



stats sa

Department:
Statistics South Africa
REPUBLIC OF SOUTH AFRICA

Private Bag X44, Pretoria, 0001, South Africa, ISibalo House, Koch Street, Salvokop, Pretoria, 0002
www.statssa.gov.za, info@statssa.gov.za, Tel +27 12 310 8911

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Contents

List of Abbreviations	2
1 Introduction and methodology.....	3
1.1 Background	3
1.2 Methodology and fieldwork	3
1.3 Data revisions.....	3
2 Indicator tables	4
2.1 Agriculture	4
2.2 Education.....	6
2.3 Environmental indicators.....	8
2.4 Health	9
2.5 Human settlement.....	10
2.6 Social development	11
2.7 Transport	12
2.8 Water and sanitation.....	13
3 Indicator tables	15
3.1 MFMA Circular No. 88 metro indicator data elements, 2023	15
4 Technical notes	18
4.1 Target population.....	18
4.2 Sample design	18
4.3 Allocating sample sizes to strata.....	18
4.4 Weighting	21
4.5 Sampling and the interpretation of the data.....	21
4.6 Definitions of terms	21
5 Specific departmental indicators and question linkages.....	23

List of Abbreviations

ASER	Age-specific Enrolment Ratio
CVs	Coefficient of Variations
DOA	Department of Agriculture
DUs	Dwelling Units
EAs	Enumeration Areas
GHS	General Household Survey
PSUs	Primary Sampling Units
RDP	Reconstruction and Development Programme
UN	United Nations
VIP	Pit Toilet with ventilation
WSA	Water Services Authorities
MAFA	Municipal Finance Management Act
MTREF	Medium Term Revenue and Expenditure Framework

1 Introduction and methodology

1.1 Background

Metro level reporting became possible with the introduction of a new master sample for the GHS 2015 collection, and it was therefore decided to develop a new GHS release specifically aimed at reporting on the various development indicators as measured for metros. The first report was released in May 2016 as a discussion document. The current report is based on the results of GHS 2023 and it summarises the data for each metro and metros as a whole.

1.2 Methodology and fieldwork

A multi-stage design was used in this survey, which is based on a stratified design with probability proportional to size selection of primary sampling units (PSUs) at the first stage and sampling of dwelling units (DUs) with systematic sampling at the second stage. After allocating the sample to the provinces, the sample was further stratified by geography (primary stratification), and by population attributes using Census 2011 data (secondary stratification). Survey officers employed and trained by Stats SA visited all the sampled dwelling units in each of the nine provinces. During the first phase of the survey, sampled dwelling units were visited and informed about the coming survey as part of the publicity campaign. The actual interviews took place four weeks later. A total of 20 927 households (including multiple households) were successfully interviewed during face-to-face interviews.

Two hundred and thirty-three enumerators (233) and 62 provincial and district coordinators participated in the survey across all nine provinces. An additional 27 quality assurers were responsible for monitoring and ensuring questionnaire quality. National refresher training took place over a period of two days. The national trainers then trained provincial trainers for two days at provincial level. For a more detailed discussion on sampling and fieldwork please refer to the Technical notes as described in Section 3.

1.3 Data revisions

The questionnaires were scanned and processed. Editing and imputation was done using a combination of manual and automated editing procedures. Details about this process can be found in the GHS 2023 report (P0318). Section 4 describes the methods used to calculate each indicator value. When calculating percentages, missing and do not know values were discarded from the denominator unless otherwise stated.



Risenga Mululeke
Statistician-General

2 Indicator tables

2.1 Agriculture

Table 2.1: Agriculture indicators by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
% of households who engaged in agricultural activities during the past 12 months	1,1	16,3	2,1	10,3	3,9	4,4	3,5	7,5	4,5
Livestock production	0,1	5,6	0,0	0,0	1,2	0,1	0,1	0,3	0,5
Poultry production	0,1	7,8	0,0	0,6	2,1	0,3	0,1	0,2	0,7
Grains and food crops	0,0	0,4	0,6	0,5	1,4	0,2	0,2	0,1	0,4
Industrial crops	1,1	16,3	2,1	10,3	3,9	4,4	3,5	7,5	4,5
Fruit and vegetable production	0,8	8,4	1,5	9,5	0,8	4,0	3,1	7,1	3,5

Table 2.1: Agriculture indicators by metro (concluded)

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
% of households involved in different crop planting activities:									
Farm land (communal or private)	0,0	0,0	0,0	0,0	0,2	0,0	0,1	0,3	0,1
Backyard garden	0,8	8,5	2,1	9,8	2,0	4,0	3,1	6,7	3,6
School garden	0,0	0,4	0,0	0,0	0,0	0,0	0,1	0,0	0,0
Communal garden	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,0	0,1
Verges of the road and unused land	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0
Other	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0
% of households classified as:									
Food access adequate	80,4	78,8	79,0	74,1	80,4	82,9	75,3	85,9	80,0
Food access inadequate	9,8	16,9	12,5	13,3	9,7	13,3	13,7	10,6	12,0
Food access severely inadequate	9,8	4,3	8,4	12,6	9,9	3,8	11,0	3,5	8,0

