GHS Series Volume VIII
Water and Sanitation

In-depth analysis of the GHS 2002–2015 and CS 2016 data

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GHS Series Volume VIII

Water and Sanitation

In-depth analysis of the General Household Survey 2002–2015 and Community Survey 2016 data

Statistics South Africa

Pali Lehohla
Statistician-General

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Glossary of abbreviations

WC	Western Cape
EC	Eastern Cape
NC	Northern Cape
FS	Free State
KZN	KwaZulu-Natal
NW	North West
GP	Gauteng
MP	Mpumalanga
LP	Limpopo
RSA	South Africa

CS	Community Survey
DC	District council
DHS	Department of Human Settlements
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
FAO	Food and Agriculture Organization
FBW	Free Basic Services
GHS	General Household Survey
GLAAS	Global Analysis and Assessment of Sanitation and Drinking-water
HSDG	Human Settlements Development Grant
ICESCR	International Covenant on Economic, Social and Cultural Rights
IES	Income and Expenditure Survey
JMP	Joint Monitoring Programme
LCS	Living Conditions Survey
LGES	Local Government Equitable Share
M	metre
MDGs	Millennium Development Goals
MIG	Municipal Infrastructure Grant
MTSF	Medium Term Strategic Framework
NDP	National Development Plan
OECD	Organisation for Economic Co-operation and Development
RDP	Reconstruction and Development Programme
RHIG	Rural Household Infrastructure Grant
SDGs	Sustainable Development Goals
SPII	Studies in Poverty and Inequality Institute
TBVC	Transkei, Bophuthatswana, Venda and Ciskei
UN	United Nations
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

Glossary of concepts

Free basic water – An amount of water determined by government that should be provided free to poor households to meet basic needs, currently set at 6 kℓ per month per household within 200 metres from each dwelling.

The bucket system – is a dry on-site sanitation system consisting of a top-structure with a seat positioned above a bucket or other container located in a small compartment beneath. In some areas, these buckets are collected during the week by the municipality or a service provider, and in other areas, households must dispose of the buckets at a specific location themselves.

The Local Government Equitable Share (LGES) – LGES is a lump sum of nationally raised revenues directed towards municipalities to deliver basic services, including a free basic water policy and sanitation to poor households. It also subsidises the cost of administration and other core services for those municipalities that have the least potential to cover these costs from their own revenues. Revenue that municipalities can raise themselves (including property rates and service charges) supplement the LGES. The size of equitable share is determined by formulas that take into account demographic and developmental factors. Municipalities have considerable discretion over spending and allocation of the equitable share funds. However, this transfer usually comes with recommendations. This is an unconditional grant for which municipalities use their own discretion on how and where to spend it, including that at least 57% of the grant should be used for the provision of water (31%) and sanitation (26%).

Rural area – Any area that is not classified *urban*. Rural areas may comprise one or more of the following: tribal areas, commercial farms and informal settlements.

Sanitation – Facilities for the disposal of excreta and wastewater for the purposes of hygiene and a healthy living environment. Improved sanitation facilities are facilities that prevent human excreta from polluting food or water sources.

Urban area – A continuously built-up area with characteristics such as type of economic activity and land use. Cities, towns, townships, suburbs, etc. are typical urban areas.

Foreword

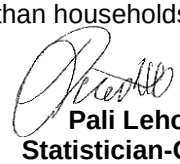
Nationally, 92,5% of households had access to improved drinking water sources. Western Cape (99,4%), Free State (99,3%), Northern Cape (99,1%) and Gauteng (98,6%) reported almost universal access to improved drinking water sources. Even though Eastern Cape had the lowest percentages of households (75,7%) with access to improved drinking water sources, the province reported the largest percentage points increase from 2002, when 60,9% of households reported accessing improved drinking water sources. The odds of households in Eastern Cape (3,227), KwaZulu-Natal (2,713), Gauteng (2,748), North West (1,317), Mpumalanga (1,567) and Limpopo (1,400) to access unimproved drinking water sources were greater than the odds of households in Western Cape. However, the difference was insignificant for the latter three provinces. The odds of households in rural areas, non-metro, traditional and informal dwellings were respectively 2,664, 3,549, 2,495 and 1,594 times more than the odds of households in urban areas, metros and formal dwellings to access unimproved drinking water sources. Households living in O.R. Tambo (49%), Alfred Nzo (46%), Zululand (24%), Sisonke (23%) and UMkhanyakude (20%) still relied on ground water as a source of drinking water.

Generally, the percentage of households that lived more than 500 metres away from the outside yard dwelling water sources ranged from 15% to 18% between 2008 and 2015. During 2009, 88% of households resided less than 200 metres away from the outside-yard toilet facility, whereas in 2015 the percentage increased to 94%. Nationally, the percentage of households with access to municipal water increased from 84% to 86%, but the proportion of households who reported interruptions over the 12 months before the survey increased from 23,1% to 25,4% between 2009 and 2015. Payment for municipal water and those who rated municipal water as good declined during their respective reference periods.

Nationally, the percentage of households with access to improved sanitation facilities increased from 62,3% in 2002 to 80% in 2015. The majority of households in Western Cape (93,3%) and Gauteng (91%) had access to improved sanitation facilities, while about half of those in Limpopo (54%) and just below two-thirds of those in Mpumalanga (65,8%) had access to improved sanitation facilities. It is notable that access to improved sanitation facilities grew most rapidly in Eastern Cape (+48,2 percentage points) between 2002 and 2015. Households in the wealthiest income had greater access to improved sanitation facilities than households in the poorest income quintile. The metros with the highest percentage of households with access to improved sanitation facilities were the City of Johannesburg (96,9%), Nelson Mandela Bay (94,6%) and the City of Cape Town (91,8%). The metros with the lowest percentages of households with access to improved sanitation facilities were the City of Tshwane (82%) and eThekwini (83,5%). The odds of households in the other eight provinces to have access to unimproved sanitation facilities were greater than the odds of households in Western Cape.

Urban households (30%) were more likely to share toilet facilities than rural households (16%). More than two-thirds (68%) of households living in informal dwellings shared toilet facilities as compared to nearly a fifth (19%) of households in formal dwellings and 12% of households living in traditional dwellings.

Nationally, 1,2% of households reported using the bucket toilet system. Western Cape (4%) recorded the highest percentage of households using the bucket toilet system followed by Free State (2,7%) and Northern Cape (2,4%). As many as 6,8% of households living in informal dwellings reported using the bucket toilet system. Using either CS 2016 or GHS 2015 data, households who lived in Buffalo City, eThekwini and the City of Tshwane were least likely to use the bucket toilet system. Nationally, 4% of households still practise open defecation, and these percentages were even higher for traditional households (12,1%) and informal households (10,3%). Households in Buffalo City were more likely to practise open defecation than households in other metros.



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1. Introduction

1.1 Background

Safe and sufficient drinking water and adequate sanitation are both essential ingredients to ensure health and well-being of human beings, and they are necessary for economic development. Every year, millions of the world's poorest people die from preventable diseases caused by inadequate water supply and sanitation services. Women and children are the main victims. Burdened by the need to carry water over long distances every day, they must also endure the indignity, shame, and sickness that result from a lack of hygienic sanitation. Improvement in access to safe water and adequate sanitation services is necessary to achieve sustainable health improvement and poverty reduction (UNDP, 2006). Although the world's drinking water and sanitation situation is improving however, throughout the developing countries it is extremely unlikely that all households will have a clean drinking water source and access to improved sanitation in the foreseeable future. Millions of people in this part of the world still lack access to a basic water supply from a clean source or adequate sanitation.

Lack of basic sanitation indirectly inhibits the learning abilities of millions of school-aged children who are infested with intestinal worms transmitted through inadequate sanitation facilities and poor hygiene. The impact of deficient water and sanitation services falls primarily on the poor. Unreached by public services, people in rural areas of developing countries make their own inadequate arrangements or pay excessively high prices to water vendors for meagre water supplies. Their poverty is aggravated and their productivity impaired, while their sickness puts severe strains on health services and hospitals. Rapid urbanisation is putting municipal services in urban areas under immense pressure. Low-income groups in urban areas often lack access to an adequate water supply. There is enough clean, fresh water in the world for everyone's personal and domestic needs. However, unfair allocation of water resources and poor distribution networks hold back progress in extending access to all. In addition, pollution of water sources and the absence of proper systems to extract ground water or harvest rainwater, limit people's access to sufficient clean water that is safe to drink (Zetu, 2010).

In order to address poverty and under-development, the democratic government of South Africa has prioritised the provision of basic water and sanitation services to the poor because of the perceived high impact of these services on the lives of the poor. For this reason, the right to water is enshrined in the South African Constitution as one of the basic rights. Basic human rights are closely intertwined. For example, the right to water and sanitation is an essential part of the right to an adequate standard of living, as it is one of the necessary elements for survival. It is also closely related to the right to the highest attainable standard of physical and mental health. Ultimately, adequate supplies of safe water and adequate sanitation are necessary for life, well-being and human dignity. The right to an adequate standard of living is recognised in Article 11(1) of the International Covenant on Economic, Social and Cultural Rights (ICESCR).

The Millennium Development Goals (MDGs) have set the world on a common course to push back poverty, inequality, hunger and illness. The world has pledged to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation. At the conclusion of the Millennium Development Goals in 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, which announced the Sustainable Development Goals (SDGs). Goal 6 focuses on the right to water and sanitation for all. South Africa's status as a water-scarce country is reflected in the formulation of our legislative framework pertaining to water. This legislation has placed emphasis on water scarcity and the effective management of national resources coupled with the need to rectify historical inequities and promote justice and equality in the availability and use of water resources.

This report presents charts and descriptive tabular summaries for numerous drinking water and sanitation indicators and benchmarks reported by surveyed South African households. For some key indicators, a dashboard of maps and figures is provided to present a geographical summary and country summary statistics. It pays particular attention to the following:

- The number of households that have gained the highest level of service in drinking water supply;
- Households with improved water and sanitation access (e.g. piped water on premises);
- Households with no service at all;
- Households that use surface water for drinking;
- Water and food security;
- Water pollution;
- Hygiene;
- Usage of the bucket toilet system; and
- Households that still practise open defecation.

In order to understand the nature of progress, it is important to look carefully at the way improvements in water and sanitation provision have benefited different socio economic groups. This report sheds light on equality gaps between urban and rural dwellers, and between the richest and poorest segments of the population. It presents several new ways to visualise progress on extending services to the poor; it has been designed to reveal the nature of inequalities and give the reader insights into the major challenges that still exists towards ensuring that progress reaches everyone.

1.2 Objectives of this report

The report has four main objectives:

i. To describe the characteristics of households with access to or use of improved and other drinking water sources.
ii. To determine the perceptions about the quality of the water South Africans use and whether it is safe or unsafe.
iii. To describe the characteristics of households with access to or use of improved and other sanitation facilities.
iv. To investigate the extent to which spatial densification affects the provision of water and sanitation services over time.

2. Methodology

2.1 Data sources

A number of Statistics South Africa (Stats SA) surveys, as well as Community Survey 2016 data were utilised in this report. For analysis at household, provincial and metro levels, the report used data from the annual General Household Surveys (GHS) conducted between 2002 and 2015. Data from the GHS contribute, amongst other things, towards the monitoring of selected indicators in relation to the performance of various government departments. The GHS has been conducted since 2002 by Stats SA and was specifically designed to measure the multiple facets of the living conditions of South African households. It covers six broad areas, namely education, health and social development, housing, household access to services and facilities, food security, and agriculture. Community Survey 2016 data were crucial, as survey data were not available at sub-provincial level. The report also used, on a much more limited scale, data from the Income and Expenditure Surveys, Living Conditions Surveys as well as data from the Non-financial census of municipalities.

2.2 Limitations of the study

The revision of the GHS questions is never taken lightly, but is necessitated by changing government priorities as well as gaps identified through stakeholder interaction. When modifying the questionnaire, a balance is always struck between trying to maintain comparability over time and improving the quality of our measurements over time. Although Community Survey 2016 contained similar questions to those asked in the GHS, many of the questions were only partially comparable, as the wording was slightly different in some instances.

The study is based on secondary data that were collected as part of the GHS between 2002 and 2015, as well as Community Survey data collected in 2016. Since data were sourced from multi-purpose instruments, the content areas were not measured in great detail. Although more specific questions on water and sanitation access were asked in the GHS since 2002, the number of questions were limited and, at least for some years, not completely comparable.

Although referring to the comparability of data between countries, observations made by the Organisation for Economic Co-operation and Development (OECD) (2007) can equally be applied to the comparison of data sources used in this report. The OECD report mentions that comparison is frequently hamstrung by the timing and content of questions when measuring rapidly changing behaviour.

- Timing: Data from the Community Survey were, for instance, collected in 2016, while GHS data were collected in 2015.
- Content: Although many of the questions asked by the GHS and the Community Survey covered similar themes and generally used compatible response categories, there were also occasional differences.

The choice of a household as unit of analysis also poses particular challenges. While person-based data can typically provide information on the number of individuals with access to improved sanitation or improved drinking water sources, how they use it, and why they use it by age and sex, statistics for households are restricted by structural differences in the composition of households as well as the use of proxy respondents, which might not be completely as accurate.

3. Overview of legislation and policy frameworks for the right to water and sanitation

South Africa's status as a water-scarce country is reflected in the formulation of our legislative framework pertaining to water. This legislation has placed emphasis on water scarcity and the effective management of national resources coupled with the need to rectify historical inequities and promote justice and equality in the availability and use of water resources. The three principal sources of national water legislation are the Constitution of the Republic of South Africa (Act No. 108 of 1996), the National Water Act (Act No. 36 of 1998) and the Water Services Act (Act No. 108 of 1997).

The executive power to deliver water and sanitation services falls, in terms of the Constitution, on local government. The statutory legislative framework for effective management of local government consists of the Local Government: Municipal Structures Act (Act No. 117 of 1998), the Local Government: Municipal Systems Act (Act No. 32 of 2000) and the Local Government: Municipal Finance Management Act (Act No. 56 of 2003). For legislation that regulates the available legal gateways for effective delivery of water services, this report also analyses the National Environmental Management Act (Act No. 107 of 1998), the Promotion of Access to Information Act (Act No. 2 of 2000), and the customary law principles of various legal reviews and interdicts.

3.1 Constitutional and legislative imperatives

Several substantive rights in the Constitution's Bill of Rights are of relevance to water and sanitation. These rights fall under the heading of so-called 'socio economic' or 'second generation' rights. The founding provisions of the Constitution open with the values on which the state is founded and list the first of these as 'human dignity, the achievement of equality and the advancement of human rights and freedoms'. The founding provisions further establish the supremacy of the Constitution over all other South African legislation and require that 'the state must respect, protect, promote and fulfil the rights in the Bill of Rights'. Sections 24 and 27 of the Bill of Rights in the Constitution grant specific rights to access to sufficient water, an environment not harmful to health and well-being and the protection of the environment from degradation. Section 27 provides that 'everyone has the right to have access to sufficient water' and that 'the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of these rights'. The right to basic sanitation is not an explicit constitutional right; however, it could be derived from the right to a clean environment read together with the right of access to clean water. The right to an amount of water for sanitation purposes is included in the right to water as discussed above. This is confirmed by the provisions of the Water Services Act (WSA), which give effect to the constitutional rights in section 27(1)(b) and specifically extend the right of access to water to include the right to basic sanitation. Moreover, a right to sanitation could be derived from section 24(a) (the right to a clean environment) read with the right of access to adequate water. Although sanitation is not named as a right in the South African Constitution, in international law and national policy and law, water and sanitation are closely linked. Without water, many sanitation facilities cannot function and people struggle to maintain dignity and the hygiene standards essential to preventing ill health and the spread of diseases.

3.2 The White Paper on Water Supply and Sanitation Policy, 1994

The White Paper on Water Supply and Sanitation Policy (1994) advocates that sanitation should be integrated into programmes for the provision of other basic needs. The coordination of the various public organisations involved in the planning and delivery of basic services is therefore essential. The 1994 White Paper recognised the role of water supply and sanitation to the process of development in South Africa. Considering the past imbalances of apartheid, the White Paper sought to provide a 'framework for ensuring equitable access to water supply and sanitation services'. It sought to fill the gap for the lack of comprehensible policy in water and sanitation since the apartheid government's 1956 Water Act. The explicit inclusion of sanitation in the policy signified the need to see the important link between water and sanitation, which speaks to the 'one right with two components' formulation. The function of the White Paper was also to provide standard outlines for the delivery of services at the local level. Based on the Reconstruction and Development Programme (RDP), the white paper seeks to implement a comprehensive development strategy. The White Paper also sets out the role of national, provincial and local government, with national government functioning through the Department of Water Affairs and Forestry (now called the Department of Water and Sanitation). The national government acts as overall manager of the 'nation's water resources in the public interest' to ensure 'that all citizens have access to adequate water and sanitation services'.

The principles of the policy are premised on the assumption of 'universal human rights and the equality of all persons regardless of race, gender, creed or culture'. The principles are set out as:

1. Looking at basic services as a human right to enable access to a healthy environment while respecting the rights of others.
2. There should be a priority to plan and allocate public expenditure to the most marginalised.
3. Taking into account the issue of limited resources, there should be equitable distribution in the country as according to population requirements.
4. Recognising that the provision of water and sanitation services requires economic capacity to effect sustainability and economic growth.

5. A central principle to ensure payment of usage or 'user pays', to facilitate development and sustainable maintenance of water and sanitation services.
6. The development of water and sanitation services cannot occur in isolation with other sectors and thus coordination and collaboration is imperative to find benefits for the development process.
7. Development of water and sanitation should not compromise environmental integrity.

3.3 Water Services Act, 1997

The main aim of the Water Services Act (Act No. 108 of 1997) is to assist municipalities to undertake their role as water services authorities and to look after the interests of the consumer. It also clarifies the role of other water services institutions, especially water services providers and water boards. According to the Act, it is the responsibility of water services authorities to ensure access to both water supply services and sanitation services.

The objectives of the Water Services Act are set as the provision for:

(a) The right of access to basic water supply;
(b) The right to basic sanitation necessary to secure sufficient water and an environment not harmful to human health; and
(c) The setting of national standards and norms and standards for tariffs in respect of water services.

The Act defines basic sanitation as the prescribed minimum standard of services necessary for the safe, hygienic and adequate collection, removal, disposal or purification of human excreta, domestic wastewater and sewage from households, including informal households. Section 3 of the Act states that:

(1) Everyone has a right of access to basic water supply and basic sanitation.
(2) Every water services institution must take reasonable measures to realise these rights.
(3) Every water services authority must, in its water services development plan, provide for measures to realise these rights.
(4) The rights mentioned in this section are subject to the limitations contained in this Act.

3.4 National Water Act, 1998

The National Water Act (Act No. 36 of 1998) was enacted to set out the role of government in terms of managing water resources for public benefit. The State's role as the custodian of the national water resources is to 'ensure that water is protected, used and developed, conserved, managed and controlled in a sustainable and equitable manner'. The Act also mandates government to develop in consultation with relevant stakeholders a water resource strategy in line with the framework of the Act and its purpose. The National Water Act of 1998 must be read with the Water Services Act, which is primarily concerned with the issue of access to water services by individuals in line with constitutional obligations.

Section 3 of the National Water Act reaffirms the role of government as the public trustee of South Africa's water resources and provides a legal framework for the management of water resources, which includes the allocation of water for beneficial use and the redistribution of water.

3.5 The White Paper on Basic Household Sanitation, 2001

The White Paper on Basic Household Sanitation (DWAF, 2001) emphasises the provision of a basic level of household sanitation to those areas with the greatest need. It focuses on the safe disposal of human waste in conjunction with appropriate health and hygiene practices. The key to this White Paper is that provision of sanitation services should be demand driven and community based with a focus on community participation and household choice.

3.6 The Strategic Framework for Water Services, 2003

The Strategic Framework for Water Services regards the provision of at least a basic water and sanitation service to all people living in South Africa, referred to as a 'universal service obligation', as an important policy priority and commits government to making adequate funds available to make this possible. The following definitions are set out for water supply and sanitation services:

a) **Basic water supply facility**: The infrastructure necessary to supply 25 litres of potable water per person per day within 200 metres of a household and with a minimum flow of 10 litres per minute (in the case of communal water points) or 6 000 litres of potable water supplied per formal connection per month (in the case of yard or house connections).

b) **Basic water supply service**: The provision of a basic water supply facility, the sustainable operation of the facility (available for at least 350 days per year and not interrupted for more than 48 consecutive hours per incident) and the communication of good water use, hygiene and related practices.

c) **Basic sanitation facility**: The infrastructure necessary to provide a sanitation facility that is safe, reliable, private, protected from the weather and ventilated; keeps smells to a minimum; is easy to keep clean; minimises the spread of sanitation-related diseases by facilitating appropriate control of disease carrying flies and pests; and enables safe and appropriate treatment and/or removal of human waste and waste water in an environmentally sound manner.

d) **Basic sanitation service**: The provision of a basic sanitation facility that is easily accessible to a household; the sustainable operation of the facility, including the safe removal of human waste and wastewater from the premises where this is appropriate and necessary; and the communication of good sanitation, hygiene and related practices.

3.7 Policy for Free Basic Water

The policy for Free Basic Water promotes sustainable access to a basic water supply by subsidising the ongoing operating and maintenance costs of a basic water supply service. It is envisaged that the minimum quantity of free basic water of 25 litres per person per day should over time be increased to 50 litres per person per day. Free Basic Water is financed from the Local Government Equitable Share and through cross-subsidisation. Although the Free Basic Water Policy is not legislated per se, it is based on sections of the WSA as already set out, and the Compulsory National Standards (Regulation 3(b)). According to the Centre for Applied Legal Studies, it is clear from the Constitutional Court adjudication that government policies pursued to give meaning to constitutional rights incur the same kinds of obligations as rights and, consequently, may be challenged.

3.8 Policy for Free Basic Sanitation

The policy for Free Basic Sanitation promotes affordable access by poor households to at least a basic level of sanitation service. In order to provide this service, water services authorities must ensure that the costs of providing the service are covered by the Local Government Equitable Share and/or through cross-subsidies within the water services authority area. The funds must be paid to the water services provider who operates the service or directly to the households. The policy has been developed but has not yet been approved or implemented (implementation of the policy started in 2010), and the DWAF is meant to be developing a Free Basic Sanitation strategy (the strategy was developed and approved by Minister in 2009 and implementation commenced in 2010) together with a set of guidelines to assist the implementation of the Free Basic Sanitation policy.

