 15 and 30 minutes to get there. Once again a word of caution is in order; the data may be biased towards better established areas that have access to facilities.

CHART 22

ACCESS TO HEALTH FACILITIES: SOUTH AFRICA

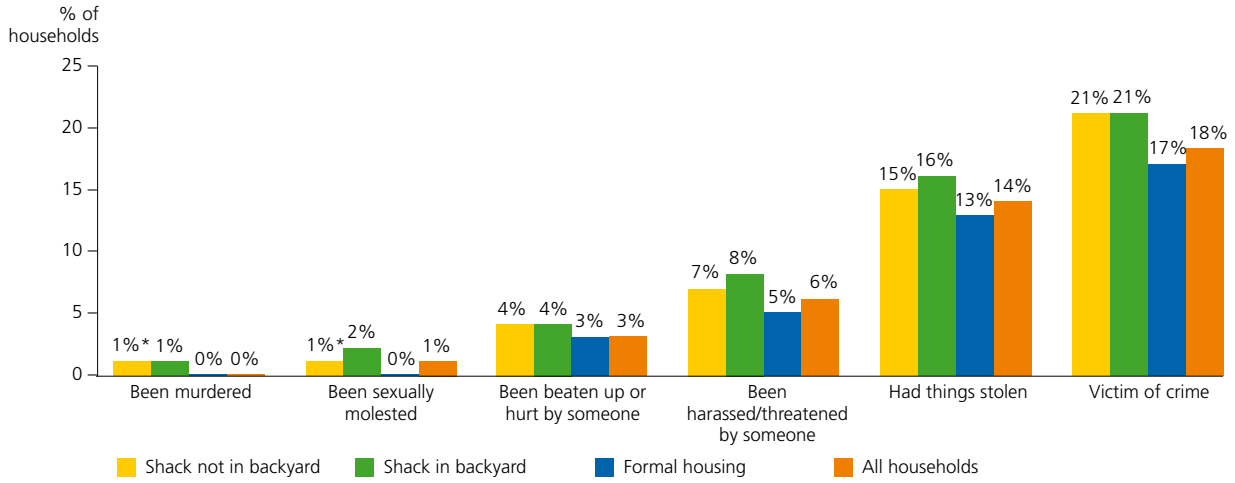


Source: GHS 2009 Persons.
Note: These questions are asked of everyone, regardless of whether they have been recently ill.

Contrary to strong anecdotal evidence, respondents who live in shacks not in backyards are not more likely to report being a victim of crime compared to other households.

CHART 23

HOUSEHOLDS WHO HAVE HAD AT LEAST ONE MEMBER AS A VICTIM OF CRIME IN THE LAST YEAR: SOUTH AFRICA



Source: GHS 2008 HH.
Note: Formal housing includes dwelling/house or brick structure, flat/apartments, town/cluster/semi-detached house, unit in a retirement village, dwelling/house/flat/room in backyard and room/flatlet.
Note: All households also include traditional dwellings, caravans/tents and other.
Note: Victim of crime includes murder, molestation, beaten/hurt by someone, harassed/threatened or theft.

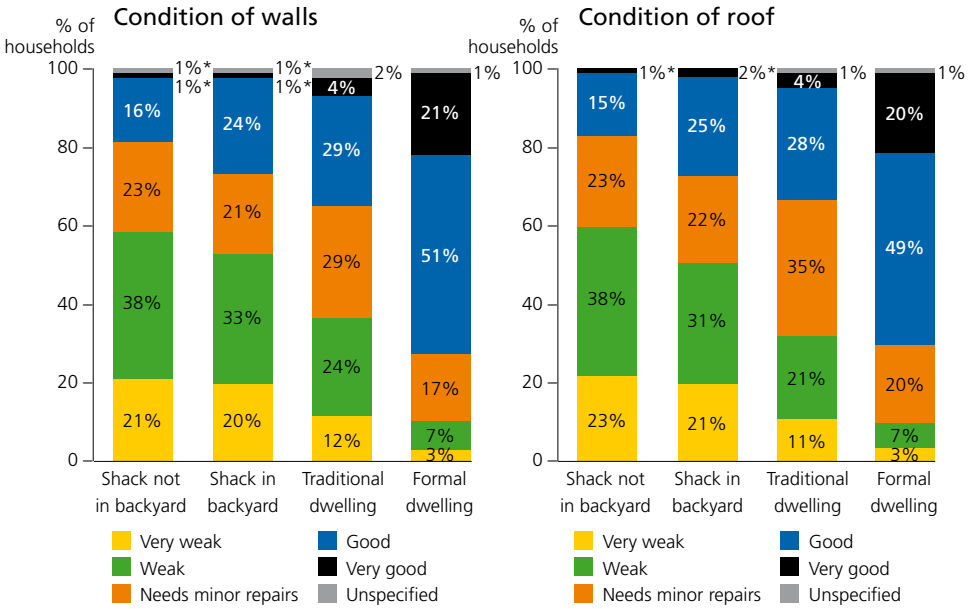
The data on crime is incomplete – while it records whether there has been an incident it does not explore how many incidents have taken place. Those who live in shacks not in backyards who have been victims of crime may be targeted more often than victims who live in other dwellings. It is also plausible that those who live in shacks not in backyards might be more reluctant than other households to report having been a victim of crime; 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 make respondents less likely to report experiences of crime.