2.2 Education

Table 2.2: Education indicators by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekwini	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
Age-specific Enrolment Ratio (ASER) expressed as a percentage									
Primary School	97,6	100,0	100,0	99,0	99,3	99,0	99,2	97,9	98,8
All	94,1	97,4	97,9	98,2	96,0	96,8	95,4	96,8	96,0
% of 16-18-year-olds who attend any institution	83,9	90,9	91,8	94,9	84,9	90,9	86,2	93,0	88,3
% of children with special needs aged 7–15 NOT enrolled in educational institutions	6,8	8,2		44,7	13,2	10,4	23,0	8,1	11,4
% of learners in public schools that do not pay school fees	48,5	67,2	54,5	64,0	50,7	58,5	69,7	57,6	58,2
% of learners in schools receiving social grants	42,4	66,1	62,9	63,9	64,2	50,2	49,1	46,8	52,0
Numbers of learners enrolled (16–18) in any institution N ('000)	182	40	65	37	143	174	276	205	1 123

Table 2.2: Education indicators by metro (concluded)

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All metros
% of learners in public schools benefiting from free scholar transport	1,8	0,0	5,7	0,6	0,7	3,1	1,0	3,4	2,0
% of learners in public schools benefiting from the nutrition programme	51,8	75,2	72,3	72,0	72,3	60,6	56,6	64,6	62,2
% of learners attending school who reported incidents of corporal punishment	0,4	0,0	0,0	9,7	9,2	0,3	0,4	0,3	2,0
Adult literacy rates (persons 20 years and older with less than Grade 7 as highest level of education)	4,4	9,3	4,5	9,6	6,5	4,5	3,3	4,6	4,8

2.3 Environmental indicators

Table 2.3: Environmental related indicators by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
Number of households using borehole water N ('000)	3	0	1	3	0	7	11	14	40
Number of households using wood/coal for cooking N ('000)	1	1	2	3	6	14	13	14	53
% of households whose refuse is removed by a local authority or private company or municipality	86,7	69,9	87,8	67,8	63,6	88,6	86,0	61,6	78,4
% of households who feel that they are experiencing problem with:									
Littering	28,5	28,9	32,5	50,3	28,1	27,6	31,2	25,6	29,5
Water pollution	14,3	29,8	14,7	22,0	5,1	14,8	20,3	13,2	15,1
Air pollution	13,4	34,4	6,6	28,3	6,7	20,2	16,9	12,1	15,1
Land degradation	20,4	48,0	5,8	51,7	14,6	21,8	32,1	19,6	24,0
Excessive noise pollution	16,6	26,3	2,6	20,0	7,6	19,3	21,8	12,9	16,3

2.4 Health

Table 2.4: Health Indicators by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
% of orphans aged 7–18 years attending educational institutions	92,2	95,5	94,1	98,2	92,7	97,0	90,5	90,7	92,8
% of people 20 years and older with no schooling	0,4	3,0	1,0	2,1	1,8	0,8	0,6	1,1	1,0
% of persons with medical aid coverage	27,8	20,9	21,3	18,7	21,2	22,4	19,8	30,0	23,5
% of households for which the usual place of consultation is a public facility	55,1	72,7	61,6	66,4	65,1	66,7	70,0	57,2	64,0

2.5 Human settlement

Table 2.5: Human settlement indicators by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekwini	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
% of households who live in an RDP or state-subsidised house	20,2	27,9	30,0	23,4	19,2	13,8	7,7	16,2	15,9
% of households receiving a housing subsidy from the state	14,8	19,5	12,2	16,8	4,9	4,6	3,9	10,5	8,2
% of households living in informal dwellings/tents/caravans	18,9	14,7	6,5	12,8	10,3	19,2	18,2	15,0	16,0
% of households who state that the condition of the walls of their state provided/subsidised housing is weak/very weak	13,5	14,7	7,2	8,7	9,2	1,7	4,0	3,0	7,5
% of households who state that the condition of the roof of their state provided/subsidised housing is weak/very weak	11,9	12,1	3,9	12,1	14,1	2,2	6,8	2,0	8,0
% of households who pay rent for a state provided/RDP house	18,5	13,2	11,6	6,0	8,4	9,1	10,2	16,5	12,4
% of households who fully own their dwellings	49,0	71,3	65,4	60,2	64,6	34,5	33,5	38,1	45,0

2.6 Social development

Table 2.6: Social development indicators by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekwinini	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
Number of persons 60 years and older N('000)	512	85	152	89	401	338	504	349	2 429
Number of households with at least one person 60 years and older N ('000)	352	67	110	76	299	252	373	243	1 771
% of persons 60 years and older who are disabled (UN definition)	15,1	25,9	11,1	34,9	34,3	20,7	15,3	24,9	21,4
% of persons 60 years and older who are severely disabled	9,4	14,4	5,8	8,0	21,5	7,4	5,9	9,5	10,3
% of people 60 years and older who received old-age grant	100,0	100,0	100,0	100,0	100,0	100,0	100,0	99,8	100,0
% of people 60 years and older who received social grants	54,7	80,0	56,1	76,2	73,8	65,2	65,9	53,3	63,2
% of households with persons 60 years and older and classified as:									
Food access adequate	80,4	78,8	79,0	74,1	80,4	82,9	75,3	85,9	80,0
Food access inadequate	9,8	16,9	12,5	13,3	9,7	13,3	13,7	10,6	12,0
Food access severely inadequate	9,8	4,3	8,4	12,6	9,9	3,8	11,0	3,5	8,0
Number of households classified as N ('000)									
Food access adequate	1 125	202	298	226	1 053	1 209	1 717	1 145	6 975
Food access inadequate	137	43	47	41	126	194	312	141	1 043
Food access severely inadequate	138	11	32	39	130	55	250	46	700
% of poor households with children aged 7–18 who do not spend money on school fees	82,5	92,0	84,7	92,0	68,7	79,5	82,7	78,0	79,9
Number of households classified as poor using household monthly expenditure of below R2 500 as the cut-off N ('000)	297	75	56	89	328	366	629	335	2 175
Number of households classified as poor using household monthly expenditure of below R2 500 as the cut-off and who have children aged 7–18 N ('000)	94	21	15	29	111	100	182	92	643