3.9 The National Environmental Management Act, 1998

The National Environmental Management Act (Nema) (Act No. 107 of 1998) provides an overarching framework for the regulation and sustainable use of natural resources in South Africa. The Nema is crucial in terms of implementing the constitutional provisions on cooperative governance in environmental matters. It creates the institutional set-up for the development of norms and standards for the implementation of the environmental legislation and provides for generic monitoring and enforcement provisions. Among these are the duty of care provisions and obligations to control and remedy pollution generally. In conjunction with the NWA, the Nema provides an avenue to regulate and control water pollution and promote the fulfilment of the right to an environment not harmful to health or well-being. Importantly, it also creates a specialised enforcement unit of environmental management inspectors charged specifically with the enforcement of environmental management legislation.

3.10 The Municipal Structures Act, 2000

The Municipal Structures Act (Act No. 33 of 2000) provides for the establishment of municipalities in accordance with the requirements relating to categories and types of municipality and to provide for an appropriate division of functions and powers between categories of municipality. The Act allocates the responsibility for water services to the District Municipality or the local municipality if authorised by the Minister of Provincial and Local Government.

3.11 The Municipal Systems Act, 2000

The Municipal Systems Act (Act No. 32 of 2000) focuses on the internal systems and administration of a municipality. The Act introduces the differentiation between the function of an authority and that of a provider. It also identifies the importance of alternative mechanisms for providing municipal services and sets out certain requirements for entering into partnerships.

3.12 Draft National Sanitation Policy, 2012

The sanitation sector is currently regulated by three policy documents, namely the White Paper on Water Supply and Sanitation (1994); the White Paper on a National Water Policy of South Africa (1997) and the White Paper on Basic Household Sanitation (2001). The Department of Human Settlements, in conjunction with sanitation partners, reviewed the above-mentioned policy documents and developed the 2012 Draft National Sanitation Policy to regulate sanitation in the country. Although completed to the stage of extensive consultations, the Draft National Sanitation Policy was never gazetted as the policy for the country. The Draft National Sanitation Policy did, however, identify gaps in the earlier policies and addressed key areas.

With the White Paper on Basic Household Sanitation focusing largely on rural sanitation and on-site systems, the Draft National Sanitation Policy of 2012 was developed to address the entire sanitation value chain.

South Africa is expected in future to experience increased urbanisation, placing greater challenges on urban sanitation systems. At the same time, growing and changing human settlement types in rural areas are placing increased strain on small and limited sanitation systems. Sanitation services in future will need to place greater emphasis on human settlement appropriate systems, where significant consideration of available resources such as water will be placed on sanitation system choice.

The values underpinning future sanitation services in the country will be to place greater emphasis on applying the principles of 'polluter pays', 'user pays' and on increasing the recognition of the economic value of sanitation, as these are crucial to sustainable sanitation services provision in this changing environment. The policy positions addressed in the draft national sanitation policy emanate from a review of the sanitation White Papers and a review of South Africa's future developmental vision. The policy positions outlined below address gaps in current sanitation policies, which may require legislative amendment, and the policy position amendments, which are needed for the sanitation

sector to support South Africa's developmental vision. All policy positions in current sanitation policy (1994; 1997 and 2001) which are not highlighted in the draft national sanitation policy for amendment remain valid. The policy endorses the national sanitation targets, as outlined in the MTSF, of an increase in the percentage of households with access to a functional sanitation service from 84% in 2013 to 90% by 2019, including elimination of bucket sanitation in the formal areas. The policy adopts the MTSF position that work will proceed to progressively reduce differences in access to adequate sanitation, as well as in reversing apartheid geography and strengthening the social wage. Initiatives that will enable societal engagement to improve service delivery will include promoting citizen-based monitoring of government service delivery. Sanitation services in South Africa acknowledges the Batho Pele principles of consultation, service standards, access, courtesy, information, openness and transparency, redress and value for money.

4. Indicators for the right to water and sanitation in South Africa

4.1 National Development Plan (NDP)

The NDP 2030 vision is for investment in a strong network of economic infrastructure designed to support the country's medium- and long-term economic and social objectives. This economic infrastructure is a precondition for providing basic services such as electricity, water, sanitation, telecommunications and public transport, and it needs to be robust and extensive enough to meet industrial, commercial and household needs.

4.2 Medium Term Strategic Framework (MTSF)

The Medium Term Strategic Framework (MTSF) sets out the actions that government will take and targets to be achieved (Presidency, 2014). Over the past 22 years, government has massively expanded access to basic services, but backlogs remain and the quality of services is uneven. In addition to ensuring universal access, the challenge is therefore to improve the quality and consistency of services, which requires improvements in the performance of the public service, municipalities and service providers.

Water and sanitation key targets for the MTSF include:

- Increase in the percentage of households with access to a functional water service from 85% in 2013 to 90% by 2019.
- Increase in the percentage of households with access to a functional sanitation service from 84% in 2013 to 90% by 2019, including elimination of bucket sanitation in the formal areas.

4.3 Sustainable Development Goals (SDGs)

At the conclusion of the Millennium Development Goals in 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, which announced the Sustainable Development Goals (SDGs). Goal 6 deals with the right to water and sanitation for all.

Goal 6: 'Ensure availability and sustainable management of water and sanitation for all'.

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

4.4 Post-2015 water, sanitation and hygiene (WASH) targets and indicators

Safe and sufficient drinking water, along with adequate sanitation and hygiene have implications across all Millennium Development Goals (MDGs). Much progress has been achieved over the past decade. However, the MDG framework

did not address the full water and development agenda, nor did it fully recognise its synergies with other areas and concerns. Emphasis on 'Sustainability' was not included, and human rights and inequalities were also largely ignored in the MDG framework. UN-Water and its partners have come together to develop suggestions for a dedicated global goal for water, 'Securing sustainable water for all'. This global goal for water and associated targets would build on the MDGs and redouble efforts to develop water supplies and sanitation services for human needs. It would ensure water – as a resource – remains of high quality and is managed equitably and efficiently. It would also make societies resilient to extreme events and climate change.

The goal addresses all dimensions of the water cycle connecting access, use, development, pollution and risks associated with water. The goal is relevant and applicable to both developed and developing countries.

Target 1: By 2025, no one practises open defecation, and inequalities in the practice of open defecation have been progressively eliminated.

Target 2: By 2030, everyone uses basic drinking water supply and hand washing facilities when at home; all schools and health centres provide all users with basic drinking water supply and adequate sanitation, hand washing facilities and menstrual hygiene facilities, and inequalities in access to each of these services have been progressively eliminated.

Target 3: By 2040, everyone uses adequate sanitation when at home; the proportion of the population not using an intermediate drinking water supply service at home has been reduced by half, the excreta from at least half of schools, health centres and households with adequate sanitation are safely managed, and inequalities in access to each of these services have been progressively reduced.

Target 4: All drinking water supply, sanitation and hygiene services are delivered in a progressively affordable, accountable, and financially and environmentally sustainable manner.

5. Overview of the budget allocations for water and sanitation

Government budget and expenditure trends are indicators of priority in national policy and action. The current budgetary framework for the provision of the right to water and sanitation does not allow for comprehensive and completely accurate tracking of the total funds allocated for water and sanitation in the years under review. However, using the indicative data provided by the National Treasury and DWS, the Studies in Poverty and Inequality Institute (SPII) was able to make an assessment of the intended allocation for water and sanitation for the year 2014/15 (SPII, 2016) combining the following budget allocations:

- Annual budget allocated for the Department of Water and Sanitation, which includes several grants transferred to municipalities;
- 56% of the total Municipal Infrastructure Grant (MIG) allocations to municipalities;
- 57% of the Local Government Equitable Share (LGES) allocation to municipalities.

Table 5.1: Budget allocations for water and sanitation

	Allocation by Division of Revenue Act (DoRA) 2014/15 R million	% of the total allocation
Total DWS Budget	13,647	23,4%
LGES (57% of total allocation)	36,616	62,9%
MIG allocation (56% of total allocation)	7,973	13,7%
TOTAL	**58,236**	**100%**

Source: SPII, 2016

According to the estimates provided in Table 5.1, R58,236 million was allocated to water and sanitation in 2014/15 from national raised revenues (real allocations), which represents 5,1% of all the total of the national revenues available in that year (R1,142,562 million). Statistics in Table 5.1 also highlight that the great share of services for water and sanitation is intended to be covered through the Local Government Equitable Share, which consisted of 63% of the total intended allocation for provision of water and sanitation services. This was followed by budget allocated for Department of Water and Sanitation (23,4%) and Municipal Infrastructure Grant (13,7%).

'However, caution needs to be taken in any interpretation of this figure, particularly because the calculated figure is based on the recommendations by the national government of how the LGES should be used. However, in reality, municipalities spend their equitable share within the framework of their local democratic processes' (SPII, 2016).

'However, for comparison, South Africa, as one of the UN-Water Global Analysis and Assessment of Sanitation and Drinking-water (GLAAS) reporting countries, in 2014 reported a WASH budget for water, sanitation and hygiene equivalent to US$ 4,0 billion. Out of these funds, 50% was allocated for the operation and maintenance of water and sanitation schemes and also to subsidise free basic water and sanitation services for the poor, as mandated by law' (SPII, 2016).

'However, due to the challenges with the tracking of the budgets, even the authors of SPII 2016 report acknowledge that the provided number might not correspond to the reality, and might even be underreported. Furthermore, the nominal number provided unfortunately does not allow for any relevant global comparison in this field. Regardless of the accuracy of the total allocations, it is clear that South Africa has mobilised extensive resources, mainly national resources, to provide for basic water and sanitation' (UN Water-GLAAS 2014 Report, 2014).

6. Findings: Water

6.1 Introduction

Water is the source of life, the most precious and important of all natural resources, without which the human species cannot survive (DSS, 2010). Access to water should be framed as a human right for at least three reasons. First, ensuring access to clean water could substantially reduce the global burden of disease. Millions of people are affected each year by a range of water-borne diseases. Second, the privatisation of water, which exploits the view that water is a commodity rather than a public good, does not result in equitable access. Third, the world is changing in ways that will both exacerbate water scarcity and threaten the quality of the current water supply (Barbour et al., 2009). The human right to water entitles everyone to sufficient, safe, physically accessible and affordable water for personal and domestic uses (Bellettin et al., 2005). The welfare implications of safe water cannot be overstated. Infectious diarrhoea and other serious waterborne illnesses are leading causes of infant mortality and malnutrition. Their impact extends beyond health to the economic realm in the form of lost workdays and school absenteeism (Hutton and Haller, 2004).

Table 6.1: Number of households by province, 2002–2015

Province	Number of households (Thousands)													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
WC	1 198	1 233	1 269	1 307	1 348	1 389	1 432	1 477	1 524	1 571	1 619	1 669	1 720	1 775
EC	1 405	1 426	1 445	1 464	1 482	1 503	1 525	1 549	1 573	1 600	1 631	1 663	1 695	1 727
NC	231	236	242	248	254	261	268	275	282	289	296	304	312	320
FS	686	698	710	723	738	755	773	790	806	823	843	863	883	906
KZN	1 902	1 950	1 999	2 049	2 101	2 161	2 224	2 290	2 358	2 428	2 504	2 583	2 663	2 747
NW	837	857	878	901	926	952	980	1 010	1 040	1 071	1 105	1 140	1 177	1 215
GP	2 743	2 848	2 960	3 083	3 217	3 356	3 504	3 661	3 823	3 990	4 153	4 323	4 501	4 690
MP	774	799	825	852	882	914	947	981	1 015	1 051	1 088	1 127	1 168	1 211
LP	1 037	1 066	1 096	1 127	1 159	1 195	1 232	1 270	1 309	1 350	1 392	1 436	1 483	1 532
RSA	**10 814**	**11 113**	**11 425**	**11 754**	**12 107**	**12 485**	**12 886**	**13 303**	**13 731**	**14 173**	**14 631**	**15 107**	**15 602**	**16 122**

Table 6.1 outlines the estimated number of households to which the GHS data were benchmarked in each province. Household estimates, developed using the United National headship ratio methodology, were used to calibrate the household files. This model estimates that the number of households increased from 10,8 million in 2002 to 16,1 million in 2015. It is estimated that Gauteng had the largest number of households, followed by KwaZulu-Natal, Western Cape and Eastern Cape. Northern Cape, the least populous province, also had the least number of households.

6.2 Water use and access

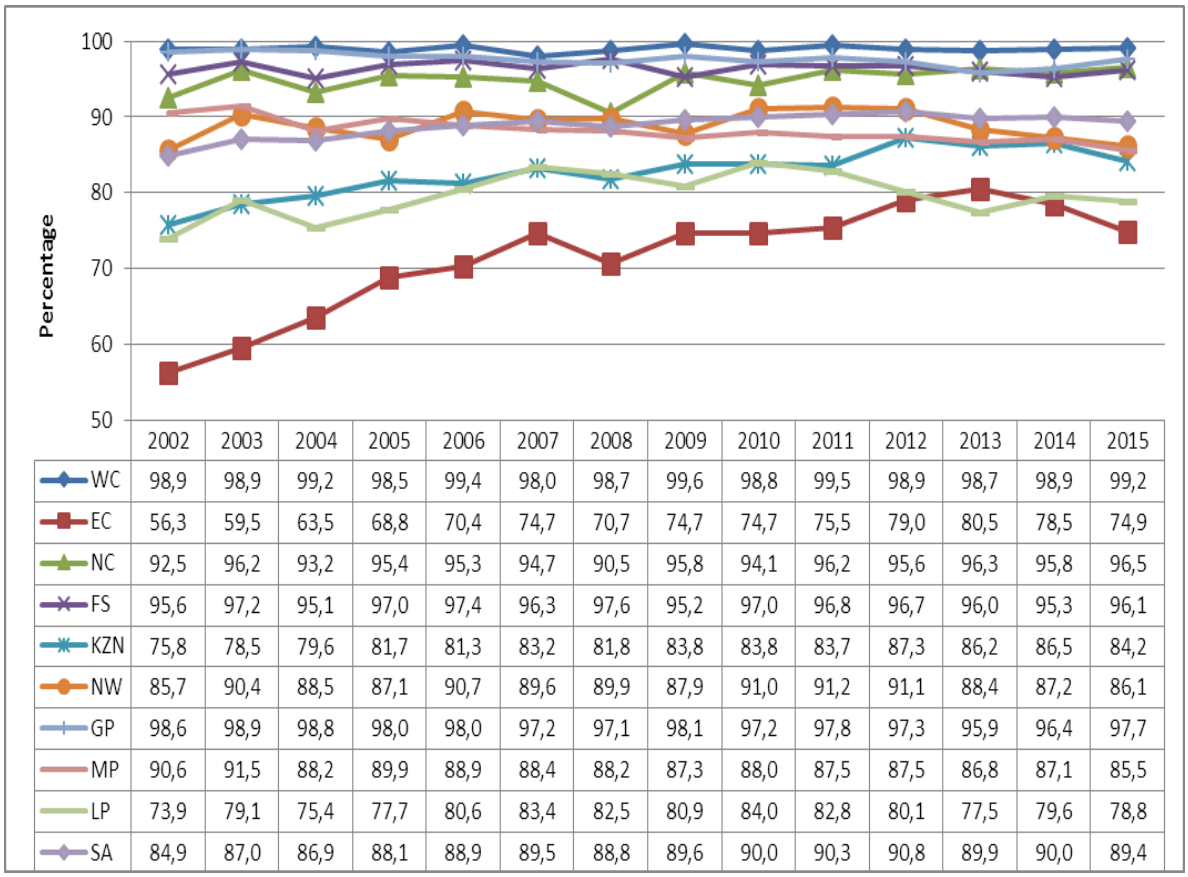
Table 6.2: Comparison of the main water source for drinking used by households, 2002–2015

Water source	Statistic	Year											
		2002	2004	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Piped water in dwelling	Number	4 409	4 607	4 980	5 163	5 611	5 622	5 862	6 294	6 504	6 845	7 221	7 385
	Percentage	40,8	40,4	41,2	41,6	43,7	42,3	42,7	44,4	44,5	45,3	46,3	45,8
Piped water on site	Number	3 009	3 367	3 681	3 838	3 501	3 743	4 019	4 106	4 055	4 051	4 213	4 354
	Percentage	27,8	29,5	30,5	30,9	27,3	28,1	29,3	29,0	27,7	26,8	27,0	27,0
Borehole on site	Number	142	188	141	155	155	190	157	212	203	259	293	259
	Percentage	1,3	1,6	1,2	1,3	1,2	1,4	1,1	1,5	1,4	1,7	1,9	1,6
Rainwater tank on site	Number	60	38	49	61	68	44	45	91	82	74	68	120
	Percentage	0,6	0,3	0,4	0,5	0,5	0,3	0,3	0,6	0,6	0,5	0,4	0,7
Neighbour's tap	Number	290	260	250	265	336	358	346	388	424	388	426	431
	Percentage	2,7	2,3	2,1	2,1	2,6	2,7	2,5	2,7	2,9	2,6	2,7	2,7
Public/ communal tap	Number	1 465	1 682	1 852	1 910	1 996	2 201	2 131	2 008	2 307	2 290	2 180	2 247
	Percentage	13,6	14,7	15,3	15,4	15,6	16,5	15,5	14,2	15,8	15,2	14,0	13,9
Water-carrier/ tanker	Number	68	69	134	123	146	171	200	134	199	230	198	304
	Percentage	0,6	0,6	1,1	1,0	1,1	1,3	1,5	0,9	1,4	1,5	1,3	1,9
Borehole off-site/communal	Number	300	297	273	199	248	209	177	183	165	189	199	229
	Percentage	2,8	2,6	2,3	1,6	1,9	1,6	1,3	1,3	1,1	1,3	1,3	1,4
Flowing water/ stream/river	Number	606	519	390	406	442	507	433	374	336	382	420	379
	Percentage	5,6	4,5	3,2	3,3	3,4	3,8	3,2	2,6	2,3	2,5	2,7	2,4
Stagnant water/dam/ pool	Number	77	62	30	52	37	30	41	53	30	42	55	35
	Percentage	0,7	0,5	0,2	0,4	0,3	0,2	0,3	0,4	0,2	0,3	0,4	0,2
Well	Number	146	113	124	64	70	50	37	75	55	71	77	90
	Percentage	1,3	1,0	1,0	0,5	0,5	0,4	0,3	0,5	0,4	0,5	0,5	0,6
Spring	Number	208	196	158	146	188	119	208	172	191	143	148	186
	Percentage	1,9	1,7	1,3	1,2	1,5	0,9	1,5	1,2	1,3	0,9	0,9	1,2
Other	Number	28	17	24	26	32	59	75	82	70	143	105	103
	Percentage	0,3	0,2	0,2	0,2	0,3	0,4	0,5	0,6	0,5	1,0	0,7	0,6
Subtotal	**Number**	**10 806**	**11 413**	**12 087**	**12 409**	**12 830**	**13 303**	**13 731**	**14 172**	**14 620**	**15 107**	**15 601**	**16 122**
	Percentage	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Unspecified	**Number**	**8**	**12**	**20**	**76**	**55**	**0**	**0**	**1**	**11**	**0**	**0**	**0**
Total	**Number**	**10 814**	**11 425**	**12 107**	**12 485**	**12 885**	**13 303**	**13 731**	**14 173**	**14 631**	**15 107**	**15 601**	**16 122**

Table 6.2 presents a comparison of the main sources of drinking water used by the households. An estimated 45,8% of households had access to piped water in their dwellings in 2015. A further 27% accessed water on site, while 14% relied on communal taps and 2,7% relied on neighbours' taps. Although household access to water improved generally, 4,4% of households still had to fetch water from rivers, streams, stagnant water pools, dams, wells and springs in 2015. This is a decrease of more than five percentage points from 9,5% of households who had to access water from these sources in 2002.

The proportion of households with access to piped or tap water in their dwellings, off-site or on-site by province is presented in Figure 6.1. Very high proportions of households who had access to water either inside their dwellings, off-site, or on-site, were reported in Western Cape (99,2%), Gauteng (97,7%), Northern Cape (96,5%) and Free State (96,1%). Since 2002, the percentage of households in Eastern Cape with access to water increased by 19 percentage points to 75%. By contrast, the percentage of households with easy access to water (as defined above) in Eastern Cape declined from 80,5% to 75% between 2013 and 2015. As a result, Eastern Cape was rated as the province in which households had the poorest access to water in 2015.