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, 61% of households living in shacks not in backyards live in dwelling where the conditions of the walls or the roof is weak or very weak. While this is somewhat higher than for households who live in backyard shacks, it is noticeably higher than the corresponding percentage for households who live in traditional dwellings (39% have weak or very weak walls or roofs) and formal housing[38] (where the corresponding statistic is 12%).

[38] 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.

CHART 24

CONDITION OF DWELLINGS: SOUTH AFRICA



Source: GHS 2009 HH.
* Small sample sizes (less than 40 observations).
Note: Formal housing includes dwelling/house or brick structure on a separate stand/yard, flat/apartment in a block of flats,room/flatleton a property or a larger dwelling/servants quarters, town/cluster/semi-detached house, dwelling/house/flat/room in backyard.

4.7 Education

In 2001, 16% of adults aged 18 and above living in informal settlement EAs had no schooling; 15% had a Matric and a further 2% completed Technikon, University or other Post Matric.

According to the 2009 GHS, four out of five adults aged 18 and above living in shacks not in backyards have not completed matric. 7% have no schooling (the same proportion for all South African adults). Only 2% of adults in shacks not in backyards have completed Technikon, University or other Post Matric compared to the national average of 11%.

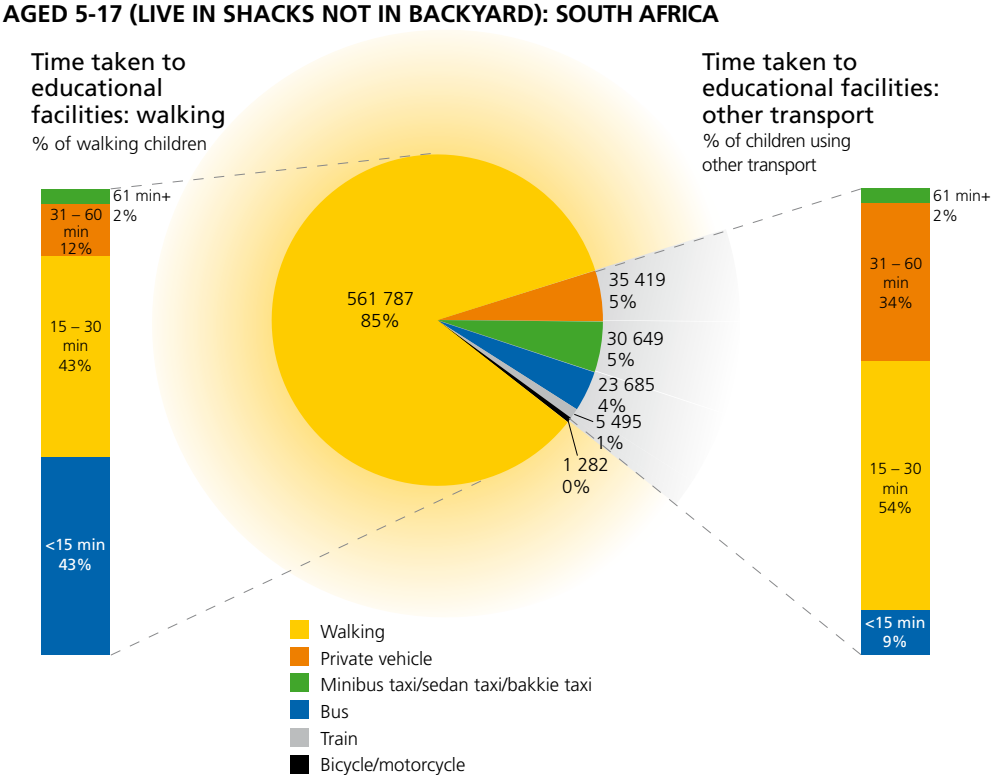
School attendance for children under the age of 18 living in shacks not in backyards is only slightly lower than for the country as a whole[39]; 26% of children aged 0-4 living in shacks not in backyards currently attend an Early Childhood Development Centre (ECD) compared to 29% for the country as a whole while 88% of children aged 5 to 18 who live in shacks not in backyards go to school compared to the national average of 93%.