2.7 Transport

Table 2.7: Transport indicators by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
# of passenger trips made per month with each public transport mode N ('000):									
Minibus/taxi	4 461	1 003	1 099	997	6 033	6 611	10 213	3 856	34 273
Bus	1 429	0	231	141	406	161	944	486	3 799
Train	76	0	7	0	25	38	117	170	434
% of the household's income spent on transport per month									
1–10%	50,2	53,5	52,4	48,7	42,5	42,6	41,7	48,3	45,1
11–20%	28,6	24,4	29,0	23,6	32,1	28,1	28,5	23,9	28,1
21–30%	12,4	9,1	6,3	12,2	12,2	14,0	10,0	11,6	11,5
30% or more	8,8	13,0	12,3	15,5	13,2	15,3	19,9	16,2	15,3
% of learners travelling for longer than 30 minutes to an education institution	12,6	11,2	5,7	12,7	24,8	15,6	11,6	13,1	14,3
% of workers travelling for longer than 30 minutes to their place of work	39,9	15,2	8,9	28,2	39,1	41,2	37,8	45,4	38,0

2.8 Water and sanitation

Table 2.8: Water and sanitation variables by metro

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
Number of households with water supply infrastructure of RDP standard or higher N ('000)	1 396	233	331	282	1 194	1 443	2 263	1 286	8 428
Number of households with water supply infrastructure less than RDP standard N ('000)	4	23	46	23	115	16	17	46	290
Number of households with no water supply infrastructure N ('000)	3	9	47	25	61	20	25	56	246
Consumer perception index of water quality N ('000)									
Number of consumers who experienced interruptions of 48 hours or more at a time N ('000)	43	85	134	80	406	259	451	255	1 713
Number of WSAs whose consumers have experienced a cumulative interruption of more than 15 days for the financial year N ('000)	19	48	35	65	308	109	223	143	950
Number of households with access to a functioning basic sanitation facility (strategic framework) N ('000)	1 327	242	362	243	1 163	1 319	2 157	1 138	7 952

Table 2.8: Water and sanitation variables by metro (concluded)

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
Number of households using bucket toilets N ('000)	-	3	4	28	48	21	17	59	179
Number of households with substandard toilet facility N ('000)	27	12	6	54	119	107	78	180	583
% of households with substandard toilet facility	1,9	4,8	1,6	17,7	9,1	7,3	3,4	13,5	6,7
Number of households with no sanitation facility N ('000)	-	1	1	5	3	-	2	1	13
% households with access to improved sanitation facilities	94,8	94,9	96,7	79,6	89,2	90,5	94,9	85,6	91,4

3 Indicator tables

3.1 MFMA Circular No. 88 metro indicator data elements, 2023

Table 3.1: MFMA Circular No. 88 metro indicator data elements, 2023

Indicators	Metro							
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane
EE1.1 (1) Number of households with access to electricity	1 322 176	213 190	358 095	293 664	1 235 466	1 307 412	1 788 575	1 164 650
EE1.1 (2) Total number of households in the municipality	1 400 480	256 432	376 524	305 535	1 307 627	1 458 683	2 276 227	1 332 149
ENV1.3 (1) Number of households experiencing noise pollution	232 813	67 442	9 639	61 223	98 702	281 511	496 782	171 352
ENV1.3 (2) Total number of households in the municipality	1 400 480	256 432	376 524	305 535	1 307 627	1 458 683	2 279 671	1 332 149
ENV3.1 (1) Number of households who have their refuse removed at least once a week.	1 209 084	174 879	323 896	167 136	1 052 351	1 290 251	1 953 775	967 702
ENV3.1 (2) Total number of households in the municipality	1 400 480	256 432	376 524	305 535	1 307 627	1 458 683	2 279 671	1 332 149
HS1.1 (1) Number of households residing in formal dwellings in the municipality	1 133 760	210 608	351 539	265 262	1 128 238	1 169 237	1 848 457	1 127 695
HS1.1 (2) Total number of households in the municipality	1 400 480	256 432	376 524	305 535	1 308 480	1 458 683	2 279 671	1 332 149
HS2.3 (1) Number of households in formal dwellings 'renting'	323 497	30 788	70 781	71 898	239 976	416 906	749 480	362 020
HS2.3 (2) Number of households residing in formal dwellings in the municipality	1 133 760	210 608	351 539	265 262	1 128 238	1 169 237	1 848 457	1 127 695

Table 3.1: MFMA Circular No. 88 metro indicator data elements, 2022 (Concluded)