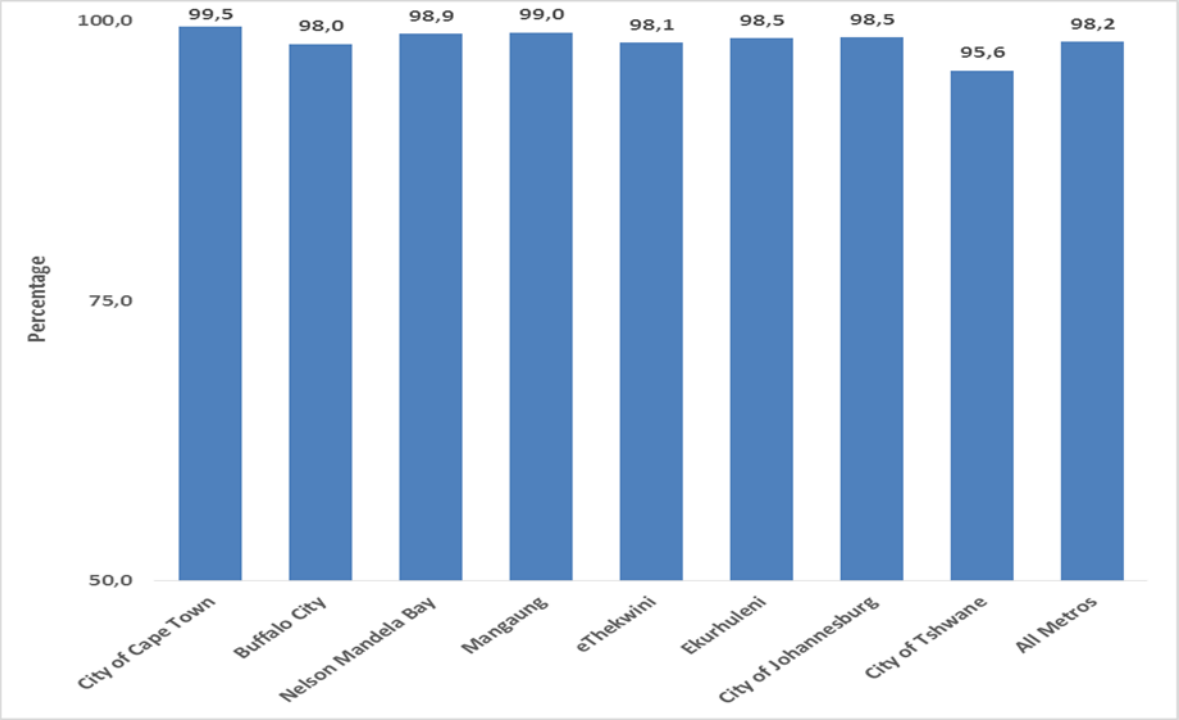
Figure 6.1: Percentage of households with access to piped or tap water in their dwellings, off-site or on-site by province, 2002–2015



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
WC	98,9	98,9	99,2	98,5	99,4	98,0	98,7	99,6	98,8	99,5	98,9	98,7	98,9	99,2
EC	56,3	59,5	63,5	68,8	70,4	74,7	70,7	74,7	74,7	75,5	79,0	80,5	78,5	74,9
NC	92,5	96,2	93,2	95,4	95,3	94,7	90,5	95,8	94,1	96,2	95,6	96,3	95,8	96,5
FS	95,6	97,2	95,1	97,0	97,4	96,3	97,6	95,2	97,0	96,8	96,7	96,0	95,3	96,1
KZN	75,8	78,5	79,6	81,7	81,3	83,2	81,8	83,8	83,8	83,7	87,3	86,2	86,5	84,2
NW	85,7	90,4	88,5	87,1	90,7	89,6	89,9	87,9	91,0	91,2	91,1	88,4	87,2	86,1
GP	98,6	98,9	98,8	98,0	98,0	97,2	97,1	98,1	97,2	97,8	97,3	95,9	96,4	97,7
MP	90,6	91,5	88,2	89,9	88,9	88,4	88,2	87,3	88,0	87,5	87,5	86,8	87,1	85,5
LP	73,9	79,1	75,4	77,7	80,6	83,4	82,5	80,9	84,0	82,8	80,1	77,5	79,6	78,8
SA	84,9	87,0	86,9	88,1	88,9	89,5	88,8	89,6	90,0	90,3	90,8	89,9	90,0	89,4

The proportion of households with access to piped or tap water in their dwellings, off-site or on-site by metropolitan area is presented in Figure 6.2. There were very high proportions of households in the City of Cape Town (99,5%), Mangaung (99%), Nelson Mandela Bay (98,9%), the City of Johannesburg (98,5%) and Ekurhuleni (98,5%) that had access to water either in their dwellings, off-site, or on-site. The City of Tshwane (95,6%) recorded the lowest percentage of households with access to water either in their dwellings, off-site, or on-site in 2015.

Figure 6.2: Percentage of households with access to piped or tap water in their dwellings, off-site or on-site by metropolitan area, 2015



An improved drinking water source is defined as one that by nature of its construction or through active intervention is protected from outside contamination, in particular from contamination with faecal matter. To allow for international comparability of estimates, the MDG indicators use the following classification to differentiate between improved and unimproved drinking water sources. Note that in line with the official indicators for the MDG drinking water target, only users of 'improved' drinking water sources are considered as having 'access to drinking water'. The MDG methodology for improved drinking water sources was adopted for this report. Table 6.3 summarises what is considered to be improved and unimproved drinking water sources. A protected well/spring as well as rainwater collection has not been included as an improved source, as the protected nature of the source was not established by questionnaires**.**

Table 6.3: Methodology used for improved drinking water sources

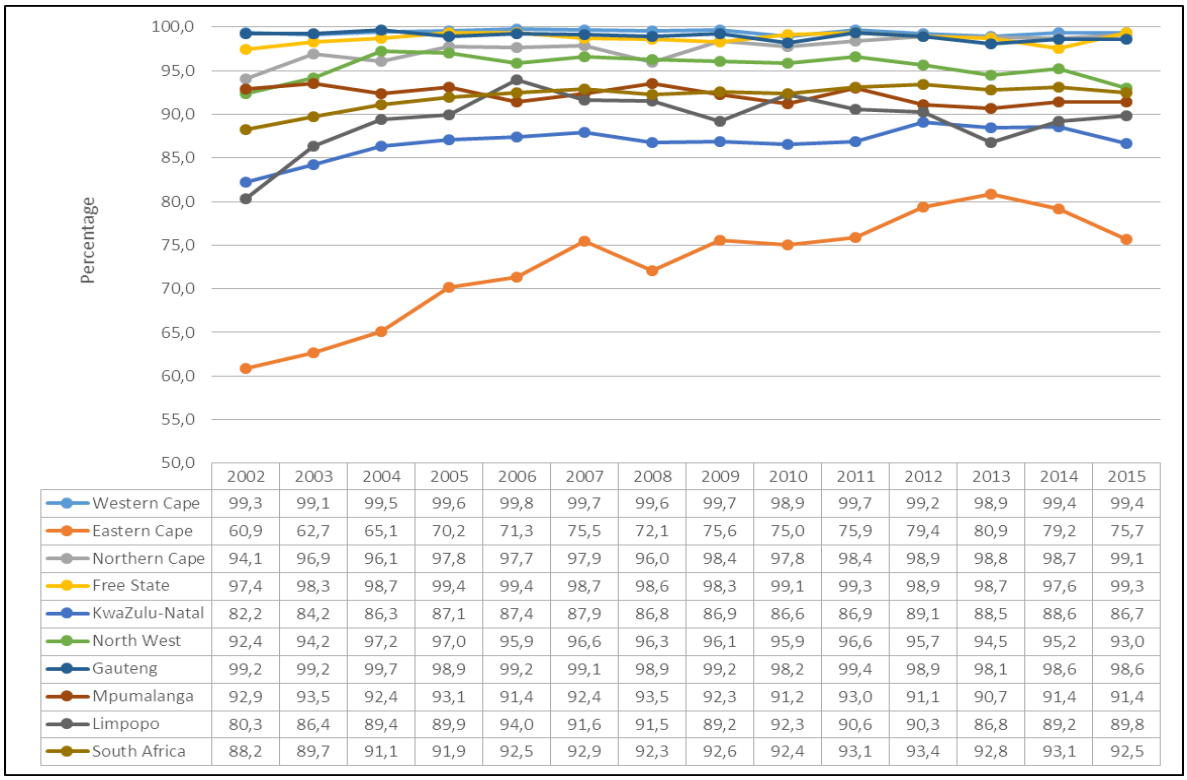
Improved drinking water sources	Unimproved drinking water sources
Piped water into dwelling, plot or yard	Unprotected dug well
Public tap/standpipe	Unprotected spring
Tube well/borehole	Small cart with tank/drum
Protected dug well	Tanker truck
Protected spring	Surface water (river, dam, lake, pond, stream, irrigation channel)
Rainwater	Bottled water

Source: Joint Monitoring Programme (JMP) for Water Supply and Sanitation

The percentage of households with access to improved drinking water sources by province is presented in Figure 6.3. The figure shows that 14 906 189 (92,5%) of households in South Africa had access to improved drinking water sources. Western Cape (99,4%), Free State (99,3%), Northern Cape (99,1%) and Gauteng (98,6%) reported almost universal access to improved drinking water sources. Even though Eastern Cape had the lowest percentage of

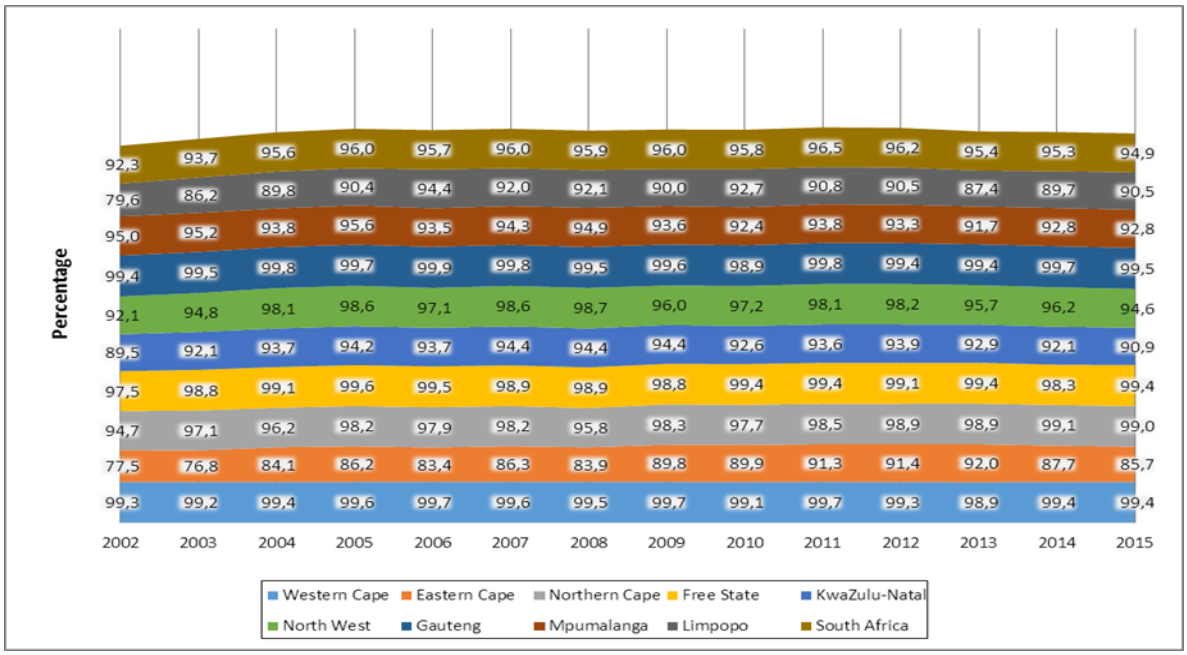
households (75,7%) with access to improved drinking water sources, the province reported the largest increase from 2002, when only 60,9% of households reported accessing improved drinking water sources.

Figure 6.3: Percentage of households with access to improved drinking water sources by province, 2002–2015



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Western Cape	99,3	99,1	99,5	99,6	99,8	99,7	99,6	99,7	98,9	99,7	99,2	98,9	99,4	99,4
Eastern Cape	60,9	62,7	65,1	70,2	71,3	75,5	72,1	75,6	75,0	75,9	79,4	80,9	79,2	75,7
Northern Cape	94,1	96,9	96,1	97,8	97,7	97,9	96,0	98,4	97,8	98,4	98,9	98,8	98,7	99,1
Free State	97,4	98,3	98,7	99,4	99,4	98,7	98,6	98,3	99,1	99,3	98,9	98,7	97,6	99,3
KwaZulu-Natal	82,2	84,2	86,3	87,1	87,4	87,9	86,8	86,9	86,6	86,9	89,1	88,5	88,6	86,7
North West	92,4	94,2	97,2	97,0	95,9	96,6	96,3	96,1	95,9	96,6	95,7	94,5	95,2	93,0
Gauteng	99,2	99,2	99,7	98,9	99,2	99,1	98,9	99,2	98,2	99,4	98,9	98,1	98,6	98,6
Mpumalanga	92,9	93,5	92,4	93,1	91,4	92,4	93,5	92,3	91,2	93,0	91,1	90,7	91,4	91,4
Limpopo	80,3	86,4	89,4	89,9	94,0	91,6	91,5	89,2	92,3	90,6	90,3	86,8	89,2	89,8
South Africa	88,2	89,7	91,1	91,9	92,5	92,9	92,3	92,6	92,4	93,1	93,4	92,8	93,1	92,5

Figure 6.4: Percentage of households living in formal dwellings with access to improved drinking water sources by province, 2002–2015



Ninety-five per cent of households living in formal dwellings in South Africa accessed drinking water from improved sources in 2015. This is presented in Figure 6.4. Universal access to improved drinking water sources was reported for households living in formal dwellings in Gauteng (99,5%), Western Cape (99,4%), Free State (99,4%) and Northern Cape (99,0%). Households living in formal dwellings in Eastern Cape (85,7%) reported the lowest percentages with regard to access to improved drinking water sources. The largest percentage increase of households living in formal dwellings with access to improved drinking water sources was experienced in Limpopo (11 percentage points) and Eastern Cape (8 percentage points) between 2002 and 2015.

Figure 6.5: Percentage of households living in informal dwellings with access to improved drinking water sources by province, 2002–2015

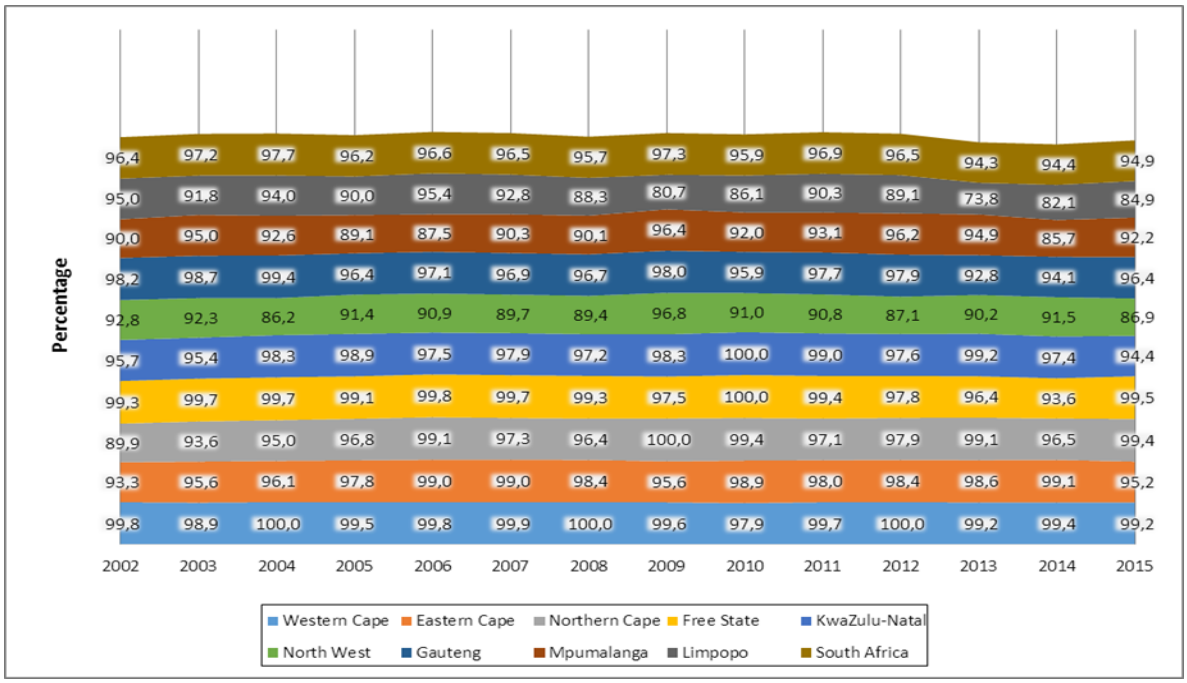


Figure 6.5 shows that households who lived in informal dwellings in North West consistently reported the lowest percentages to have access to improved drinking water sources. Access to improved drinking water sources decreased rapidly in household living in informal dwellings in Limpopo and North West informal households between 2002 and 2015. Household living in informal dwellings in Gauteng had high access to improved drinking water sources.

Figure 6.6: Percentage of households living in traditional dwellings with access to improved drinking water sources, 2002–2015

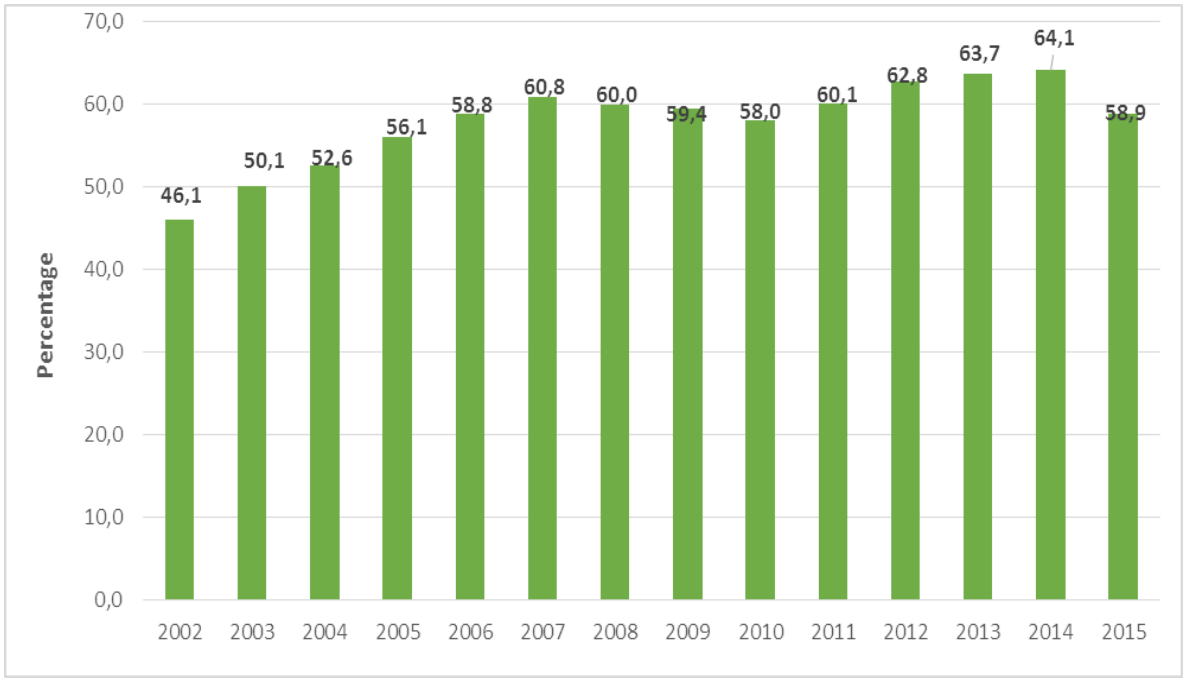


Figure 6.6 displays that the percentage of households living in traditional dwellings with access to improved drinking water sources increased by approximately 13 percentage points over the period of 14 years. Between 2014 and 2015, there was a noticeable drop of about five percentage points for those households who had access to improved drinking water sources.

Figure 6.7: Percentage of households living in RDP dwellings with access to improved drinking water sources by province, 2009–2015

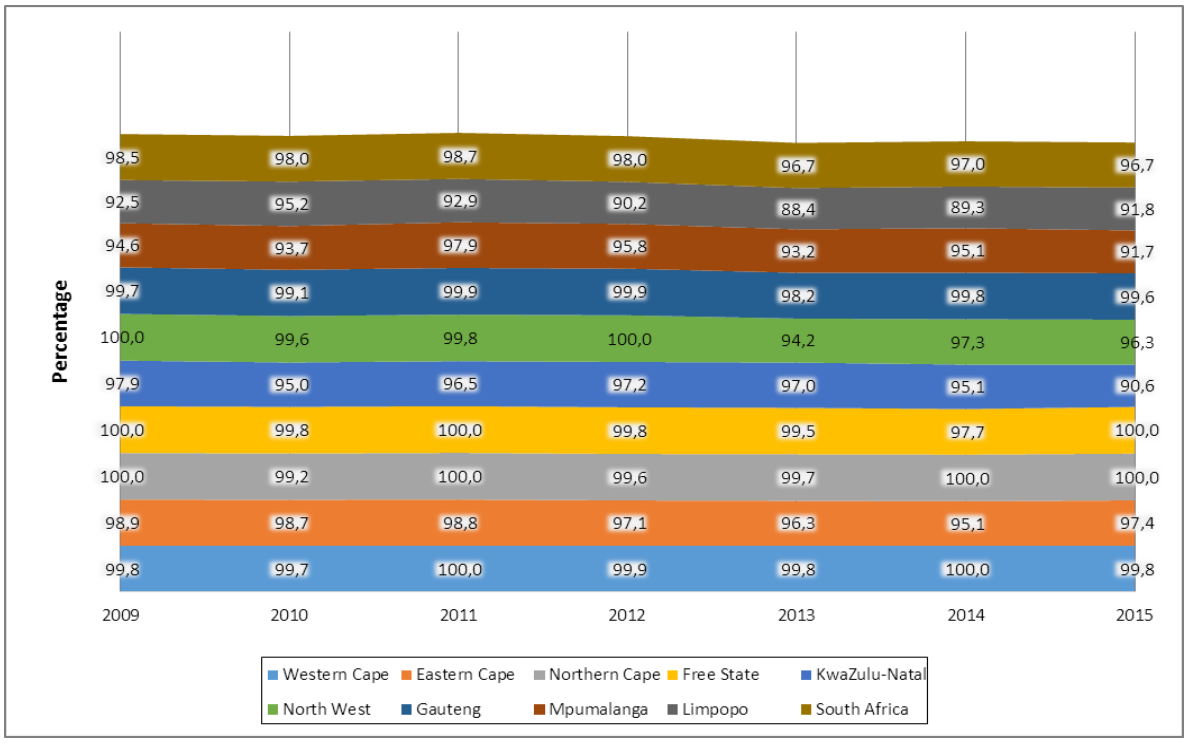
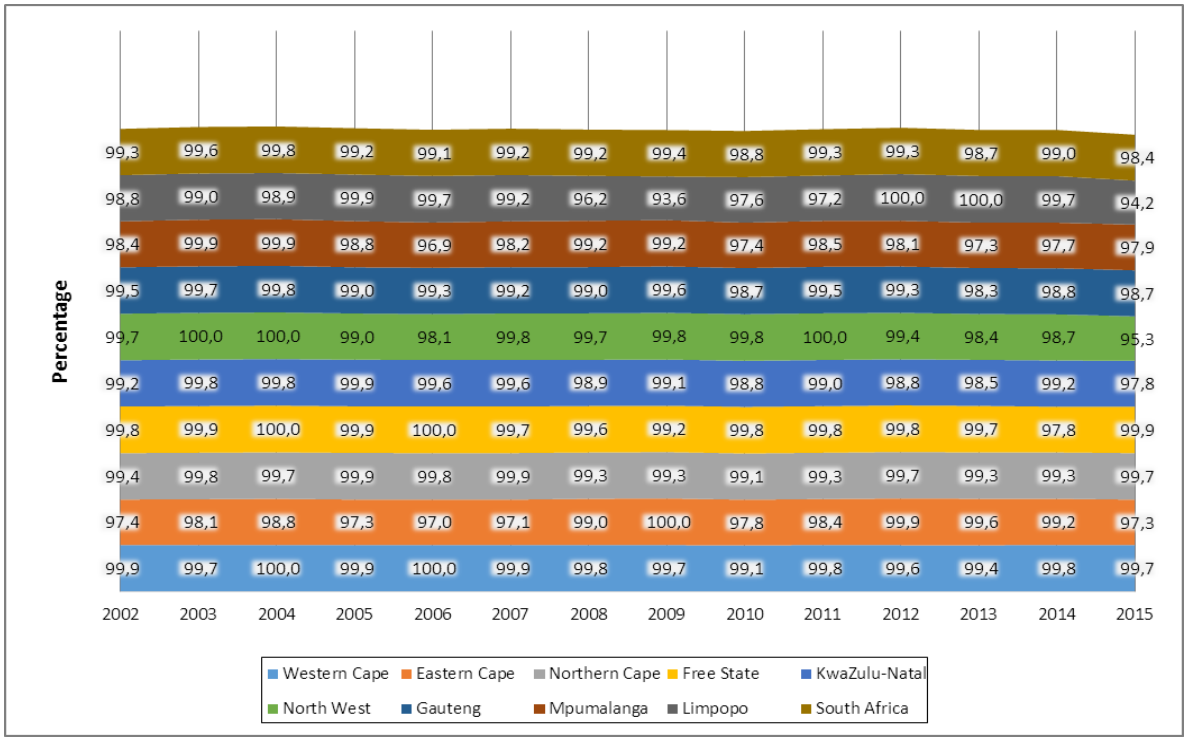