[39] Attendance of children aged 5 to 17 years at an educational institution is 87% for ages 5-10, 97% for ages 11-14 and 86% for ages 15-17. For all South African children attendance levels are 94%, 99% and 91% respectively.

85% of school-going children 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.

CHART 25

USUAL MODE OF TRANSPORT TO EDUCATIONAL FACILITY BY CHILDREN AGED 5-17 (LIVE IN SHACKS NOT IN BACKYARD): SOUTH AFRICA



Source: GHS 2009 Persons.
Note: Travel time refers to travelling in one direction using their normal type of transport.
Note: If more than one type of transport was used, then the type of transport that covers the most distance is classified as the normal mode of transport.

PART 5
Concluding comments

A number of gaps have been identified and noted in the body of the report. Key points relating to various data sources are summarised below for ease of reference.

5.1 Definitions and demarcation of informal settlements

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. In many cases definitions incorporate a reference to both the status of the land (illegal or not officially sanctioned or documented) and the dwelling (a makeshift dwelling). Definitions may make specific reference to the lack of municipal services. Other definitions incorporate a geographic dimension (for instance KwaZulu-Natal specifically excludes rural areas although this raises further questions about rural Vs urban definitions). In some cases a minimum size threshold may be used (for instance, AfriGIS requires a minimum of 20 dwellings). Definitions are likely to reflect varying local conditions, and varying underlying purposes for which informal settlements data is gathered. They should not necessarily be harmonised.

More problematic than the lack of harmonisation is the limited disclosure of definitions used. This makes it difficult for users to understand the limitations of the data and the degree to which it is comparable with other data sources.

5.2 Household surveys

Household surveys are useful for developing an understanding of the living conditions of the individuals and households who live in informal settlements. With regard to national surveys conducted by Stats SA there are a number of caveats. In the first instance, the dwelling-based proxy used to identify households who live in informal settlements (shack not in a backyard) is indicative. Given that there is no standard definition of an informal settlement it is not clear whether or how this proxy can be improved upon.

Nationally representative household surveys are also likely to suffer from sampling bias. The rate at which settlements are formed, grow or change is likely to be faster than the rate at which Stats SA updates its sampling frame. This complicates the analysis of survey data over time as trends emerging from the data may not accurately characterise the situation of all households who live in informal settlements (or in shacks not in backyards) but rather the situation of those households that live in areas included in the sampling frame. This may not only result in an inaccurate estimate of the number of households who live in shacks not in backyards, it may also bias findings relating to living conditions and access to services. 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.

Household surveys also suffer from response bias (households say what they think they should say, or what they need to say). While response bias can occur with all respondents, those who live in precarious conditions, or who operate beyond the boundaries of legal recognition may be more prone to it. While community based models, such as those developed by CORC, are likely to minimise some biases (community members conduct the survey and can often assess when respondents are parsimonious with the truth) they may magnify others if community members believe their responses can strengthen their claim to State resources.

Further, nationally representative household surveys that are not specifically designed for informal settlements can generate data that is difficult to interpret. For instance, with regard to tenure (rental, ownership, rent-free occupation) those who say they own their dwellings may reflect a perception of permanence or some official recognition that they have secure tenure even if they have no formal title. Alternatively they may mean that they own the physical structure itself (as opposed to the land on which it was built).

Finally, there are often delays, typically of up to a year or more, between enumeration and dissemination of raw data. Thus, even if the data were to accurately characterise households who live in informal settlements, the pace at which settlements change outstrips the rate at which data can be produced.

5.3 Satellite imagery and aerial photography

Satellite imagery is useful for identifying informal settlements. However, in many cases resolution can be too low to facilitate an accurate dwelling count. In addition there are often delays between the capture of the image and its interpretation.