Indicators	Metro							
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane
WS2.1 (1) Number of households with the main source of drinking water piped (tap) water inside dwelling/institution	1 096 779	150 489	293 486	118 008	799 996	864 266	1 287 004	862 350
WS2.1 (2) Number of households with the main source of drinking water piped (tap) water inside yard	145 212	38 026	21 660	126 131	295 398	474 206	847 152	362 592
WS2.1 (3) Number of households with the main source of drinking water piped (tap) water on community stand: distance less than 200m from dwelling/institution	144 803	42 204	11 253	28 860	74 289	86 693	108 029	29 705
WS2.1 (4) Total number of households in the municipality	1 400 480	256 432	376 524	305 535	1 308 480	1 458 683	2 279 671	1 332 149
WS1.1 (1) Number of households using a flush toilet (connected to sewerage system)	1 310 104	183 131	355 469	204 205	960 133	1 281 213	2 034 243	1 061 079
WS1.1 (2) Number of households using a flush toilet (with septic tank)	9 755	13 518	4 801	9 770	54 984	10 463	4 483	44 764
WS1.1 (3) Number of households using a pit toilet with ventilation (VIP)	4 510	45 670	1 821	29 322	146 792	22 222	116 538	31 423
WS1.1 (4) Total number of households in the municipality	1 400 480	256 432	376 524	305 535	1 307 627	1 458 683	2 279 671	1 332 149
IC11a. (1) Number of learners travelling longer than 30 minutes to an educational institution	131 742	24 157	19 123	27 679	227 605	147 553	169 763	126 809
IC11a. (2) Total number of learners travelling to an educational institution	1 142 955	228 126	342 224	227 010	965 418	1 040 100	1 599 407	1 138 765
IC11b. (1) Number of workers travelling longer than 30 minutes to a place of work	617 436	34 643	31 019	60 904	556 427	531 910	774 120	565 768
IC11b. (2) Total number of workers travelling to a place of work	1 792 657	271 244	381 961	244 559	1 551 489	1 486 337	2 358 250	1 483 156
Total number of households in the municipality (estimate), 2023*	1 400 480	256 432	376 524	305 535	1 308 480	1 458 683	2 279 671	1 332 149
Total population of the municipality (estimates), 2023**	4 680 278	793 799	1 282 428	842 518	4 021 623	4 073 067	6 399 849	4 091 752

Table 3.2: Basic household and population data used for benchmarking the GHS 2023

Indicators	Metro								
	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekweni	Ekurhuleni	City of Johannesburg	City of Tshwane	All Metros
# of persons N ('000)	4 680	794	1 282	843	4 022	4 073	6 400	4 092	26 185
# of households N ('000)	1 400	256	377	306	1 308	1 459	2 280	1 332	8 718

4 Technical notes

4.1 Target population

The target population of the survey consists of all private households in all nine provinces of South Africa and 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, and is therefore only representative of non-institutionalised and non-military persons or households in South Africa.

4.2 Sample design

The General Household Survey (GHS) uses the Master Sample frame which has been developed as a general-purpose household survey frame that can be used by all other Stats SA household surveys having design requirements that are reasonably compatible with the GHS. The GHS 2019 collection was based on the 2013 Master Sample. This Master Sample is based on information collected during the 2011 Census conducted by Stats SA. In preparation for Census 2011, the country was divided into 103 576 enumeration areas (EAs). The census EAs, together with the auxiliary information for the EAs, were used as the frame units or building blocks for the formation of primary sampling units (PSUs) for the Master Sample, since they covered the entire country and had other information that is crucial for stratification and creation of PSUs. There are 3 324 primary sampling units (PSUs) in the Master Sample with an expected sample of approximately 33 000 dwelling units (DUs). The number of PSUs in the current Master Sample (3 324) reflect an 8,0% increase in the size of the Master Sample compared to the previous (2008) Master Sample (which had 3 080 PSUs). The larger Master Sample of PSUs was selected to improve the precision (smaller coefficients of variation, known as CVs) of the GHS estimates.

The Master Sample is designed to be representative at provincial level and within provinces at metro/non-metro levels. Within the metros, the sample is further distributed by geographical type. The three geography types are Urban, Tribal and Farms. This implies, for example, that within a metropolitan area, the sample is representative of the different geography types that may exist within that metro.

The sample for the GHS is based on a stratified two-stage design with probability proportional to size (PPS) sampling of PSUs in the first stage, and sampling of dwelling units (DUs) with systematic sampling in the second stage.

4.3 Allocating sample sizes to strata¹

The randomised PPS systematic sampling method is described below. This procedure was applied independently within each design stratum.

Let N be the total # of PSUs in the stratum, and the # of PSUs to be selected from the stratum is denoted by n . Also, let x_i denote the size measure of the PSU i within the stratum, where $i = 1, 2, 3, \dots, N$. Then, the method for selecting the sample of n PSUs with the Randomised PPS systematic sampling method can be described as follows:

Step 1: Randomise the PSUs within the stratum

The list of N PSUs within the stratum can be randomised by generating uniform random between 0 and 1, and then by sorting the N PSUs in ascending or descending order of these random numbers. Once the PSUs have been randomised, we can generate permanent sequence #s for the PSUs.

¹ Source: Sample Selection and Rotation for the Redesigned South African Labour Force Survey by G. Hussain Choudhry, 2007.

Step 2: Define normalised measures of size for the PSUs

We denote by x_i the measure of size (MOS) of PSU i within the design stratum. Then, the

$$X = \sum_{i=1}^N x_i$$

measure of size for the stratum is given by X . We define the normalised size measure

p_i of PSU i as $p_i = x_i / X; i = 1, 2, 3, \dots, N$, where N is the total # of PSUs in the design

stratum. Then, p_i is the relative size of the PSU i in the stratum, and $\sum_{i=1}^N p_i = 1$ for all strata. It

should be noted that the value of $n \times p_i$, which is the selection probability of PSU i must be less than one.