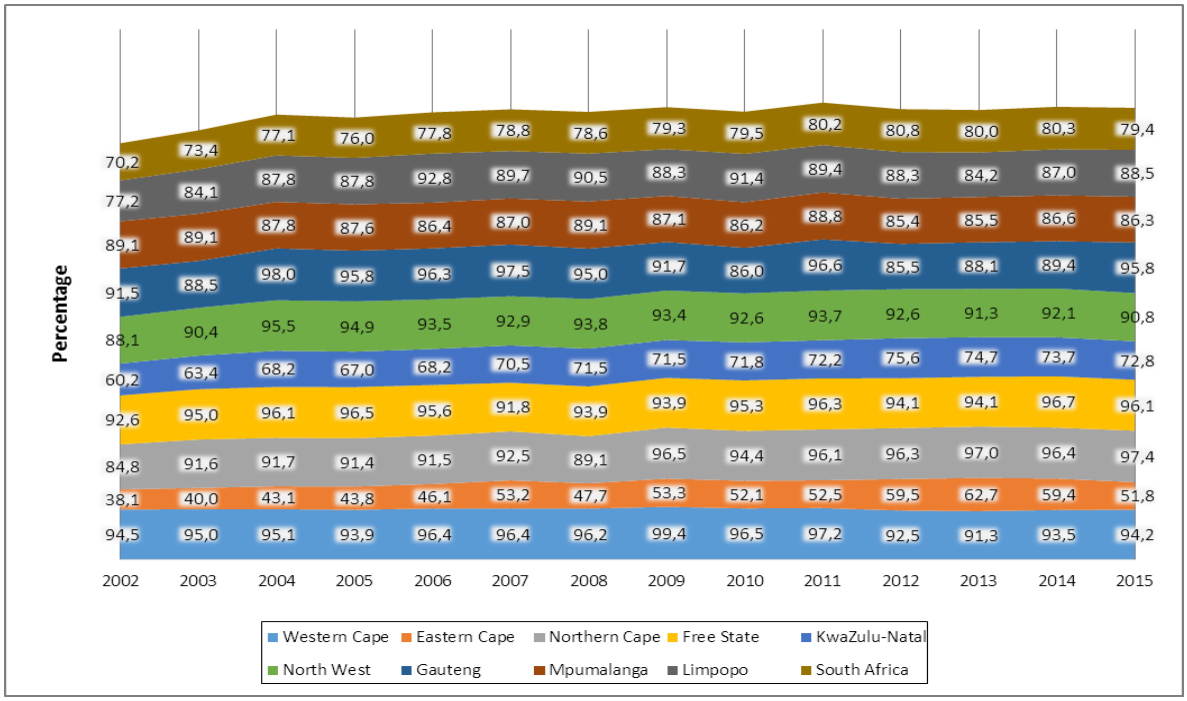
Figure 6.7 displays percentages of households living in RDP dwellings with access to improved drinking water sources between 2009 and 2015. Nationally, ninety-seven per cent of households living in RDP dwellings had access to improved drinking water sources in 2015. Universal access to improved drinking water sources in households living in RDP dwellings was reported in Northern Cape (100%), Free State (100%), Western Cape (99,8%) and Gauteng (99,6%).

Figure 6.8: Percentage of urban households with access to improved drinking water sources by province, 2002–2015



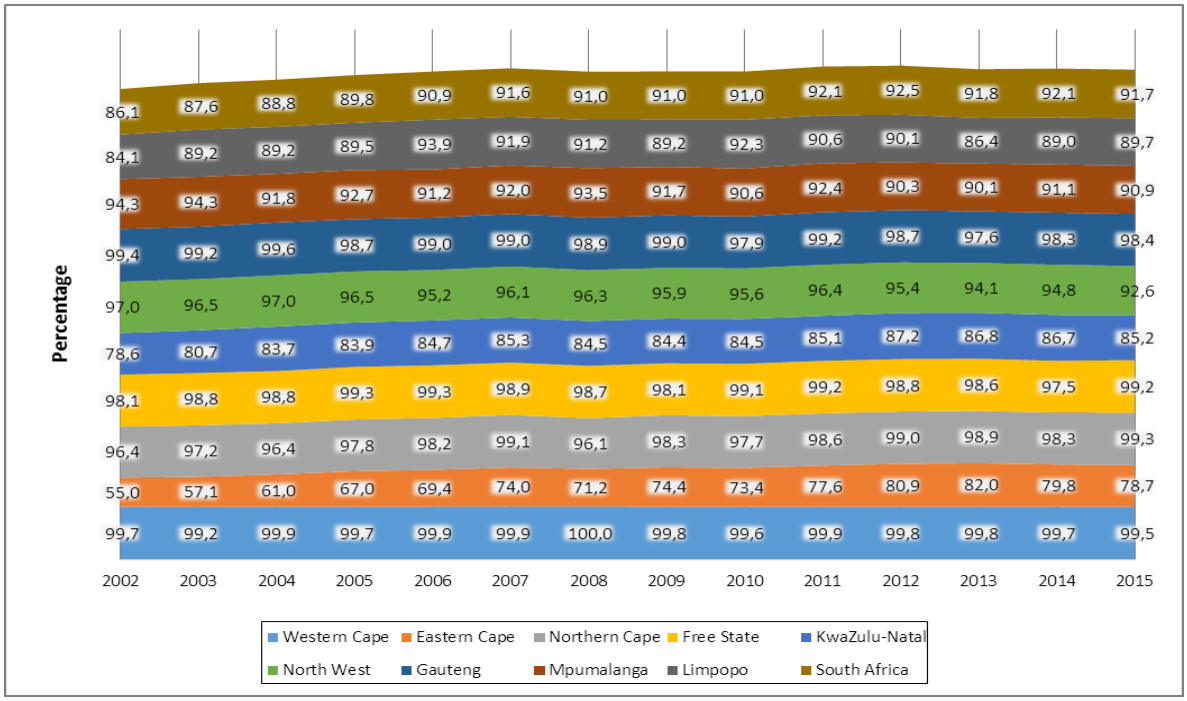
Generally, urban households had universal access to improved drinking water sources. Limpopo (94,2%) had the lowest percentage of urban households with access to improved drinking water sources, followed by North West (95,3%). This is presented in Figure 6.8.

Figure 6.9: Percentage of rural households with access to improved drinking water sources by province, 2002–2015



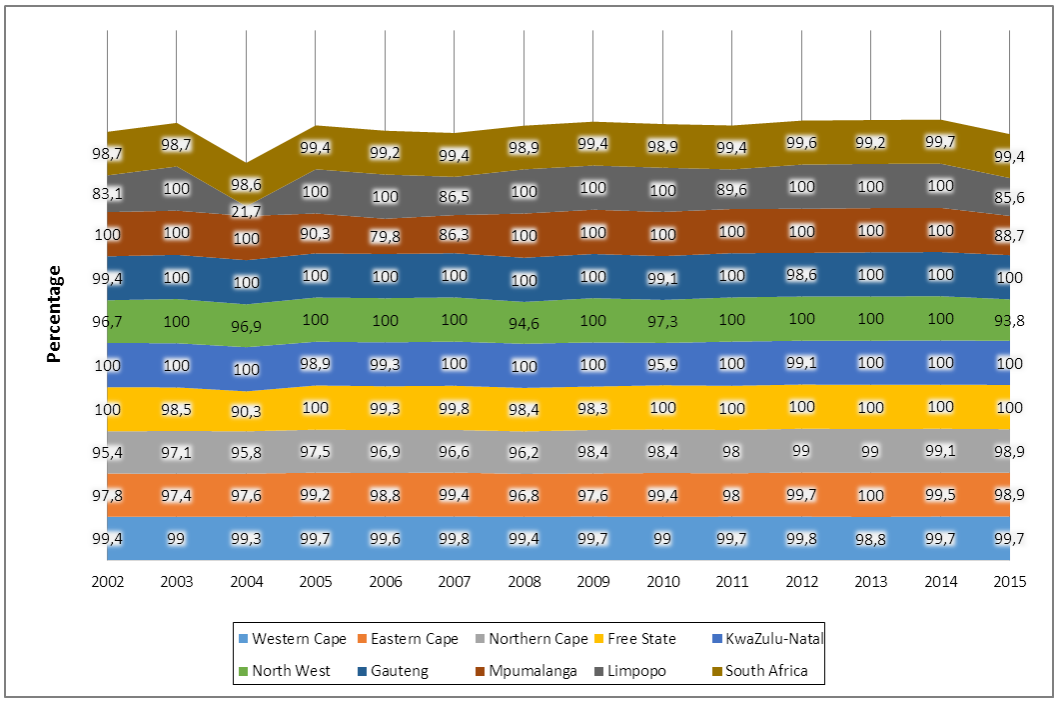
Four-fifths of rural households had access to improved drinking water sources in the country during 2015 as per Figure 6.9. Slightly more than half of rural households in Eastern Cape (51,8%) had access to improved drinking water sources in 2015. The number for Eastern Cape rural households was the lowest in the country, followed by rural households in KwaZulu-Natal (72,8%).

Figure 6.10: Black African-headed households with access to improved drinking water sources by province, 2002–2015



Over ninety per cent of households headed by black Africans had access to improved drinking water sources. The lowest percentage of households headed by black Africans with access to improved water sources was reported in Eastern Cape (78,7%), followed by KwaZulu-Natal (85,2%) and Mpumalanga (89,7%). Eastern Cape showed a huge improvement compared to the other eight provinces, as the percentage of black African households who had access to improved water source increased from 55% in 2002 to 78,7% in 2015. This is presented in Figure 6.10.

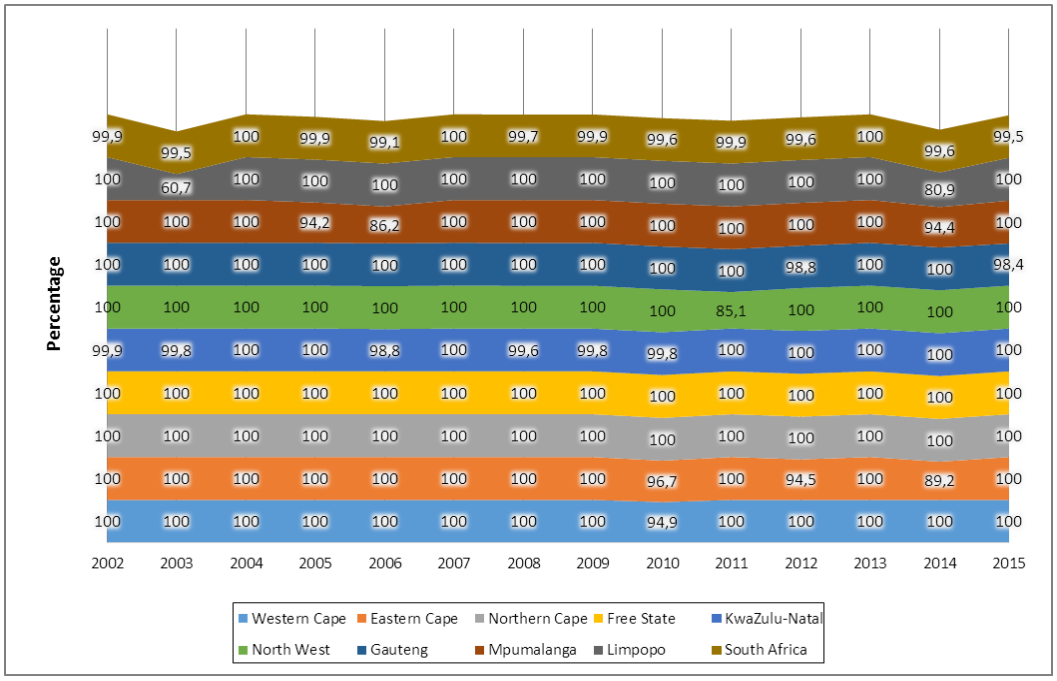
Figure 6.11: Coloured-headed households with access to improved drinking water sources by province, 2002–2015[1]



According to Figure 6.11, coloured-headed households generally had universal access to improved drinking water sources between 2002 and 2015.

[1] The representability in the 2002 – 2004 samples for Northern Cape had very few coloured and Indian/Asian representation and the statistics by population group have to be used with care.

Figure 6.12: Indian/Asian-headed households with access to improved drinking water sources by province, 2002–2015



Households headed by Indians/Asians consistently had universal access to improved drinking water sources between 2002 and 2015. This is presented in Figure 6.12.

Figure 6.13: White-headed households with access to improved drinking water sources by province, 2002–2015

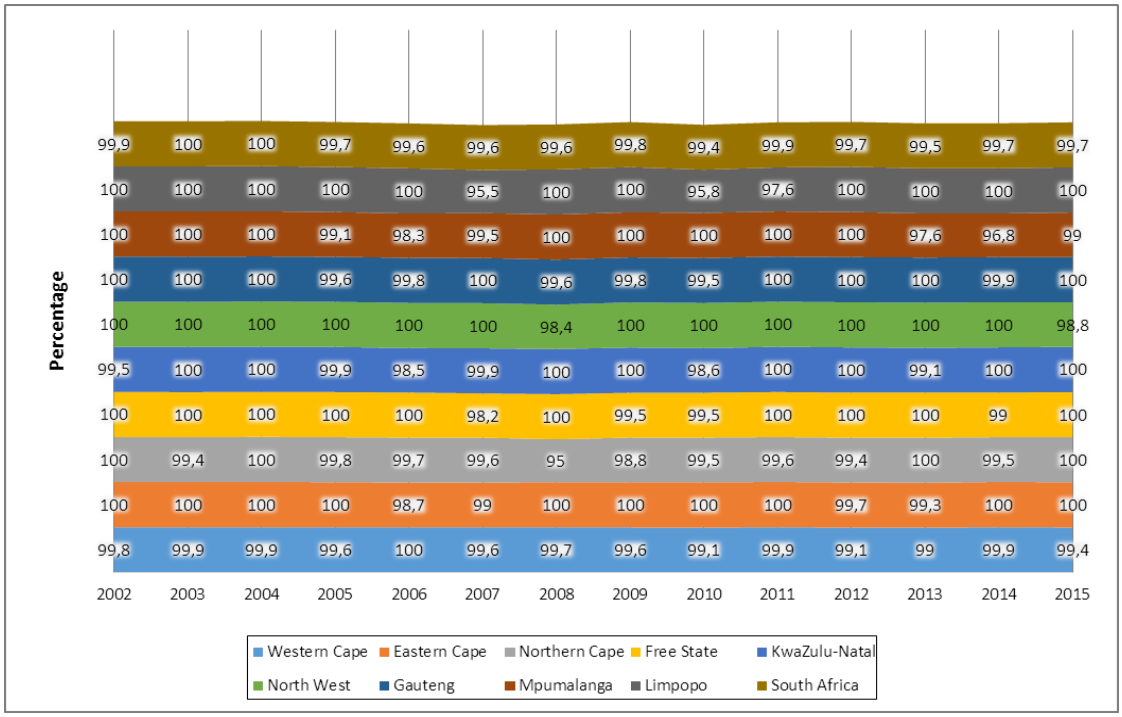
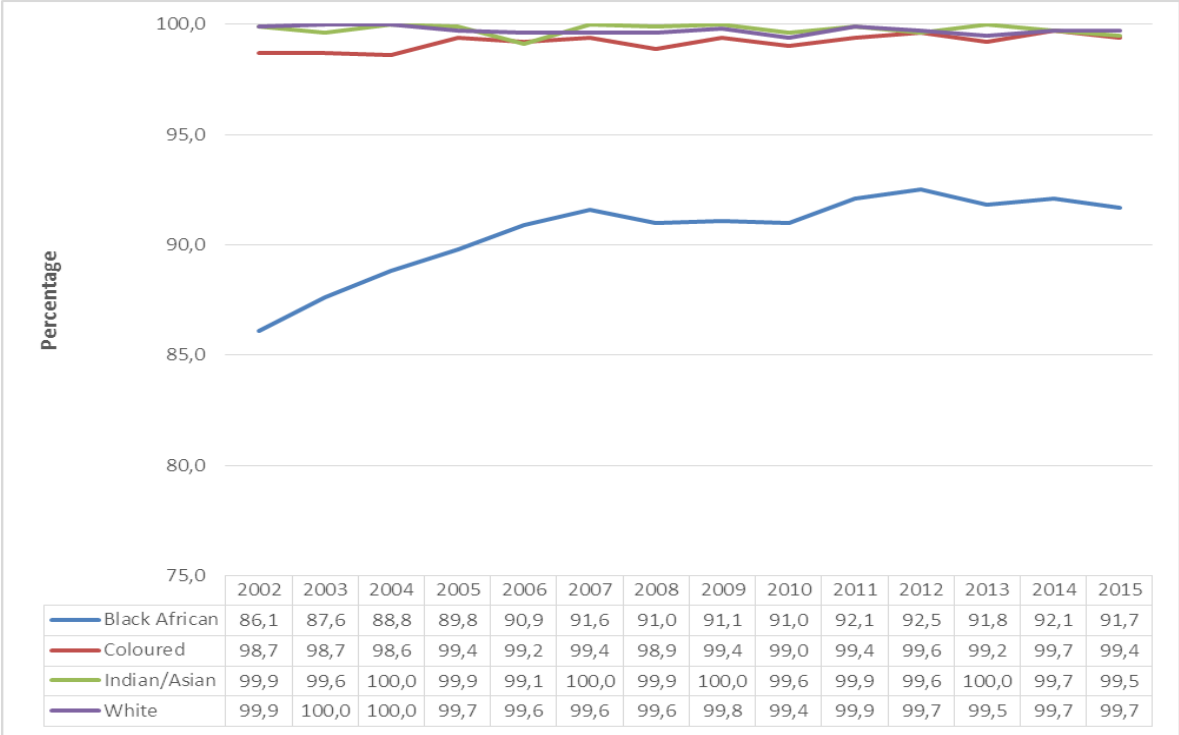


Figure 6.13 follows the same trend as Figures 6.11 and 6.12. Households headed by the white population group had universal access to improved drinking water sources between 2002 and 2015.

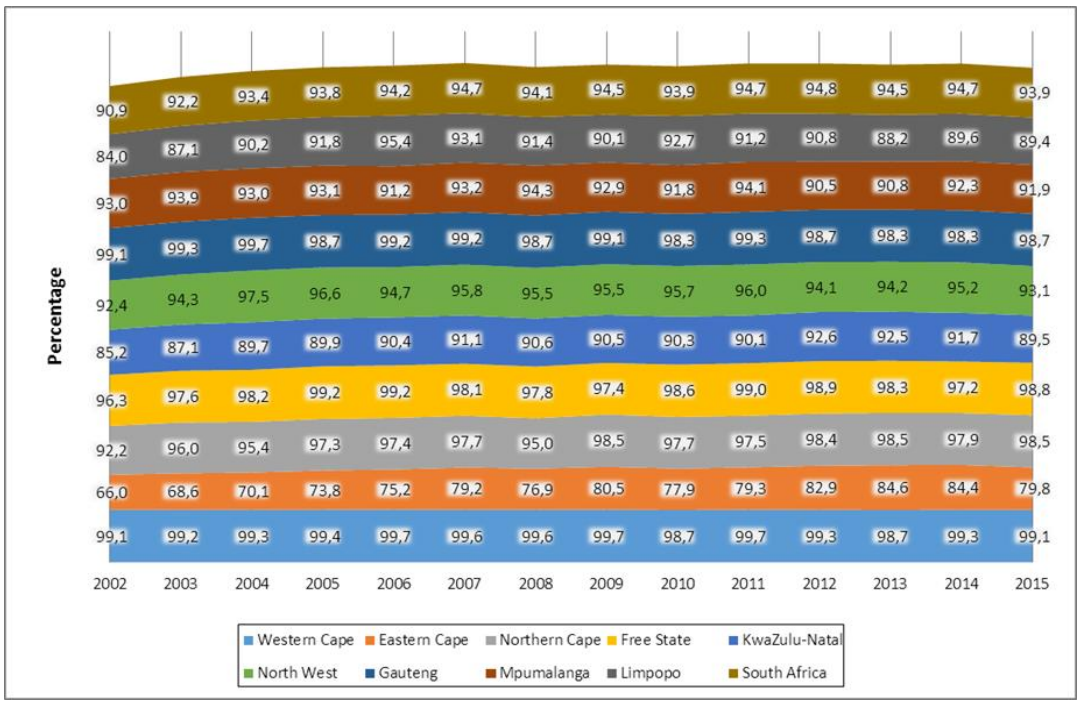
Figure 6.14: Access to improved drinking water sources by population group of the household head, 2002 and 2015



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Black African	86,1	87,6	88,8	89,8	90,9	91,6	91,0	91,1	91,0	92,1	92,5	91,8	92,1	91,7
Coloured	98,7	98,7	98,6	99,4	99,2	99,4	98,9	99,4	99,0	99,4	99,6	99,2	99,7	99,4
Indian/Asian	99,9	99,6	100,0	99,9	99,1	100,0	99,9	100,0	99,6	99,9	99,6	100,0	99,7	99,5
White	99,9	100,0	100,0	99,7	99,6	99,6	99,6	99,8	99,4	99,9	99,7	99,5	99,7	99,7

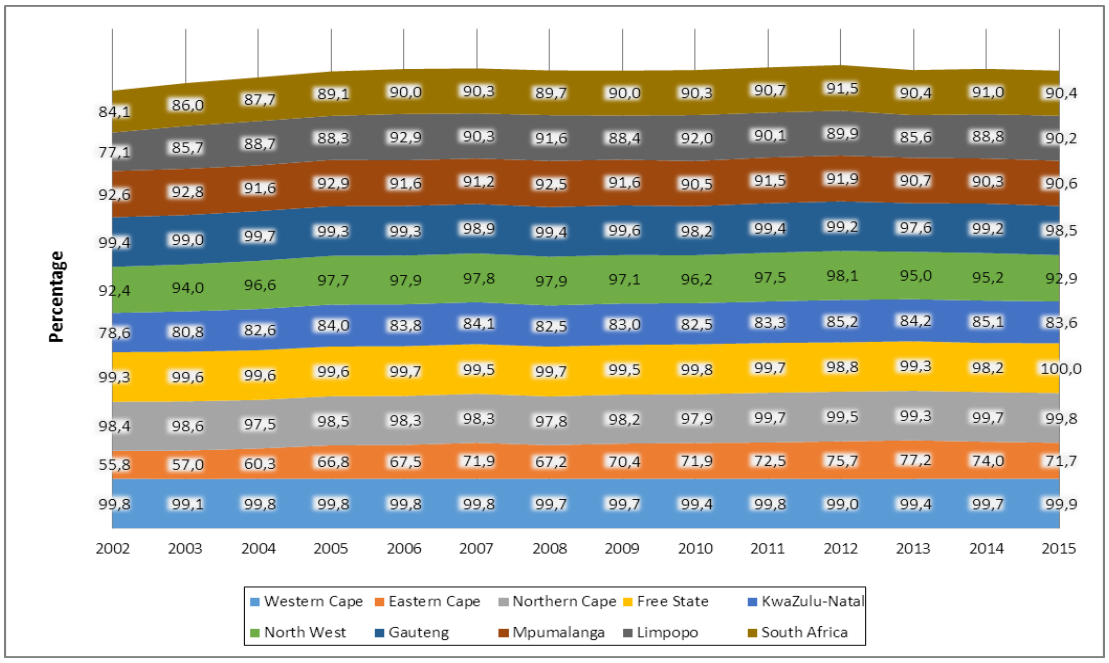
According to Figure 6.14, universal access to improved drinking water sources was reported for households headed by coloured, Indian/Asian and white populations. Even though, when making comparisons based on population group, black Africans lacked behind other population groups in 2015, their access to improved drinking water sources increased from 6 949 714 (86,1%) in 2002 to 11 914 781 (91,7%) in 2015.