Higher resolution aerial photography can generate more accurate estimates although where settlements are very dense the counts can be inaccurate and must be supplemented by on-the-ground enumeration. In many cases informal settlement datasets generated by private sector companies such as GTI are standardised and often purchased by several users helping to keep costs relatively low.

5.4 Data generated by municipalities or other service providers

Where settlements are serviced, data generated by service providers can be useful. This data may include solid waste removal, flow data on water usage and so on. Of course, this data only applies to settlements that receive at least one municipal service. Where this is not the case it may be possible to obtain data from private sector providers such as cell phone network operators who have location-based data for their users.

5.5 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 a significant body of data available from a range of sources. While these data sources are often flawed and are not always easy to compare and consolidate, by bringing them together a 'best estimate' overview can be developed. In order to do so it is critical that definitions used in the preparation of data and the currency of the data are clearly understood.

The unit of analysis can vary, depending on the purpose of the data. The HDA and presumably most municipalities need data on informal settlements in order to define and meet targets associated with Outcome 8, which deals specifically with the upgrading of dwellings in informal settlements. An output of Outcome 8[40] sets a target of 400,000 dwellings in well-located informal settlements in South Africa to be upgraded (provided with tenure, basic services and access to amenities) between 2010/11 and 2013/14. This represents one third of households living in shacks not in backyards (Community Survey 2007).

TABLE 13 **OUTCOME 8: UPGRADING OF DWELLINGS IN INFORMAL SETTLEMENTS**

	Households to be upgraded between 2010/11 and 2013/14 (Outcome 8)	Number of households in shacks not in backyards (Community Survey 2007)	Proportion of households to be upgraded by province
Eastern Cape	59 440	101 702	58%
Free State	26 400	108 906	24%
Gauteng	96 760	452 581	21%
KwaZulu-Natal	76 200	140 961	54%
Limpopo	31 200	44 099	71%
Mpumalanga	26 480	86 261	31%
North West	28 840	146 143	20%
Northern Cape	9 320	23 521	40%
Western Cape	45 360	110 062	41%
South Africa	**400 000**	**1 214 236**	**33%**

[40] 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.

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. Given the focus on upgrading, settlement level data is critical. 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 26

INFORMAL SETTLEMENT INDICATORS

Individuals	Household level	Dwelling level	Settlement level
• 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	• 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	• Number of dwellings • Dwelling size (rooms and squ. meterage) " • Type of dwelling • Materials used to construct the dwelling	• 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" – 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

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Rob Anderson, Statistics South Africa (email and telephone)
Stuart Martin, GTI (email and personal interview)

Other sources

Census 2001, Statistics South Africa
Community Survey 2007, Statistics South Africa
General Household Survey (various years), Statistics South Africa
http://www.info.gov.za/events/2011/sona/supplement_poa.htm
Income and Expenditure Survey 2005/6, Statistics South Africa
Labour Force Survey 2004, Statistics South Africa
2009 National Housing Code, Incremental Interventions: Upgrading Informal Settlements (Part 3)
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
Catherine Cross (2010), 'Reaching further towards sustainable human settlements', Presentation to DBSA 2010 Conference, 20 October 2010, HSRC
City of Cape Town (2006), Information and Knowledge Management Department, Strategic Information Branch, Informal Dwelling Count for Cape Town (1993-2005), Elvira Rodriques, Janet Gie and Craig Haskins
City of Cape Town (2010), Strategic Development Information and GIS Department, Estimated Number of Households Living in Informal Settlements, Karen Small
Ekurhuleni Municipality (2010), Informal Settlements: A growing misperceived phenomenon, Special Housing Portfolio Meeting 28 April 2010
KwaZulu-Natal Human Settlements (February 2011), Informal Settlement Eradication Strategy for KwaZulu-Natal, Project Preparation Trust of KZN
Land and Property Spatial Information System (LaPsis) data, provided by the HDA
National Department of Human Settlement 2009/2010 Informal Settlement Atlas, provided by the HDA
Nelson Mandela Bay Metropolitan Municipality (2010), Integrated Development Plan 2006-2011, 2010/11 Review – 9th Edition
Philip Harrison (2009), 'New Directions in the Formalisation and Upgrading of Informal Settlements?', Development Planning & Urban Management, City of Johannesburg
Western Cape Department of Human Settlements provisional data, provided by the PGWC

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 2007[41]. 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.

[41] 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'[42]. No adjustments to reported incomes 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.

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

TABLE 14 **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.

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