Step 3: Obtain inverse sampling rates (ISRs)

Let R be the stratum inverse sampling rate (ISR). The stratum ISR is the same as the corresponding provincial ISR because of the proportional allocation within the province. It should also be noted that the proportional allocation within the province also results in a self-weighting design.

Then, the PSU inverse sampling rates (ISRs) are obtained as follows:

First, define N real #s $Z_i = n \times p_i \times R; i = 1, 2, 3, \dots, N$. It is easy to verify that $\sum_{i=1}^N Z_i = n \times R$

. Next, round the N real #s $Z_i; i = 1, 2, 3, \dots, N$ to integer values $R_i; i = 1, 2, 3, \dots, N$ such that

each R_i is as close as possible to the corresponding Z_i value and the R_i values add up to $n \times R$

within the stratum. In other words, the sum of the absolute differences between the R_i and the

corresponding Z_i values is minimised subject to the constraint that the R_i values add up to $n \times R$

within the stratum. Drew, Choudhry and Gray (1978) provide a simple algorithm to obtain the

integer R_i values as follows:

$$S = \sum_{i=1}^N [Z_i]$$

Let " d " be the difference between the value $n \times R$ and the sum S , where $[\cdot]$ is the

integer function, then R_i values can be obtained by rounding up the " d " Z_i values with the

largest fraction parts, and by rounding down the remaining $(N - d)$ of them. It should be noted

that the integer sizes $R_i; i = 1, 2, 3, \dots, N$ are also the PSU inverse sampling rates (ISRs) for systematic sampling of dwelling units.

Step 4: Obtain cumulative ISR values

We denote by $C_i; i = 1, 2, 3, \dots, N$ the cumulative ISRs of the PSUs within the stratum. It should be noted that the PSUs within the stratum have been sorted according to the sequence numbers that were assigned after the randomisation. Then, the cumulative ISRs are defined as follows:

$$C_1 = R_1,$$

$$C_j = C_{(j-1)} + R_j; \quad j = 2, 3, \dots, N.$$

It should be noted that the value C_N will be equal to $n \times R$, which is also the total # of systematic samples of dwelling units that can be selected from the stratum.

Step 5: Generate an integer random # r between 1 and R , and compute n integers r_1, r_2, \dots, r_n as follows:

$$r_1 = r$$

$$r_2 = r_1 + R$$

$$r_3 = r_2 + R$$

$$\cdot$$

$$\cdot$$

$$r_i = r_{(i-1)} + R$$

$$\cdot$$

$$\cdot$$

$$r_n = r_{(n-1)} + R.$$

Step 6: Select n PSUs out of the N PSUs in the stratum with the labels (sequence numbers) number i_1, i_2, \dots, i_n such that:

$$C_{i_1-1} < r_1 \leq C_{i_1}$$

$$C_{i_2-1} < r_2 \leq C_{i_2}$$

$$\cdot$$

$$\cdot$$

$$C_{i_n-1} < r_n \leq C_{i_n}.$$

Then, the n PSUs with the labels i_1, i_2, \dots, i_n would get selected with probabilities proportional to size, and the selection probability of the PSU i will be given by R_i/R .

4.4 Weighting ²

The sampling weights for the data collected from the sampled households were constructed so that the responses could be properly expanded to represent the entire civilian population of South Africa. The design weights, which are the inverse sampling rate (ISR) for the province, are assigned to each of the households in a province. These were adjusted for four factors: Informal PSUs, Growth PSUs, Sample Stabilisation, and Non-responding Units.

Mid-year population estimates produced by the Demographic Analysis division were used for benchmarking. The final survey weights were constructed using regression estimation to calibrate to national level population estimates cross-classified by 5-year age groups, gender and race, and provincial population estimates by broad age groups. The 5-year age groups are: 0–4, 5–9, 10–14, 55–59, 60–64, and 65 and over. The provincial level age groups are 0–14, 15–34, 35–64, and 65 years and over. The calibrated weights were constructed such that all persons in a household would have the same final weight.

The Statistics Canada software StatMx was used for constructing calibration weight. The population controls at national and provincial level were used for the cells defined by cross-classification of Age by Gender by Race. Records for which the age, population group or sex had item non-response could not be weighted and were therefore excluded from the dataset. No imputation was done to retain these records.

4.5 Sampling and the interpretation of the data

Caution must be exercised when interpreting the results of the GHS at low levels of disaggregation. The sample and reporting are based on the provincial boundaries as defined in census 2011. These new boundaries resulted in minor changes to the boundaries of some provinces, especially Gauteng, North West, Mpumalanga/Limpopo and Eastern and Western Cape. In previous reports the sample was based on the provincial boundaries as defined in 2001, and there will therefore be slight comparative differences in terms of provincial boundary definitions.