Figure 6.15: Percentage of male-headed households with access to improved drinking water sources by province, 2002–2015



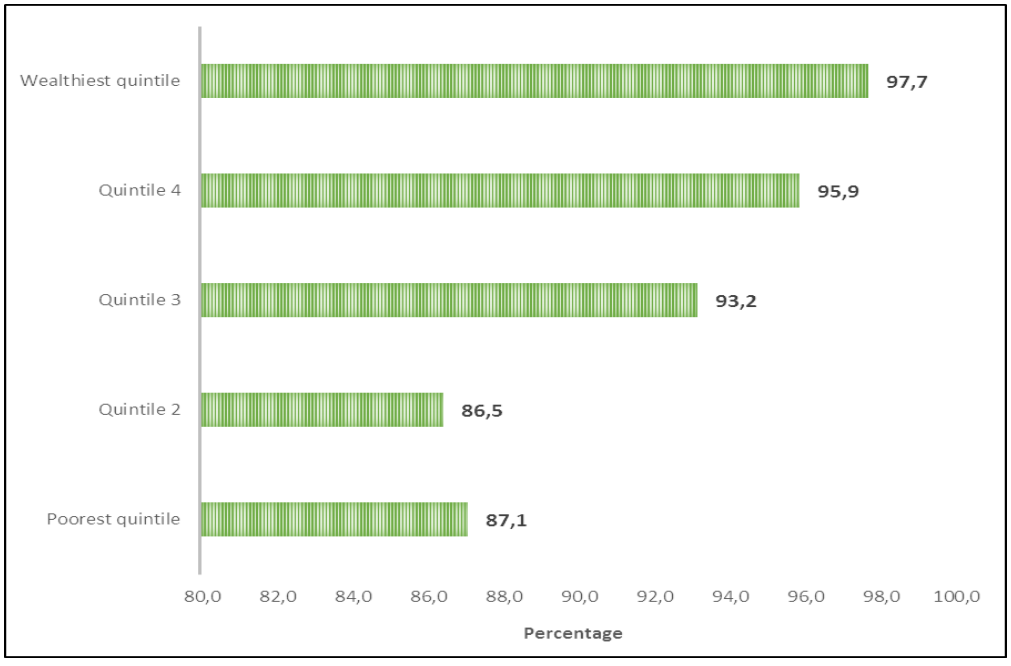
Ninety-four per cent of male-headed households accessed water from improved sources during 2015. Almost all-inclusive access was witnessed in Western Cape, Free State, Gauteng, and Northern Cape (99% apiece).

Figure 6.16: Percentage of female-headed households with access to improved drinking water sources by province, 2002–2015



Female-headed households in Free State, Western Cape, Northern Cape and Gauteng were most likely to have access to improved drinking water sources as per Figure 6.16. The provincial picture shows similar trends to those observed for male-headed households in Figure 6.15.

Figure 6.17: Percentage of households with access to improved drinking water sources by income quintile, 2015



Access to services is normally associated with household income. Households in the two poorest income quintiles reported the lowest percentage of access to improved drinking water sources, whilst households in the wealthiest income quintile reported the highest percentage of access to improved drinking water sources. This is presented in Figure 6.17.

Figure 6.18: Percentage of households with access to improved drinking water sources per metropolitan area, 2015

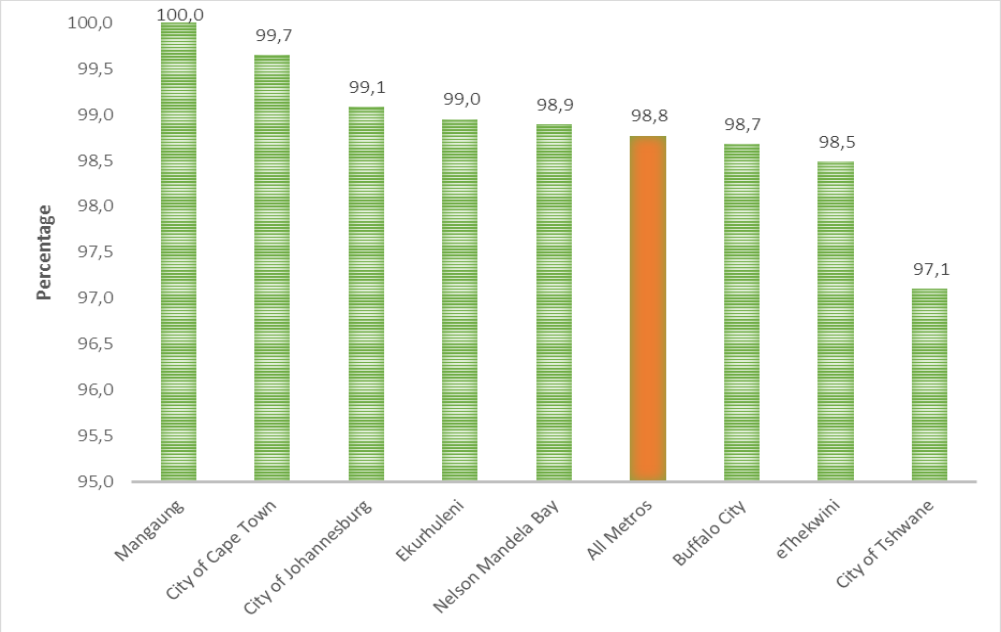
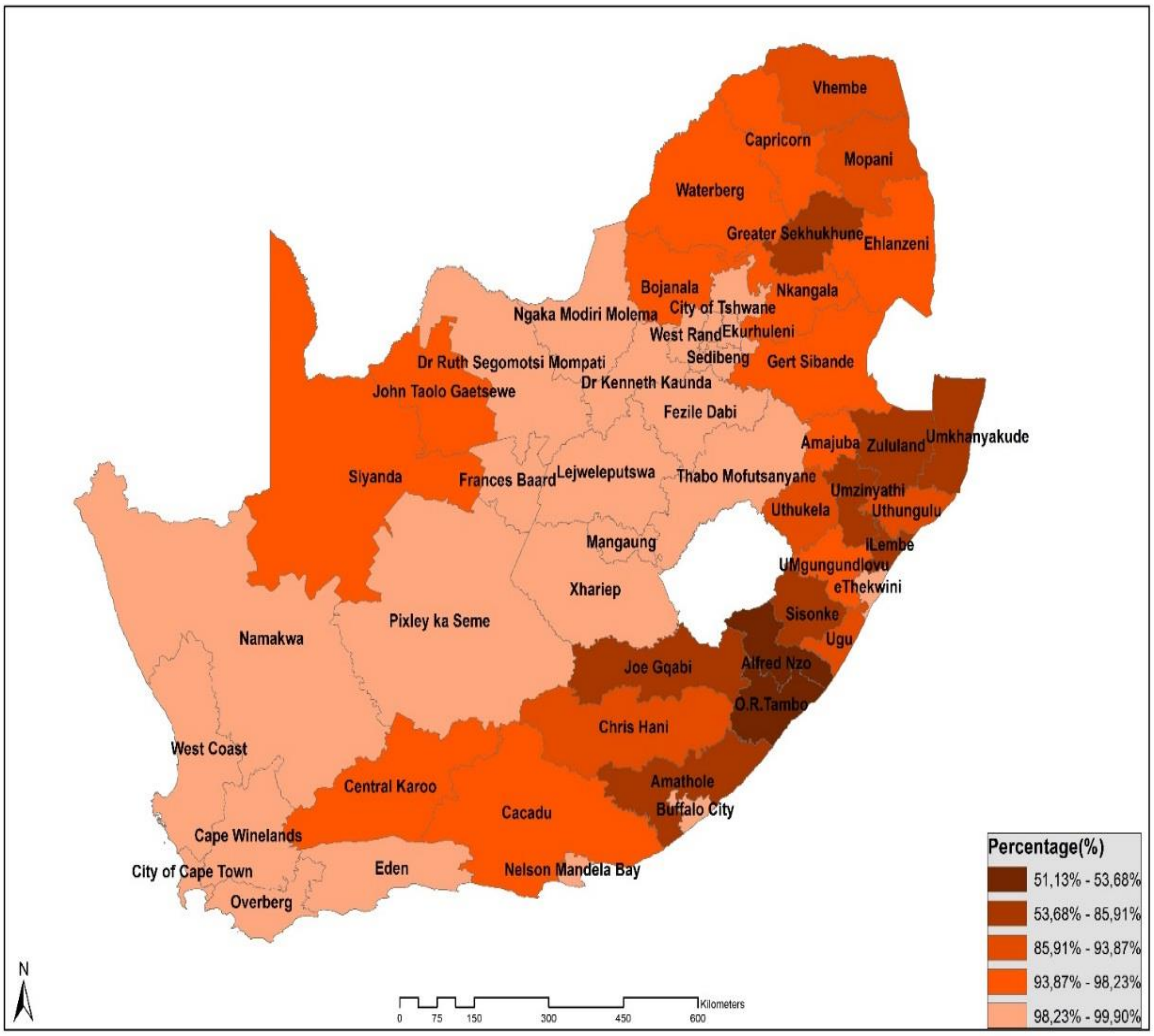


Figure 6.18 indicates access to improved drinking water sources by metropolitan area. Access to improved drinking water sources was greater for households living in Mangaung (100%), whilst households in Buffalo City, eThekwini and the City of Tshwane had the lowest access to improved drinking water sources.

Map 6.1: Households with access to improved drinking water sources by district council (DC), Community Survey (CS) 2016



Source: Community Survey 2016

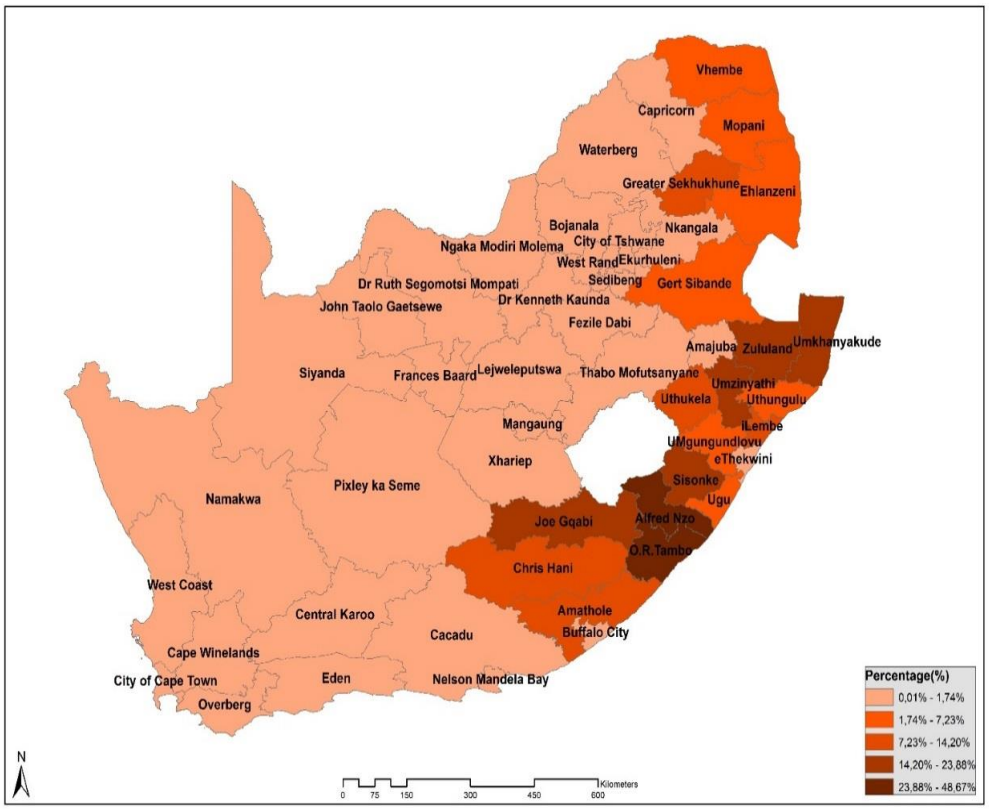
Map 6.1 indicates households with access to improved drinking water sources by district council using Community Survey 2016 data. The map shows that districts in Gauteng and Western Cape recorded the largest percentage of access to improved drinking water sources. Households living in Alfred Nzo and O.R. Tambo had the lowest percentage of access to improved drinking water sources.

Table 6.4: Access to piped or tap water in the dwelling on-site or off-site by province, 2002–2015

Year	Statistic	Province									
		Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	South Africa
2002	Number	1 184 576	790 427	213 706	655 697	1 440 714	717 151	2 701 874	701 006	766 676	9 171 827
	Percentage	98,9	56,3	92,5	95,6	75,8	85,7	98,7	90,6	73,9	84,9
2003	Number	1 218 766	848 175	226 882	677 576	1 528 952	774 880	2 816 021	730 445	842 881	9 664 578
	Percentage	98,9	59,5	96,2	97,2	78,5	90,4	99,0	91,5	79,1	87,0
2004	Number	1 259 054	916 419	225 464	674 703	1 588 636	777 745	2 919 230	726 954	826 525	9 914 729
	Percentage	99,2	63,5	93,2	95,1	79,6	88,6	98,8	88,2	75,4	86,9
2005	Number	1 287 976	1 007 426	236 489	701 674	1 673 051	784 522	3 020 715	766 175	875 963	10 353 991
	Percentage	98,5	68,8	95,4	97,0	81,7	87,1	98,0	89,9	77,7	88,1
2006	Number	1 340 279	1 043 637	242 376	718 710	1 708 653	839 727	3 151 516	784 066	934 771	10 763 735
	Percentage	99,4	70,4	95,3	97,4	81,3	90,7	98,0	88,9	80,7	88,9
2007	Number	1 360 854	1 122 904	247 434	727 341	1 798 358	853 025	3 261 127	808 183	996 672	11 175 898
	Percentage	98,0	74,7	94,7	96,3	83,2	89,6	97,2	88,4	83,4	89,5
2008	Number	1 413 287	1 077 462	242 837	754 153	1 819 489	881 503	3 403 081	835 453	1 016 485	11 443 750
	Percentage	98,7	70,7	90,5	97,6	81,8	89,9	97,1	88,2	82,5	88,8
2009	Number	1 471 205	1 156 583	263 681	751 590	1 918 888	887 788	3 591 091	856 166	1 027 394	11 924 386
	Percentage	99,6	74,7	95,8	95,2	83,8	87,9	98,1	87,3	80,9	89,6
2010	Number	1 505 016	1 174 955	265 406	781 896	1 976 032	946 324	3 716 543	893 417	1 098 766	12 358 355
	Percentage	98,8	74,7	94,1	97,0	83,8	91,0	97,2	88,0	84,0	90,0
2011	Number	1 564 148	1 208 149	278 238	796 857	2 032 678	976 258	3 903 150	919 164	1 116 990	12 795 632
	Percentage	99,6	75,5	96,2	96,8	83,7	91,2	97,8	87,5	82,8	90,3
2012	Number	1 601 298	1 288 954	283 577	814 515	2 186 707	1 006 479	4 041 398	952 131	1 114 892	13 289 951
	Percentage	98,9	79,0	95,6	96,7	87,3	91,1	97,3	87,5	80,1	90,8
2013	Number	1 646 440	1 338 409	292 748	827 773	2 226 134	1 007 024	4 144 777	977 823	1 113 509	13 574 637
	Percentage	98,7	80,5	96,3	96,0	86,2	88,4	95,9	86,8	77,5	89,9
2014	Number	1 700 918	1 330 378	298 714	841 626	2 305 045	1 026 013	4 340 266	1 016 958	1 180 277	14 040 195
	Percentage	98,9	78,5	95,8	95,3	86,6	87,2	96,4	87,1	79,6	90,0
2015	Number	1 760 082	1 294 158	308 825	870 657	2 313 077	1 046 892	4 580 477	1 035 734	1 207 584	14 417 486
	Percentage	99,2	74,9	96,5	96,1	84,2	86,1	97,7	85,5	78,8	89,4

Table 6.4 shows that the percentage of households in Eastern Cape with access to piped water in the dwelling on-site or off-site increased significantly from 56,3% in 2002 to 75% in 2015. Households in Western Cape (99,2%), Gauteng (97,7%), Northern Cape (96,5%) and Free State (96,1%) reported the highest percentages as far as access to piped water in the dwelling or off-site was concerned.

Map 6.2: Percentage of households with access to ground water by district council, CS 2016



Source: Community Survey 2016

For the purpose of this report, flowing water, stagnant water, water from a well and water from a spring were considered ground water. Households living in O.R. Tambo (49%), Alfred Nzo (46%), Zululand (24%), Sisonke (23%) and UMkhanyakude (20%) still relied on ground water as a source of drinking water. This is presented in Map 6.2.

Table 6.5 presents a model to predict households with access to unimproved drinking water sources using logistic regression. The odds of households in Eastern Cape (3,227), KwaZulu-Natal (2,713), Gauteng (2,748), North West (1,317), Mpumalanga (1,567) and Limpopo (1,400) to access unimproved drinking water sources were greater than the odds of households in Western Cape. However, the difference was insignificant for the latter three provinces. The provincial data show fluctuations as far as urban and rural areas were concerned with less variations and most odds being insignificant. The odds of households in rural areas, non-metro, traditional and informal dwellings were respectively 2,664, 3,549, 2,495 and 1,594 times more than the odds of households in urban areas, metros and formal dwellings to access unimproved drinking water sources. Generally, poor households were more likely to have access to unimproved drinking water sources than wealthier households. However, it should be noted that in some instances the difference was insignificant. Households using other sanitation facilities, such as pit latrines or the bucket toilet system had larger odds of accessing unimproved drinking water sources than households using flush toilets.

Table 6.5: Predictors of households with access to unimproved water sources using logistics regression, 2015

Probability modelled	Unimproved water sources		
	Urban	Rural	South Africa
Likelihood ratio chi-square	432	924	3 309
Hosmer and Lemeshow goodness of fit test (P-value)	0,0001	0,0001	0,0001
N	12 903	7 165	20 068
Intercept	-6,1599	-3,9595	-6,6574
Odds ratio			
Province	**Urban**	**Rural**	**South Africa**
Western Cape (reference category)			
Eastern Cape	0,854*	3,056*	3,227
Northern Cape	0,268*	0,315*	0,298
Free State	0,135*	0,376*	0,333
KwaZulu-Natal	2,169*	2,275*	2,713
North West	8,023	0,909*	1,317*
Gauteng	2,484*	0,413*	2,748
Mpumalanga	3,142	1,339*	1,567*
Limpopo	9,830	1,089*	1,400*
Geographical location			
Urban (reference category)			
Rural	n/a	n/a	2,664
Metro			
Metro (reference category)			
Non-metro	ŕ	n/a	3,549
Dwelling type			
Formal (reference category)			
Traditional	ŕ	2,341	2,495
Informal	n/a	1,160*	1,594
Per capita income quintile			
Wealthiest quintile (reference category)			
Poorest quintile	ŕ	1,693	1,309*
Quintile 2	ŕ	1,811	1,407
Quintile 3	ŕ	1,234*	0,954*
Quintile 4	ŕ	1,179*	1,043*
Sanitation facilities			
Flush toilets (reference category)			
Pit latrines	16,341	4,028	6,902
Bucket toilets	1,807	4,770	2,885
Chemical toilet/Ecological sanitation system	2,634*	3,119*	2,463*
Open defecation (other or no toilet facilities or bush or field)	13,896*	5,341	8,637
Population group of household head			
Other population groups (reference category)			
Black African	n/a	n/a	n/a

*: Insignificant values at 95%.

n/a: not applicable

ŕ: excluded in the model

6.3 Distance to water source

Improved access to safe water supplies has beneficial effects for women and girls, who enjoy time saving and sometimes a reduced workload as a result. When water must be fetched from distant and sometimes multiple sources, women and girls are normally the ones who bear the burden. But time saving and reduced workload only achieve limited benefits in terms of increased income. The time saved is usually devoted to other unpaid work such as collection of firewood or unpaid agricultural labour.