4.6 Definitions of terms

Term	Definition
Household	<p>A household is defined as a person, or group of persons, who occupy a common dwelling unit (or part of it) for at least four nights in a week on average during the past four weeks prior to the survey interview. Basically, they live together and share resources as a unit. Other explanatory phrases can be 'eating from the same pot' and 'cook and eat together'.</p> <p>Persons who occupy the same dwelling unit but do not share food or other essentials, are regarded as separate households. For example, people who share a dwelling unit, but buy food separately, and generally provide for themselves separately, are regarded as separate households within the same dwelling unit.</p> <p>Conversely, a household may occupy more than one structure, If persons on a plot, stand or yard eat together, but sleep in separate structures (e.g., a room at the back of the house for single young male members of a family), all these persons should be regarded as one household.</p>
Multiple households	<p>Multiple households occur when two or more households live in one sampled dwelling unit. If there are two or more households in the selected dwelling unit and they do not share resources, all households are to be interviewed. The whole dwelling unit has been given one chance of selection and all households located there were interviewed using separate questionnaires.</p>
Household head/Acting household head	<p>The head of the household is the person identified by the household as the head of that household and must (by definition of 'household') be a member of the household. If there is difficulty in identifying the head, the head must be selected in order of precedence as the person who:</p>

² Source: Sampling and Weighting System for the Redesigned South African Labour Force Survey, by G. Hussain Choudhry, 2007

Term	Definition
	<ul style="list-style-type: none"> • Owns the household accommodation, • Is responsible for the rent of the household accommodation, • Has the household accommodation as an allowance (entitlement), etc., • Has the household accommodation by virtue of some relationship to the owner, lessee, etc., who is not in the household, • Makes the most decisions in the household. <p>If two or more persons have equal claim to be head of the household, or if people state that they are joint heads or that the household has no head, then denote the eldest as the head.</p>
Formal dwellings	Include a house on a separate stand, a flat or apartment in a block of flats, a townhouse, a room in a backyard, and a room or flatlet on a shared property.
Informal dwellings	Refer to shacks or shanties in informal settlements or in backyards
Piped water in dwelling or on site	Includes piped water inside the household's own dwelling or in their yard, It excludes water from a neighbour's tap or a public tap that is not on site.
Electricity for cooking, heating and/or lighting	Refers to electricity from the public supplier.
UN disability	Concentrating and remembering are grouped together as one category. If an individual has 'Some difficulty' with two or more of the 6 categories then they are disabled. If an individual has 'A lot of difficulty' or is 'Unable to do' for one or more category they are classified as disabled.
Severe disability	If an individual has 'A lot of difficulty' or is 'Unable to do' for one or more category they are classified as severely disabled.
Poor household	Poor households have been defined households who spend less than R2 500 per month.
Water of RDP standard or higher	'Piped water in dwelling or in yard' and 'Water from a neighbour's tap or public/communal tap' are also included provided that the distance is less than 200 metres.
Improved sanitation facility	Flush toilet connected to a public sewerage system or septic tank or a pit latrine with ventilation pipe.

5 Specific departmental indicators and question linkages

Table 5.1: Agriculture

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
Percentage of households involved in agricultural production activities	National and provincial	AGR_Agri	Main source	# of households option 1 in AGR_Agri/total # of households who responded*100
Percentage of households involved in different agricultural production sectors	National and provincial	AGR_AGRI_TYPE_LIVE- AGR_AGRI_TYPE_GAME	Main source	# of households for each option in AGR_AGRI_TYPE_LIVE- AGR_AGRI_TYPE_GAME/total # of households who responded *100
Percentage of households involved in different crop planting activities	National and provincial	AGR_PLANT	Main source	# of households for each option in AGR_PLANT/total # of households who responded *100
Percentage of households who produce crops on 1 or more hectares	National and provincial	AGR_LANDSIZE	Main source	# of households who produce crops option 3 to 7 in AGR_LANDSIZE/total # of households who responded *100
Percentage of households who own the land on which they produce crops	National and provincial	AGR_LANDTENURE	Main source	# of households who produce crops option 1 in AGR_LANDTENURE/total # of households who produce crops*100
Percentage of households who sell most of the agricultural produce they produce	National and provincial	AGR_Sell	Main source	# of households who chose option 1 in AGR_Sell/total # of households who are involve in agricultural production activities*100
Percentage of households classified as: Food access adequate Food access inadequate Food access severely inadequate	National and provincial	FSD_WORRIED- FSD_WHLDAY	Main source	Adequate: one or no 'Yes' responses for the first part of FSD_WORRIED- FSD_WHLDAY Inadequate: 2-3 'Yes' responses for any of FSD_WORRIED - FSD_WHLDAY Severely inadequate: 4-6 'Yes' responses for any of FSD_WORRIED - FSD_WHLDAY

Table 5.2: Education

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
Age-specific Enrolment Ratio (ASER)	National Provincial UNESCO	EDU_GRDE, D	Main source	# (persons aged 7–13 attending educational institutions)/ # persons aged 7–13 * 100 # (persons aged 7–18 attending educational institutions)/ # persons aged 7–18 *100
Repetition rates (Grades 10–12)	National Provincial UNESCO	EDU_GRDE, EDU_SAME	Validation Data confrontation	# who attend Grd 10 to Grd 12 and repeating /(# who attend Grd 10 to Grd 12)*100
Enrolment for 16–18-year-olds	National Provincial	EDU_GRDE, EDU_EDUI	Validation Data confrontation	# aged 16–18 who are enrolled in any institution # who attend any institution/(# 16–18 years old) *100
Percentage of children with special needs aged 7–15 not enrolled in educational institutions	National Provincial	EDU_ATTE ND, EDU_RSNN	Main source	(# of persons aged 7-15 with disabilities ³ not enrolled)/#aged 7-15 yrs with disabilities)*100
Percentage of learners in public schools that do not pay school fees	National Provincial	EDU_TOTF EES	Validation Data confrontation	# persons attend public school who do not pay school fees/# of persons attending public schools*100
Percentage of learners in schools receiving social grants	National Provincial	EDU_EDUI, SOC_GRAN T SOC_GRAN T_TYPE	Main source Data confrontation	# persons attending school who receive any grant/# of persons who attend school and answered the question*100
Percentage of learners who walk for more than 30 minutes to the nearest school	National Provincial	EDU_MODE _TR, EDU_NEAR EST	Main source	# learners who walk for 30 minutes or more to attend the nearest school/ # of persons attending schools*100
Percentage of learners in public schools benefiting from free scholar transport	National Provincial	EDU_ATTE ND, EDU_EDUI, EDU_MODE _TR	Validation source	# learners who chose option 6 in EDU_MODE_TR/ # of persons attending public schools*100
Percentage of learners in public ⁴ schools benefiting from the nutrition programme	National Provincial	EDU_EATF OOD	Validation source	# persons options 2–4 in EDU_EATFOOD/# of persons attending Grd 0–Grd 12*100
% of reported incidents of corporal punishment	National Provincial	EDU_VLNC _EXP	Main source	# persons options 1 in EDU_VLNC_EXP/# of persons attending school (option 2 in EDU_EDUI)
Adult literacy rates	National Provincial	D,1,5	Validation source	# persons options with highest education less than Grd 7/# of persons 20 years and older

³ Un definition of disabilities⁴ Question on public and private school

Table 5.3: Environmental affairs

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
# of households using borehole water	National and provincial	WAT_DRINK WAT	Supply data towards its calculation	# of households options 3 and 9 for WAT_DRINKWAT
# of households using wood or coal for cooking	National and provincial	ENG_COOK	Main source	# households option 5, 6 for ENG_COOK
Percentage of households whose refuse or rubbish is removed by a local authority or private company	National and provincial	SWR_RUB	Main source	# of households options 1–4 in SWR_RUB/# of households who answered the question*100
Percentage of households who feel that they are experiencing pollution by categories	National and provincial	SWR_ENV Option 1	Main source	# of households who answered 'Yes' for selected options in SWR_ENV /# of households who answered the question*100

Table 5.4: Health

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
% of orphans aged 7–18 years attending educational institutions	National and provincial	HHC_FATH_A LIVE, HHC_MOTH_ ALIVE, EDU_EDUI, D	Main source	# of children aged 7–18 years who lost one or both of their biological parents attending school/ # of children aged 7–18 who lost one or both of their biological parents*100
% of people 20 years and older with no schooling	National and provincial	D, Education	Main source	# of persons 20 years and older with no schooling/# of persons 20 years and older*100
% of persons with medical aid coverage	National and provincial	HLT_MEDI	Main source	# of persons who responded 'Yes' in HLT_MEDI/# of persons who responded to the question*100
% of households for which the usual place of consultation is a public facility	National and provincial	HHW_HLTFA C	Descriptive/ interpretive One of the sources	# of persons who responded 'Yes' to options 1–3 in HHW_HLTFA/# of persons who responded to the question*100

Table 5.5: Human settlement

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
Percentage of households who live in an RDP or state subsidised house	National and provincial	HSG_RDP	Main source	# of households who replied 'Yes' in HSG_RDP/# of households who answered the question*100
Percentage of households receiving a housing subsidy from the state	National and provincial	HSG_SUBSIDY	Validation source	# of households whose response is 'Yes' in HSG_SUBSIDY/# of households who answered the question*100
Percentage of households who state that the condition of the walls of their state provided/subsidised housing is weak/very weak	National and provincial	HSG_COND_WALL, HSG_SUBSIDY	Validation source	# of households with a 'Yes' answer in HSG_SUBSIDY and response 1–2 in HSG_COND_WALL/# of households 'Yes' in HSG_SUBSIDY
Percentage of households who state that the condition of the roof of their state provided/subsidised housing is weak/very weak	National and provincial	HSG_COND_ROOF, HSG_SUBSIDY	Validation source	# of households 'Yes' in HSG_SUBSIDY and response 1–2 in HSG_COND_ROOF/# of households 'Yes' in HSG_SUBSIDY
Percentage of households who pay rent for a state provided/RDP house,	National and provincial	HSG_TENURE, HSG_SUBSIDY	Main source	# of households 'Yes' in HSG_SUBSIDY and option 1 in HSG_TENURE/# of households 'Yes' in HSG_SUBSIDY
Percentage of households who fully own their dwellings	National and provincial	HSG_TENURE	Main source	# of households options 5 in HSG_TENURE/# of households who answered the question*100

Table 5.6: Social development

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
% of persons 60 years and older that are disabled	National and provincial	D, DSB	Only source	# of persons aged 60 years and older who are disabled UN definition/# of persons who answered the question *100
% of persons 60 years and older that are severely disabled	National and provincial	D, DSB	Only source	# of persons aged 60 years and older who are severely disabled/# of persons who answered the question *100
% of people 60 years and older who received old-age grant	National and provincial	D, SOC_GRANT_TYPE	Only source	# of persons aged 60 years and older who received an old-age grant/# of persons who answered the question *100
% of people 60 years and older who received social grants	National and provincial	D, SOC_GRANT	Only source	# of persons aged 60 years and older who received a social grant/# of persons who answered the question *100
% of households with persons 60 years and older with: Food access adequate Food access inadequate Food access severely inadequate	National and provincial	D, FSD_WORRIED - FSD_WHLDAY	Descriptive/interpretive Validation	# of persons aged 60 years and older who answered 'Yes' to FSD_WORRIED - FSD_WHLDAY/# of persons who answered the question *100