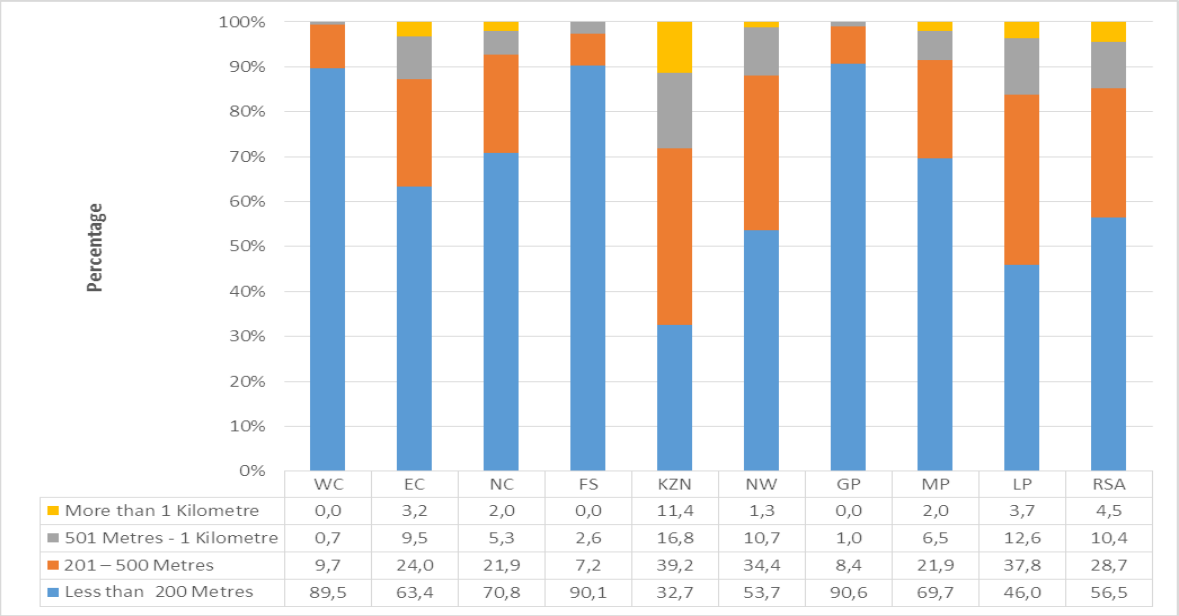
Figure 6.19 indicates that 15% of households that did not have access to water in the yard or dwelling lived more than 500 metres away from their drinking water source. However, 4,5% of households lived more than one kilometre away from outside yard dwelling drinking water source. Generally, the percentage of households that lived more than 500 metres away from the outside yard or dwelling water sources ranged from 15% to 18% between 2008 and 2015. A total of respectively 365 853 and 159 613 households lived between 501 metres to 1 kilometre and more than 1 kilometre away from the outside yard/dwelling drinking water source in the country.

Figure 6.19: Distance to outside yard/dwelling drinking water source, 2015

	2008	2009	2010	2011	2012	2013	2014	2015
More than 1 Kilometre	6,9	3,0	5,5	6,1	5,3	4,7	4,2	4,5
501 metres - 1 Kilometre	10,7	11,6	11,0	10,8	11,3	11,6	11,2	10,4
201 – 500 Metres	30,9	25,3	28,6	29,4	25,1	24,1	29,3	28,7
Less than 200 Metres	51,5	60,1	54,9	53,8	58,2	59,6	55,3	56,5

Figure 6.20 indicates the distance to the outside yard/dwelling water source by province. The figure points out that nearly three-tenths of households in KwaZulu-Natal (28,2%) lived more than 500 metres away from the outside yard/dwelling water source, followed by households in Limpopo (16,3%).

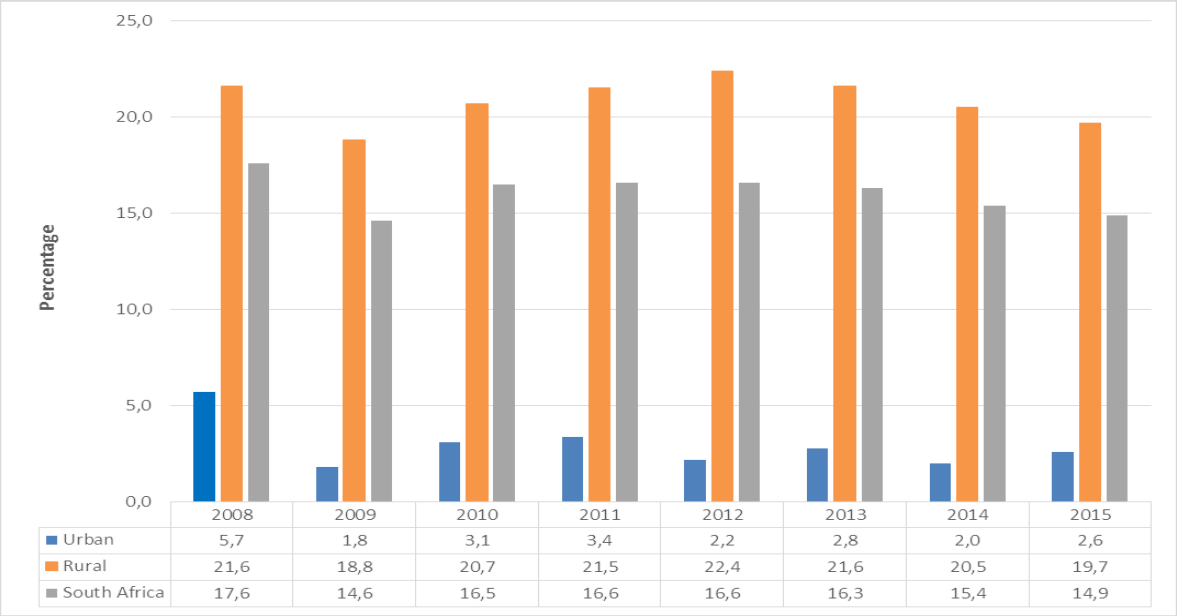
Figure 6.20: Distance to outside yard/dwelling drinking water source by province, 2015



	WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
More than 1 Kilometre	0,0	3,2	2,0	0,0	11,4	1,3	0,0	2,0	3,7	4,5
501 Metres - 1 Kilometre	0,7	9,5	5,3	2,6	16,8	10,7	1,0	6,5	12,6	10,4
201 – 500 Metres	9,7	24,0	21,9	7,2	39,2	34,4	8,4	21,9	37,8	28,7
Less than 200 Metres	89,5	63,4	70,8	90,1	32,7	53,7	90,6	69,7	46,0	56,5

According to Figure 6.21, when looking at households who did not have water in their houses or yards, rural households consistently reported the highest percentages for those living more than 500 metres away from the drinking water source. Since 2008 – when the question on distance changed from minutes to metres – one-fifth of households in rural areas lived more than 500 metres away from the outside yard/dwelling drinking water source.

Figure 6.21: Households living more than 500 metres away from outside yard/dwelling drinking water source by rural/urban area, 2008–2015[2]

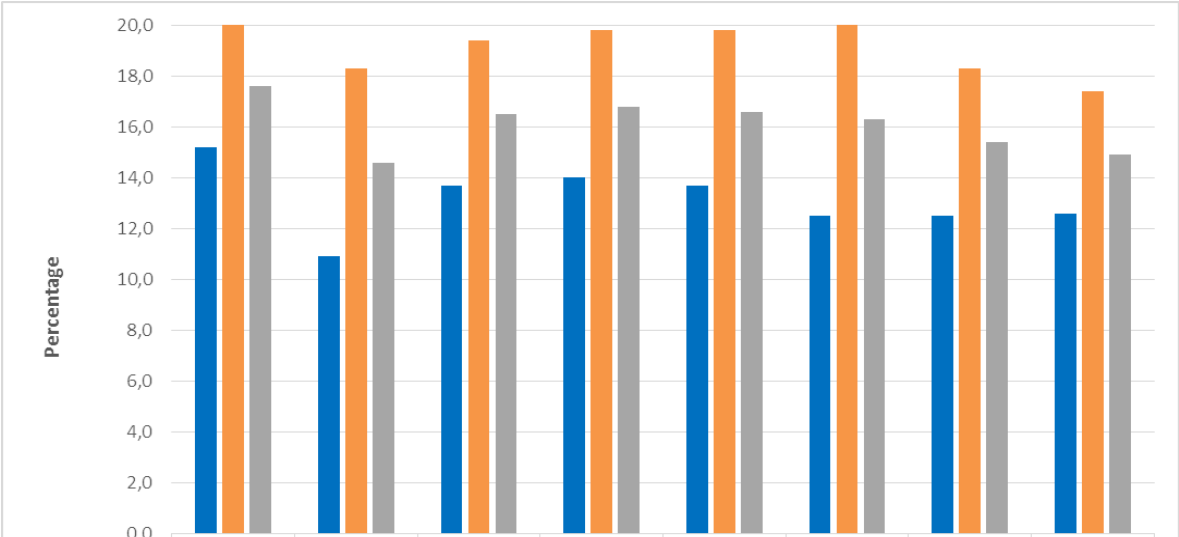


	2008	2009	2010	2011	2012	2013	2014	2015
Urban	5,7	1,8	3,1	3,4	2,2	2,8	2,0	2,6
Rural	21,6	18,8	20,7	21,5	22,4	21,6	20,5	19,7
South Africa	17,6	14,6	16,5	16,6	16,6	16,3	15,4	14,9

[2] Percentages were calculated within each geographic category

Figure 6.22 indicates that 17 per cent of female-headed households lived more than 500 metres away from the outside yard/dwelling drinking water source.

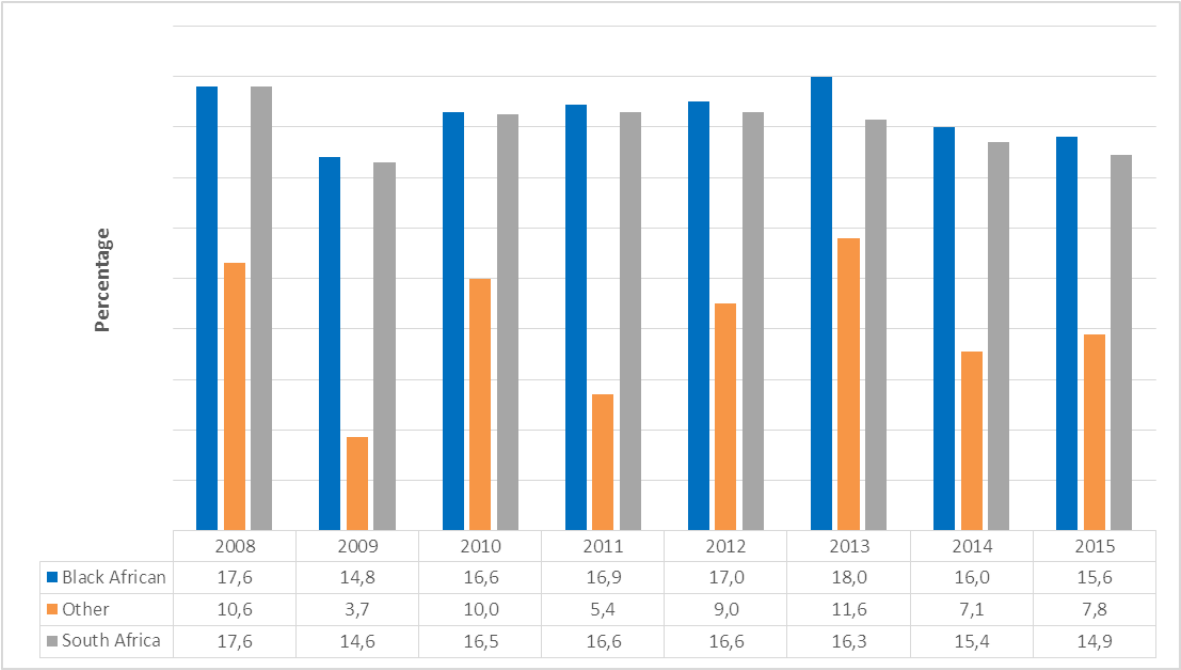
Figure 6.22: Households living more than 500 metres away from outside yard/dwelling drinking water source by gender of the household head, 2008–2015



	2008	2009	2010	2011	2012	2013	2014	2015
Male	15,2	10,9	13,7	14,0	13,7	12,5	12,5	12,6
Female	20,0	18,3	19,4	19,8	19,8	20,2	18,3	17,4
South Africa	17,6	14,6	16,5	16,8	16,6	16,3	15,4	14,9

Figure 6.23 shows that 15 per cent of households headed by black Africans lived more than 500 metres away from the outside yard/dwelling drinking water sources as compared to households headed by coloureds, Indians/Asians and whites.

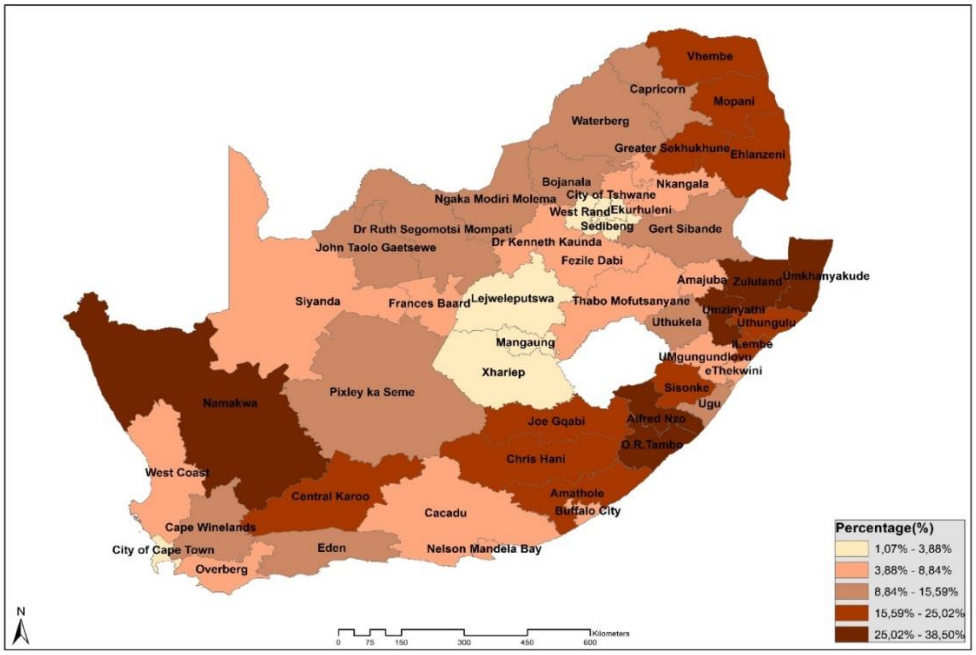
Figure 6.23: Households living more than 500 metres away from outside yard/dwelling drinking water source by population group of the household head, 2008–2015



	2008	2009	2010	2011	2012	2013	2014	2015
Black African	17,6	14,8	16,6	16,9	17,0	18,0	16,0	15,6
Other	10,6	3,7	10,0	5,4	9,0	11,6	7,1	7,8
South Africa	17,6	14,6	16,5	16,6	16,6	16,3	15,4	14,9

The percentages of households living more than 500 metres away from the outside yard/dwelling drinking water source are presented in Map 6.3. Households in Umkhanyakude (38,5%), Zululand (35,6 %) and O.R. Tambo (34,6%) lived more than 500 metres away from the outside yard/dwelling drinking water source.

Map 6.3: Households living more than 500 metres away from outside yard/dwelling drinking water source by DC, CS 2016



Source: Community Survey 2016

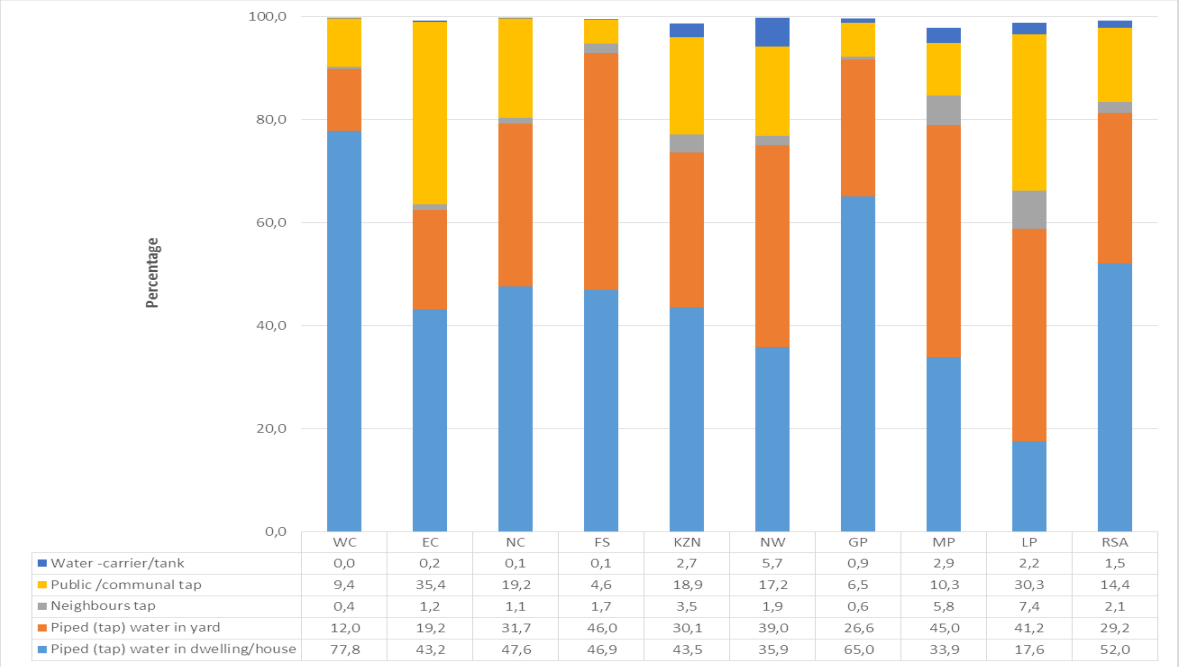
6.4 Municipal water supplier, quality and payment

Table 6.6: Households with access to municipal water by province, 2009–2015

		2009	2010	2011	2012	2013	2014	2015
Western Cape	Number	1 390 627	1 431 086	1 468 880	1 527 966	1 572 759	1 635 180	1 677 197
	Per cent	94,5	94,3	94,0	95,1	95,4	95,6	94,6
Eastern Cape	Number	1 092 028	1 129 485	1 122 409	1 204 297	1 269 247	1 267 689	1 230 018
	Per cent	70,9	72,8	70,9	74,2	76,8	74,9	71,5
Northern Cape	Number	236 011	240 004	248 241	255 936	269 200	266 406	293 892
	Per cent	86,1	85,9	86,7	88,6	91,7	87,7	92,0
Free State	Number	720 594	738 989	763 695	784 103	814 192	841 846	838 438
	Per cent	91,6	93,2	93,5	94,1	94,7	95,6	93,1
KwaZulu-Natal	Number	1 770 522	1 913 135	1 862 741	2 005 576	2 090 676	2 183 652	2 206 852
	Per cent	77,5	82,1	78,8	82,3	83,1	84,5	83,1
North West	Number	742 178	759 851	838 558	778 924	800 051	822 203	855 261
	Per cent	74,6	75,8	80,8	73,4	73,6	72,2	75,3
Gauteng	Number	3 522 137	3 682 756	3 803 138	3 950 245	4 114 917	4 262 691	4 504 697
	Per cent	96,6	97,3	96,7	96,5	96,3	95,7	97,6
Mpumalanga	Number	825 813	863 444	868 951	921 040	966 698	989 156	972 348
	Per cent	85,0	85,8	84,1	85,2	86,1	85,7	81,3
Limpopo	Number	799 695	965 654	955 007	943 804	959 979	961 695	1 024 391
	Per cent	63,5	74,9	71,9	68,9	67,6	65,2	67,7
South Africa	Number	11 099 605	11 724 405	11 931 622	12 371 891	12 857 719	13 230 519	13 603 093
	Per cent	83,9	86,5	85,6	86,0	86,4	85,9	85,9

Table 6.6 represents numbers and percentages of households with access to municipal water by province from 2009 to 2015. Nationally, the percentage of households with access to municipal water increased from 84% to 86% between 2009 and 2015. Gauteng (97,6%), Western Cape (94,6%) and Free State (93,1%) reported the highest percentages of households with access to municipal water in 2015. The provinces with the lowest percentages were Limpopo (67,7%), Eastern Cape (71,5%) and North West (75,3%). KwaZulu-Natal (5,6 percentage points) and Limpopo (4,2 percentage points) had experienced the highest growth in terms of access to municipal water when compared with the other provinces, while Mpumalanga (3,7 percentage points) was the only province that experienced a decline in the percentage of households with access to municipal water.

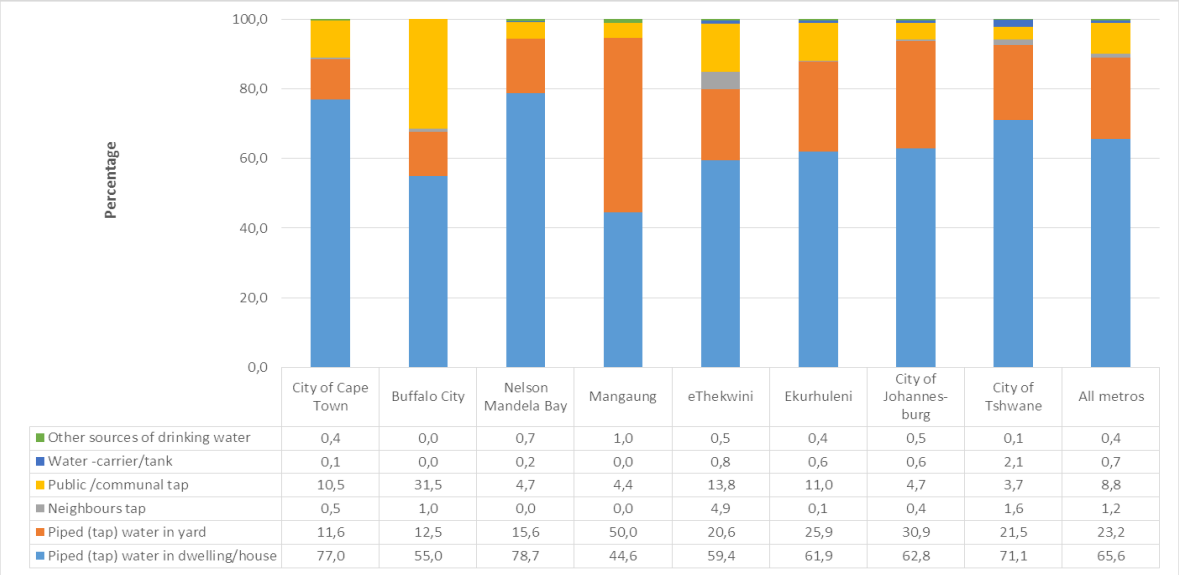
Figure 6.24: Households with access to municipal water by source of drinking water and province, 2015



	WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
Water -carrier/tank	0,0	0,2	0,1	0,1	2,7	5,7	0,9	2,9	2,2	1,5
Public /communal tap	9,4	35,4	19,2	4,6	18,9	17,2	6,5	10,3	30,3	14,4
Neighbours tap	0,4	1,2	1,1	1,7	3,5	1,9	0,6	5,8	7,4	2,1
Piped (tap) water in yard	12,0	19,2	31,7	46,0	30,1	39,0	26,6	45,0	41,2	29,2
Piped (tap) water in dwelling/house	77,8	43,2	47,6	46,9	43,5	35,9	65,0	33,9	17,6	52,0

Nearly four-fifths of households whose main source of drinking water was supplied by municipalities in Western Cape had access to piped water in the dwelling/house. Sixty-five per cent of households had access to piped municipal water in the dwelling/house in Gauteng. More than a third of households in Eastern Cape (35,4%) and slightly less than a third of households in Limpopo (30,3%), whose main source of drinking water was supplied by municipality, had access to public or communal taps. Nearly a fifth of households whose main source of drinking water was supplied by municipalities in Northern Cape (19,2%), KwaZulu-Natal (18,9%) and North West (17,2%) had access to public or communal taps. This is presented in Figure 6.24.

Figure 6.25: Households with access to municipal water by source of drinking water and metropolitan area, 2015



	City of Cape Town	Buffalo City	Nelson Mandela Bay	Mangaung	eThekwini	Ekurhuleni	City of Johannes-burg	City of Tshwane	All metros
Other sources of drinking water	0,4	0,0	0,7	1,0	0,5	0,4	0,5	0,1	0,4
Water -carrier/tank	0,1	0,0	0,2	0,0	0,8	0,6	0,6	2,1	0,7
Public /communal tap	10,5	31,5	4,7	4,4	13,8	11,0	4,7	3,7	8,8
Neighbours tap	0,5	1,0	0,0	0,0	4,9	0,1	0,4	1,6	1,2
Piped (tap) water in yard	11,6	12,5	15,6	50,0	20,6	25,9	30,9	21,5	23,2
Piped (tap) water in dwelling/house	77,0	55,0	78,7	44,6	59,4	61,9	62,8	71,1	65,6

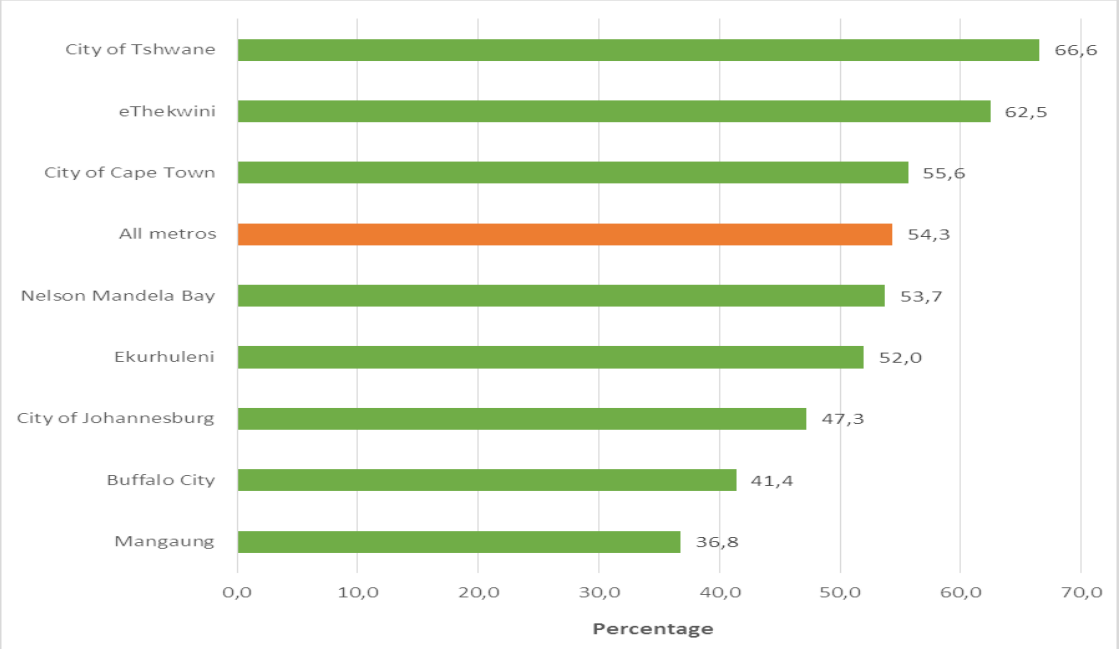
During 2015, nearly 80% of households in Nelson Mandela Bay and the City of Cape Town had access to piped water in the dwelling/house. More than 70% of households in the City of Tshwane had access to piped water in the dwelling/house. Households with access to water from a communal/public tap were most prevalent in Buffalo City (31,5%), eThekwini (13,8%), Ekurhuleni (11%) and the City of Cape Town (10,5%). Approximately 55% of households in Mangaung had access to piped water in the yard, followed by households in the City of Johannesburg (30,9%) and Ekurhuleni (25,9%). This information is presented in Figure 6.25.

Table 6.7: Households paying for municipal water by province, 2005–2015

		2005	2007	2008	2009	2010	2011	2012	2013	2014	2015
WC	Number	962 515	1 072 311	1 077 900	939 718	887 384	947 073	997 130	987 768	1 002 109	999 639
	Per cent	78,6	83,1	83,3	67,6	62,1	64,6	65,5	62,9	61,5	59,7
EC	Number	497 214	526 150	503 256	472 165	455 053	433 260	430 432	431 758	428 440	390 912
	Per cent	53,6	50,2	54,7	43,3	40,3	39,0	35,8	34,1	34,0	31,8
NC	Number	143 449	134 470	150 313	146 773	140 060	143 648	146 491	147 589	148 400	148 656
	Per cent	70,2	72,0	72,4	62,2	58,5	58,3	57,2	54,8	56,1	50,6
FS	Number	390 606	418 008	417 450	349 732	330 751	310 607	339 319	325 814	326 245	296 677
	Per cent	61,2	61,9	63,4	48,5	44,8	41,0	43,3	40,0	38,9	35,5
KZN	Number	819 830	915 596	902 212	809 062	876 673	806 406	847 814	866 470	937 234	941 820
	Per cent	60,9	63,5	65,2	45,7	46,0	43,6	42,3	41,5	43,1	43,0
NW	Number	427 774	493 774	407 234	351 983	353 832	343 286	307 081	330 941	327 094	293 715
	Per cent	65,7	69,8	65,4	47,5	46,6	41,2	39,5	41,4	39,9	34,4
GP	Number	2 033 659	2 227 451	2 432 445	1 864 502	1 964 033	2 121 038	2 035 606	2 135 075	2 101 033	2 366 213
	Per cent	70,1	72,0	77,0	53,0	53,4	56,0	51,9	51,9	49,9	52,9
MP	Number	281 519	344 329	337 473	317 727	284 256	272 375	286 423	299 685	297 740	292 209
	Per cent	41,2	54,4	56,3	38,6	33,0	31,5	31,1	31,1	30,3	30,2
LP	Number	245 055	257 295	203 399	219 564	190 662	222 911	195 642	194 748	173 823	207 195
	Per cent	30,8	29,3	28,7	27,5	19,8	23,4	20,8	20,3	18,1	20,3
RSA	Number	5 801 621	6 389 384	6 431 682	5 471 226	5 482 704	5 600 604	5 585 938	5 719 848	5 742 118	5 937 036
	Per cent	61,9	64,2	67,3	49,4	46,9	47,2	45,3	44,5	43,7	43,9

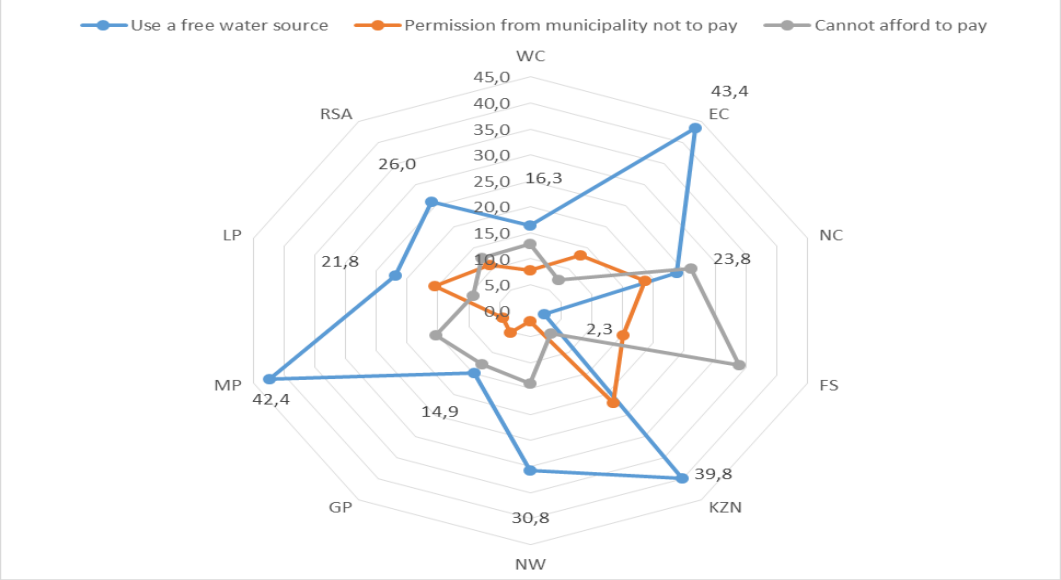
Table 6.7 displays that nationally, the percentage of households who pay for municipal water decreased from 61,9% in 2005 to 43,9% in 2015 .The provinces with the highest percentages of households paying municipal water in 2015 were Western Cape (59,7%), Gauteng (52,9%) and Northern Cape (50,6%).The province with the lowest percentage of households who reported paying for municipal water received was Limpopo (20,3%), followed by Mpumalanga (30,2%). Generally, all the provinces experienced a decrease in the percentages of households paying for municipal water between 2005 and 2015. The provinces that experienced the highest decrease were North West (31,3 percentage points), Free State (25,7 percentage points) and Eastern Cape (21,8 percentage points).

Figure 6.26: Metropolitan households paying for municipal water, 2015



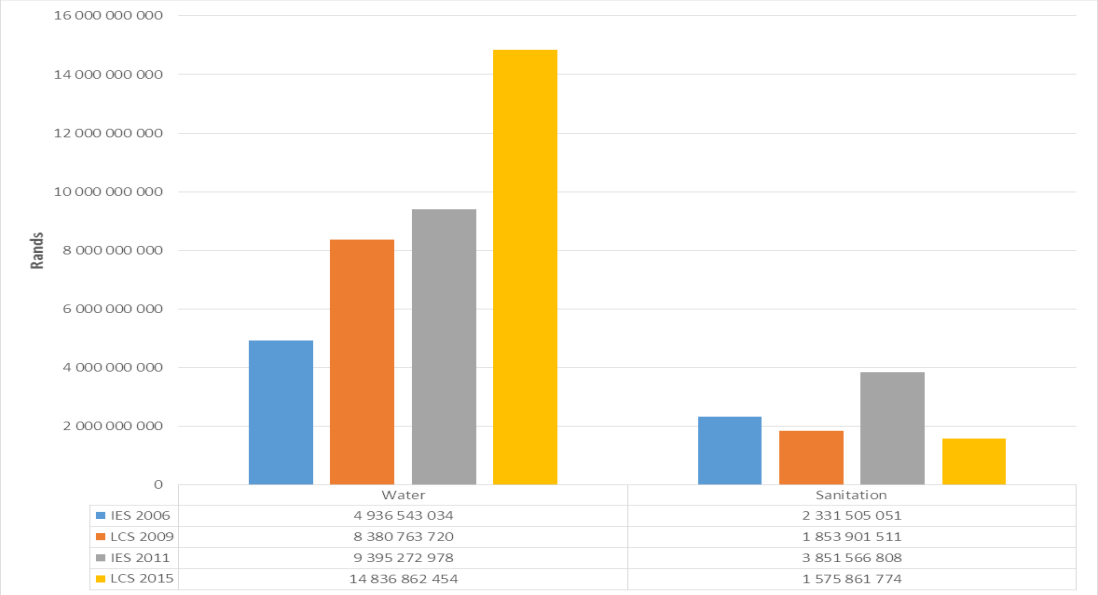
Exactly two-thirds of households in the City of Tshwane paid for water, followed by households in eThekwini (62,5%) and households in the City of Cape Town (55,6%). Payment for municipal water was below average in five municipalities, namely Nelson Mandela Bay (53,7%), Ekurhuleni (52,0%), the City of Johannesburg (47,3%) and Buffalo City (41,4%). According to Figure 6.26, payment for municipal water was lowest in Mangaung at 36,8%.

Figure 6.27: Reasons for non-payment of municipal water by province, 2015



According to Figure 6.27, the highest percentage of households who reported using a free water source was found in Eastern Cape (43,4%), Mpumalanga (42,4%) and KwaZulu-Natal (39,8%). Using a free water source was lowest in Free State (2,3%), Gauteng (14,9%) and Western Cape (16,3%). Nearly a quarter of households in KwaZulu-Natal were exempted from paying water by the municipality. Water affordability in Free State was stated by more than a quarter of households as the reason for non-payment.

Figure 6.28: Annual household expenditure on sanitation and water using IES and LCS data



Source: IES 2006, 2011 and LCS 2009, 2015

Figure 6.28 indicates annual household expenditure on water and sanitation using IES and LCS data. According to this figure, in 2015, R15 billion was spent on water. This represents an increase of about R10 billion from 2006. The figure shows that in 2015, household expenditure on sanitation was equivalent to a tenth of the expenditure on water. The amounts have been fluctuating between 2006 and 2015; hence, no clear trend was observed. It is worth nothing that in 2011, the total expenditure on sanitation was nearly R4 billion.

Figure 6.29: Selected reasons for non-payment of municipal water per metropolitan area, 2015

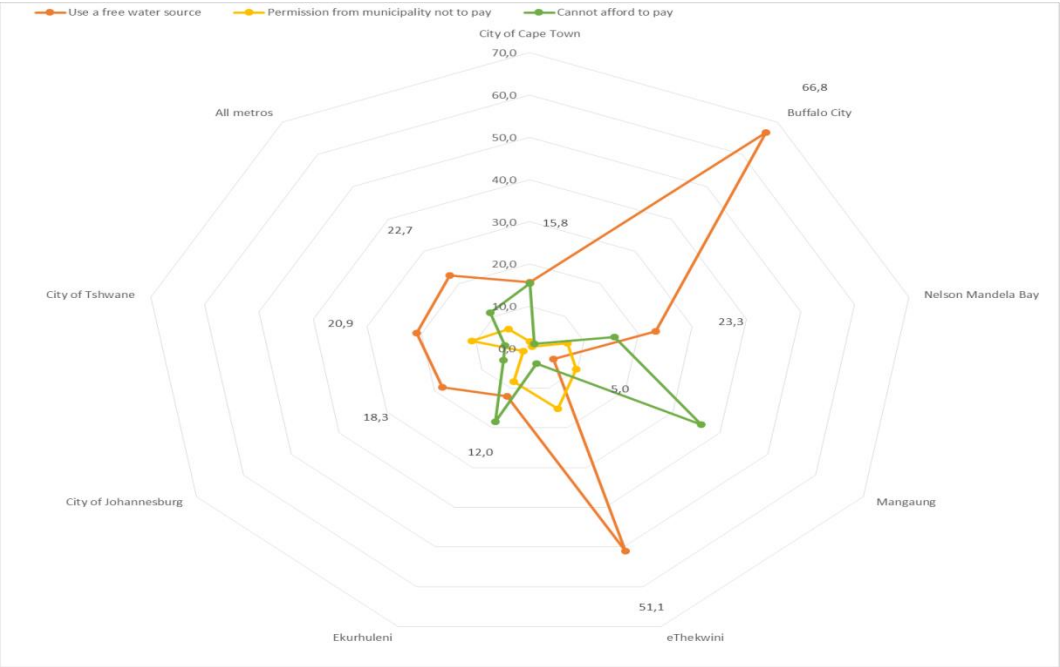
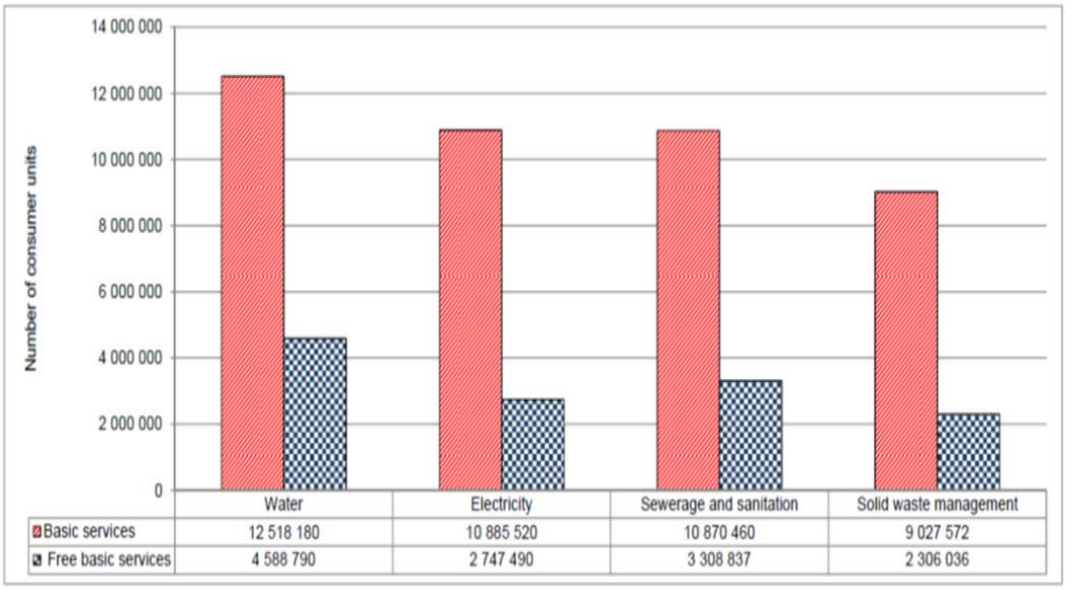


Figure 6.29 indicates that more than two-thirds of households in Buffalo City used a free water source, followed by households in eThekwini (51,1%). Households in Mangaung stated water affordability as the reason for non-payment of water.

Figure 6.30: Number of consumer units receiving basic services and free basic services, 2015[3]

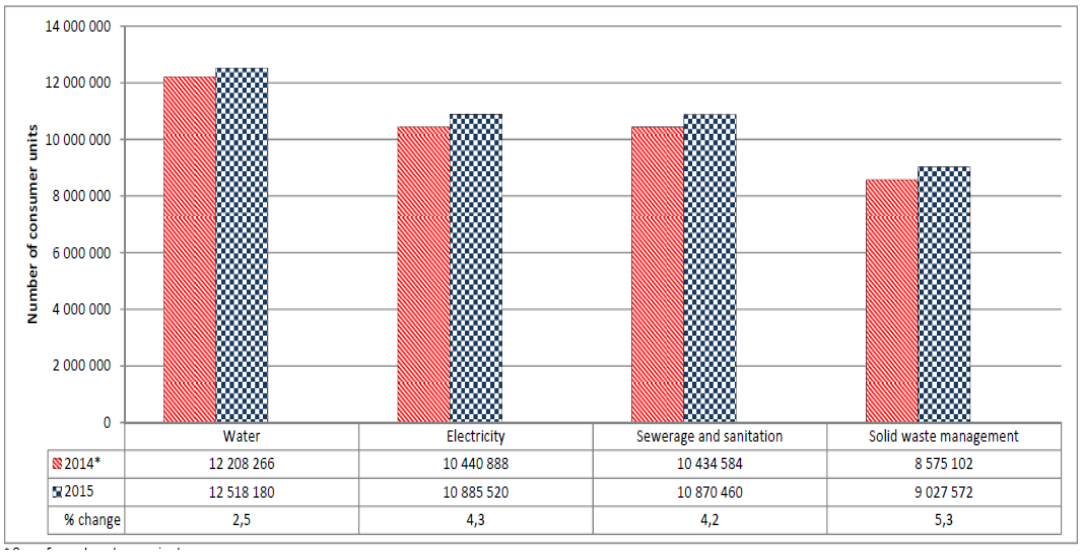


	Water	Electricity	Sewerage and sanitation	Solid waste management
Basic services	12 518 180	10 885 520	10 870 460	9 027 572
Free basic services	4 588 790	2 747 490	3 308 837	2 306 036

Source: Non-financial census of municipalities for the year ended 30 June 2015

Figure 6.30 shows the proportion of consumer units that benefited from the Free Basic Services Policy. Of the 12,5 million consumer units receiving water, 4,6 million consumer units had access to free basic water. About 3,3 million consumer units received free basic sewerage and sanitation services compared with a total of 10,9 million consumer units.

Figure 6.31: Number of consumer units receiving services from municipalities, 2014 and 2015



	Water	Electricity	Sewerage and sanitation	Solid waste management
2014*	12 208 266	10 440 888	10 434 584	8 575 102
2015	12 518 180	10 885 520	10 870 460	9 027 572
% change	2,5	4,3	4,2	5,3

Source: Non-financial census of municipalities for the year ended 30 June 2015

[3] Consumer unit refers to a connection to municipal services. Sample surveys typically focus on households and therefore more than one household can be associated with a consumer unit

The number of consumer units receiving services from municipalities increased between 2014 and 2015, as indicated in Figure 6.31. When comparing sewerage and sanitation with water, the highest percentage increase from 2014 to 2015 in the provision of services was in sewerage and sanitation (4,2%) rather than water (2,5%) services.