Table 5.6: Social development (concluded)

Annual reporting level	Questions in the GHS	GHS relative to other sources	GHS relative to other sources	Definitions and/or formulas
# of households classified as: Food access adequate Food access inadequate Food access severely inadequate	National and provincial	FSD_WORRIED - FSD_WHLDAY	Inputs towards indicator calculation	# of households who answered 'Yes' to FSD_WORRIED - FSD_WHLDAY
# of households classified as poor using household monthly expenditure of below R2 500 as the cut-off	National and provincial	FIN_EXP	-	# of households whose total monthly expenditure is below R2 500
# of households classified as poor using household monthly expenditure of below R2 500 as the cut-off and who have children aged 7–18	National and provincial	FIN_EXP	-	# of households with children aged 7-18 and total monthly expenditure is below R2 500
% of poor households with children aged 7–18 who do not spend money on school fees	National and provincial	D, EDU_EDUI, FIN_EXP	Main source	# of households with children aged 7–18 and monthly expenditure below R2 500 who did not spend any money on school fees for at least one of their children/# of households that are poor and have children aged 7–18 years

Table 5.7: Transport

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
# of passenger trips made per month with each public transport mode: Minibus/taxi Bus Train	National and provincial	TRA	Validation	Only calculated for household members who made trips using public transport
% of the household's income spent on transport per month: 1-10% 11-20% 21-30% 30% or more	National and provincial	TRA, FIN_INC	Main source	Only calculated for households with valid income and expenditure on transport data
% of learners travelling for longer than 30 minutes to an educational institution	National and provincial	EDU_TIME	Main source	Only calculated for individuals attending educational institutions who provided a response to the question on time taken, Missing values were excluded from the denominator
% of workers travelling for longer than 30 minutes to their place of work	National and provincial	LAB_MINS	Main source	Only calculated for individuals working and who provided a response to the question on time taken, Missing values were excluded from the denominator

Table 5.8: Water and sanitation

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
# of households with water supply infrastructure of RDP standard or higher	National and provincial	WAT_DRINK WAT, WAT_DIST	Validation and data confrontation	On or above RDP is piped water in dwelling or yard or borehole in the yard (options 1,2&3) or tap less than 200 meters from yard (options 5,6&9) and option 1 WAT_DIST; all others are below,
# of households with no water supply infrastructure	National and provincial	WAT_DRINK WAT	Validation and data confrontation	'No water supply' is options 3, 4, 7–13,
# of consumers who experienced water supply interruptions of 48 hours or more at a time	National and provincial	WAT_INTE_2d ays	Validation and data confrontation	# of households option 'Yes' in WAT_INTE_2days/# of households who answered the question*100
# of consumers who have experienced a cumulative interruption of more than 15 days for the financial year	National and provincial	WAT_INTE_15 DAYS	Supply data towards its calculation	# of households option 'Yes' in WAT_INTE_15DAYS/# of households who answered the question*100
Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
# of households with water supply infrastructure of RDP standard or higher	National and provincial	WAT_DRINK WAT, WAT_DIST	Validation and data confrontation	On or above RDP is piped water in dwelling or yard or borehole in the yard (options 1,2&3) or tap less than 200 meters from yard (options 5,6&9) and option 1 WAT_DIST; all others are below,

Table 5.8: Water and sanitation (concluded)

Indicator	Annual reporting level	Questions in the GHS	GHS relative to other sources	Definitions and/or formulas
# of households with access to a functioning basic sanitation facility (strategic framework)	National and provincial	SAN_TOIL – SAN_LOCATI ON	Main source	'Basic facility' is defined as options 1, 2 and 5 in SAN_TOIL
% households with access to a functioning basic sanitation facility (strategic framework)	National and provincial	SAN_TOIL – SAN_LOCATI ON	Main source	# of households with basic facilities/# of households*100
# of households with substandard toilet facility	National and provincial	SAN_TOIL – SAN_LOCATI ON	Main source	'Substandard' is defined as options 4, 6, 7, 8, 9,10 in SAN_TOIL
% of households with substandard toilet facility	National and provincial	SAN_TOIL – SAN_LOCATI ON	Main source	# of households with substandard facilities/# of households*100
# of households using bucket toilets	National and provincial	SAN_TOIL – SAN_LOCATI ON	Main source	# of households who chose option 7 and 8
# of households with no sanitation facility	National and provincial	SAN_TOIL	Main source	# of households who chose option 10
# of poor households receiving free basic sewerage and sanitation	National and provincial	SAN_TOIL – SAN_PAY	Supply data towards its calculation	Poor households are households who spend less than R2 500 per month
% of poor households receiving free basic sewerage and sanitation	National and provincial	SAN_TOIL – SAN_PAY	Supply data towards its calculation	# of poor households who are connected to the sewerage system and answered 'Yes' to SAN_PAY/# of households who answered the question*100

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Enquiries

User information services: Telephone number: (012) 310 8600
Email address: info@statssa.gov.za

Technical enquiries: Niël Roux
Telephone number: (012) 310 2939
Email address: NielR@statssa.gov.za

Postal address: Private Bag X44, Pretoria, 0001

Produced by Stats SA