Figure 6.32: Households who rated municipal water as good by province, 2010–2015

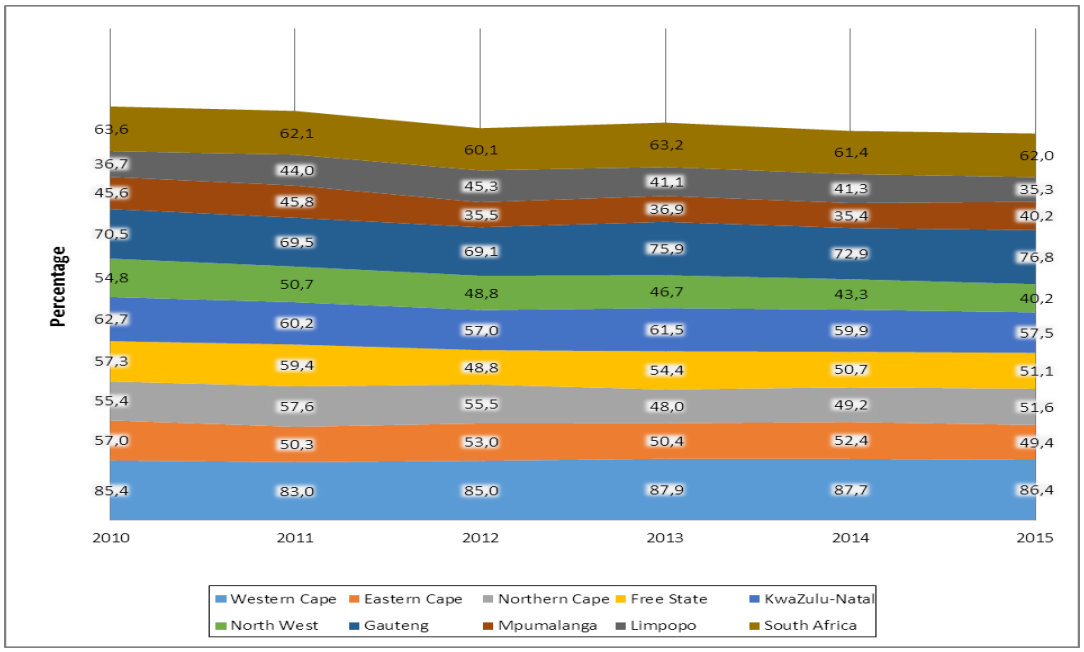
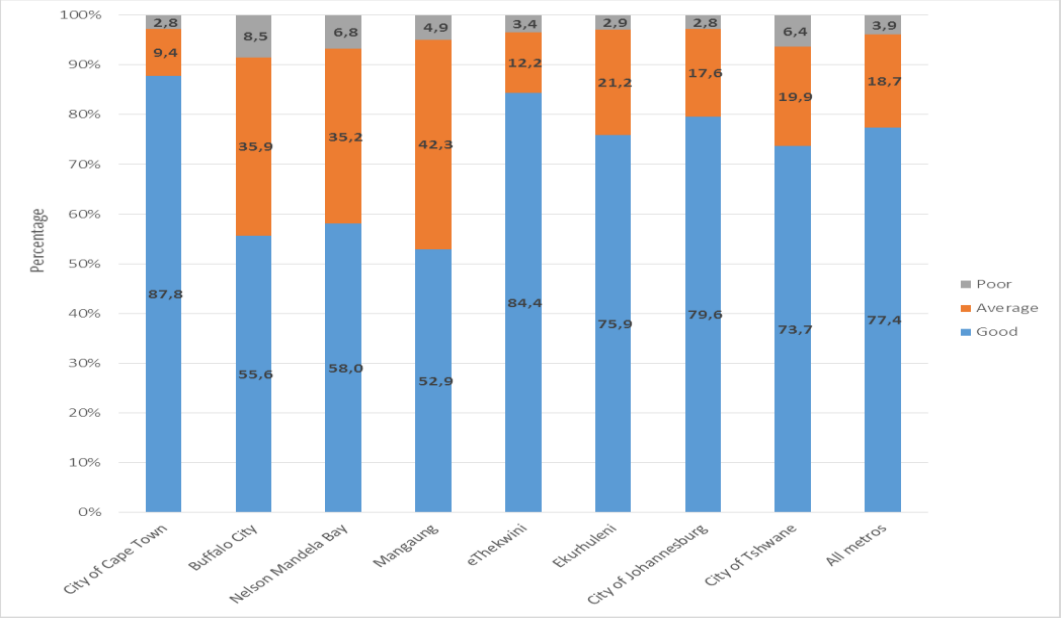


Figure 6.32 shows that the percentages of households who rated municipal water as good ranged from 60% to 64% during the reference period. The highest percentages of households rating the quality of water received as good were observed in Western Cape since 2010, followed by Gauteng, whilst the lowest percentages were reported in Limpopo (35,3%), Mpumalanga and North West (40,2% each). The percentages of households who rated the quality of water as good between 2010 and 2015 have declined in all provinces except Gauteng and Western Cape. The largest percentage points increase of households who rated the quality of municipal water as good was recorded in Gauteng (5,3 percentage points), whilst the largest decline was observed in North West (14,6 percentage points).

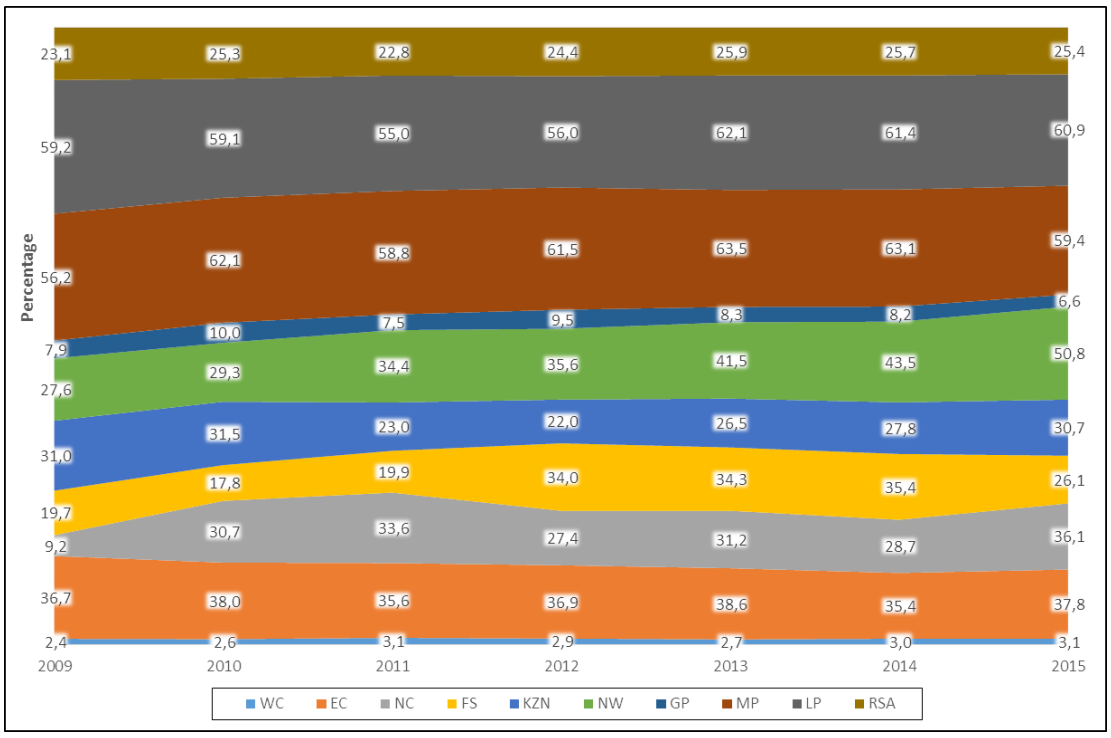
Figure 6.33: Households rating of municipal water services ratings per metropolitan area, 2015



Nearly 90% of households in the City of Cape Town, 84,4% of households in eThekwini and 79,6% of households in the City of Johannesburg rated the quality of water services as good. This is presented in Figure 6.33.

6.5 Instability of water supply

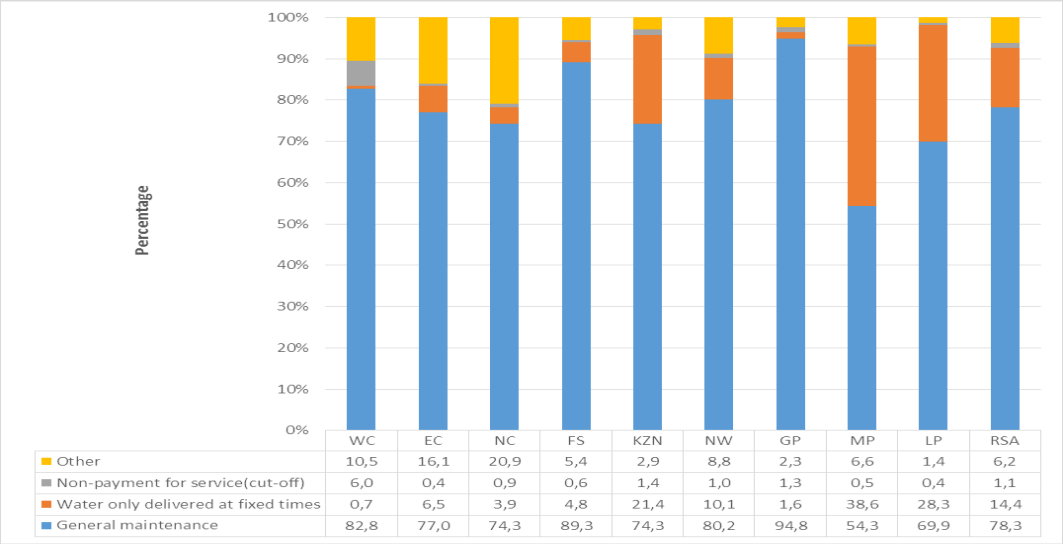
Figure 6.34: Provincial instability of water supply, 2009–2015



Instability of water is measured as a percentage of households who received water from a municipality but who, over the 12 months before the survey, reported interruptions that lasted more than 2 days or who have experienced water

interruptions for more than 15 days in total. The proportion of households who reported interruptions over the 12 months before the survey that lasted 15 days or more in total increased from 23,1% in 2009 to 25,4% in 2015, with a slight decline (22,8%) in 2011. The highest increase in percentages of households with access to municipal water and that experienced water interruptions in the past twelve months that lasted 15 days or more in total were noted in Northern Cape (32,3 percentage points), North West (31,6 percentage points) and Mpumalanga (24,3 percentage points), whilst decreases were observed in Western Cape (2,4 percentage points) and Gauteng (3,2 percentage points). This can be observed in Figure 6.34.

Figure 6.35: Main reasons provided by households who experienced water interruptions in the past twelve months by province, 2015

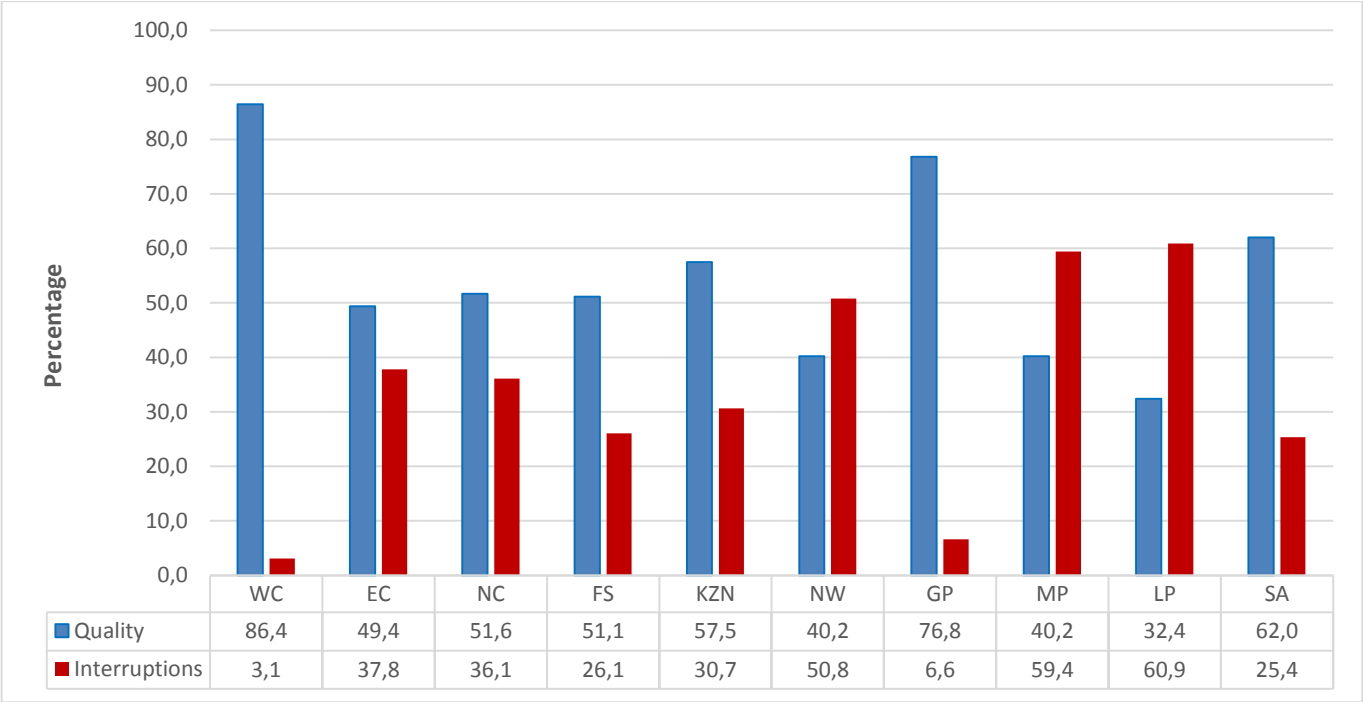


	WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
Other	10,5	16,1	20,9	5,4	2,9	8,8	2,3	6,6	1,4	6,2
Non-payment for service(cut-off)	6,0	0,4	0,9	0,6	1,4	1,0	1,3	0,5	0,4	1,1
Water only delivered at fixed times	0,7	6,5	3,9	4,8	21,4	10,1	1,6	38,6	28,3	14,4
General maintenance	82,8	77,0	74,3	89,3	74,3	80,2	94,8	54,3	69,9	78,3

The majority of households who reported water interruptions said that general maintenance was the main reason for the interruptions. However, Mpumalanga (54,3%) and Limpopo (69,9%) experienced a smaller percentage indicating maintenance as being the reason for the interruptions, as more than a third (38,6%) of households in the former province and more than a quarter (28,3%) of households in the latter province had attributed interruptions to the fact that water is delivered only at fixed times. This is presented in Figure 6.35.

Figure 6.36 shows a comparison of the percentage of households that rated the water services they received from municipalities as 'good' and the percentage that reported water interruptions. An inverse relationship between the perceived quality of services and the number of interruptions seems to exist. The provinces with the lowest percentage of households that reported interruptions with water services, namely Western Cape (3%) and Gauteng (6,6%), also reported the highest satisfaction with water delivery services (86,4% for Western Cape, and 76,8 for Gauteng). Conversely, the provinces in which interruptions were more frequent were less likely to rate water service delivery as 'good'. Whereas 60,9% of households in Limpopo and 59,4% of households in Mpumalanga reported having had interruptions, only 32,4% of households in Limpopo and 40,2% of households in Mpumalanga rated water service delivery as 'good'.

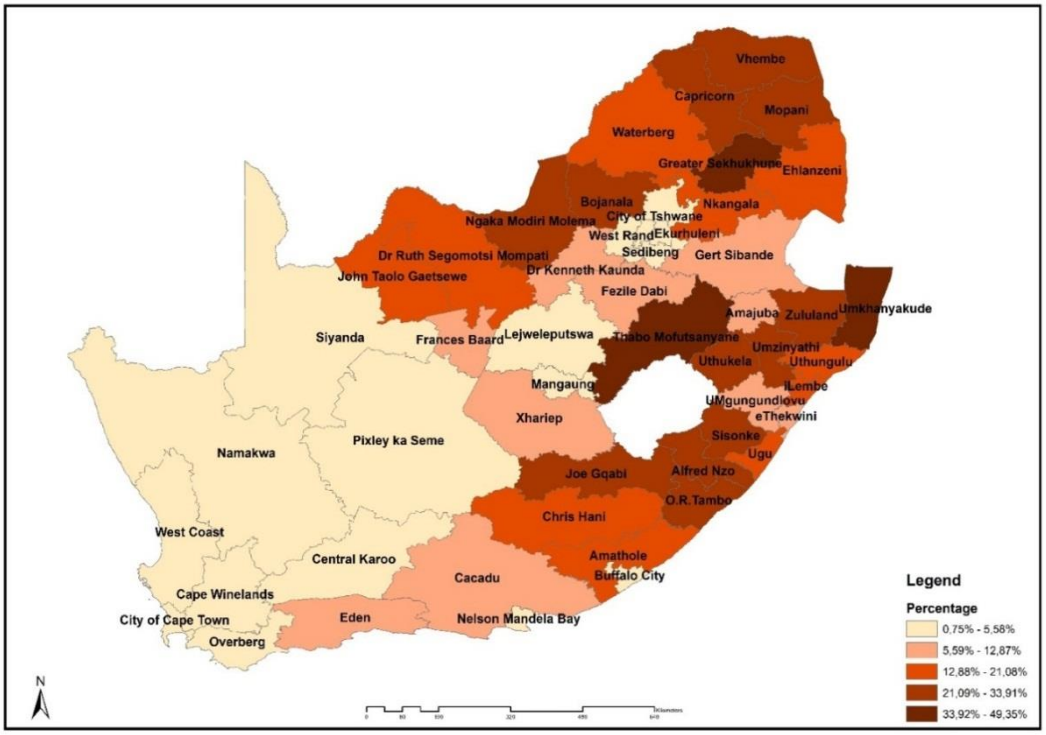
Figure 6.36: Percentage of households rating the quality of water services provided by the municipality as good, and those that reported water interruptions by province, 2015



	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
Quality	86,4	49,4	51,6	51,1	57,5	40,2	76,8	40,2	32,4	62,0
Interruptions	3,1	37,8	36,1	26,1	30,7	50,8	6,6	59,4	60,9	25,4

Map 6.4 represents households who experienced water interruptions for 14 days or more in total during the 12 months prior to the survey. Nearly half of households (49,4%) in Thabo Mofutsanyane and Umkhanyakude (46,2%) reported having experienced interruptions that lasted 14 days or more in total during the 12 months prior to the survey. Households in Greater Sekhukhune (41%), Vhembe (33,9%), Umzinyathi (31,6%) and Sisonke (31,3%) reported experiencing municipal water interruptions for 14 days or more in total during the 12 months prior to the survey. Households in Western Cape were least likely to experience water interruptions for 14 days or more in total during the 12 months prior to the survey.

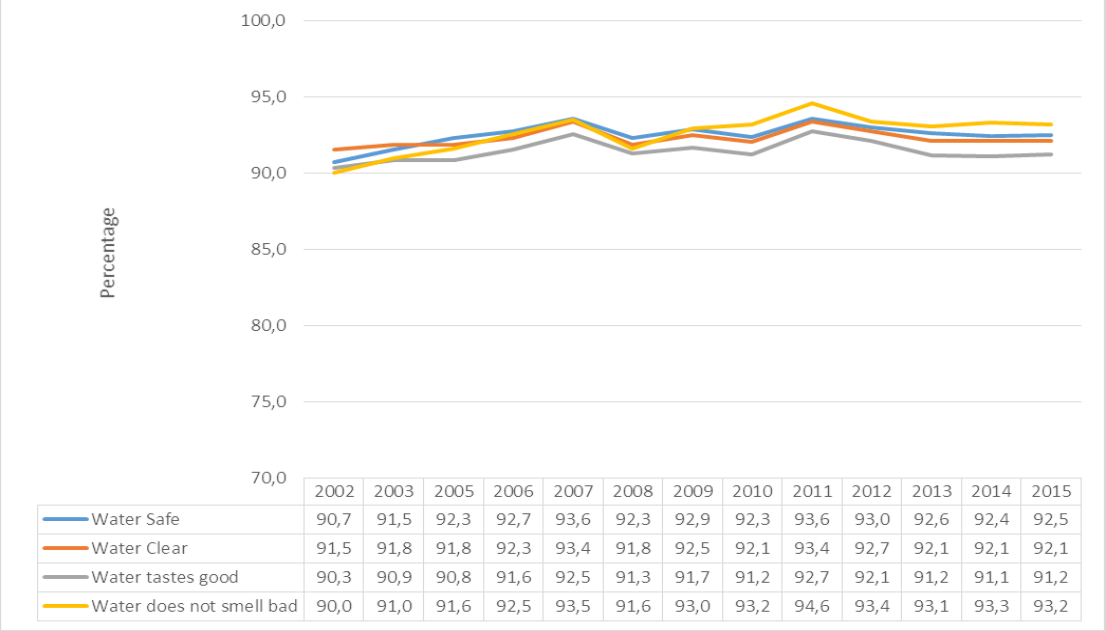
Map 6.4: Households who experienced municipal water interruptions for 14 days or more by DC, CS 2016



Source: Community Survey 2016

6.6 Household perceptions of drinking water

Figure 6.37: Household perceptions of drinking water before treatment, 2002–2015



	2002	2003	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Water Safe	90,7	91,5	92,3	92,7	93,6	92,3	92,9	92,3	93,6	93,0	92,6	92,4	92,5
Water Clear	91,5	91,8	91,8	92,3	93,4	91,8	92,5	92,1	93,4	92,7	92,1	92,1	92,1
Water tastes good	90,3	90,9	90,8	91,6	92,5	91,3	91,7	91,2	92,7	92,1	91,2	91,1	91,2
Water does not smell bad	90,0	91,0	91,6	92,5	93,5	91,6	93,0	93,2	94,6	93,4	93,1	93,3	93,2

Figure 6.37 shows that nationally, the perceptions of households who are drinking water before any treatment have improved since 2002. The highest improvement was noted for households who reported that the water was free from bad smells with 3,2 percentage points.

Table 6.8: Household perceptions of drinking water by unimproved sources of drinking water, 2015

Unimproved sources of drinking water	Statistic	Perception of drinking water			
		Water safe	Water clear	Water tastes good	Water does not smell bad
Rainwater tank in yard	Number	112 831	113 960	113 590	114 475
	Per cent	94,7	95,2	95,4	95,9
Water-carrier/tanker	Number	259 621	258 170	249 073	258 216
	Per cent	86,5	85,7	83,0	85,7
Flowing water, stream/river	Number	117 916	183 074	127 963	196 136
	Per cent	31,5	48,6	34,1	52,2
Stagnant water/dam/pool	Number	3 076	2 496	3 031	3 612
	Per cent	9,1	7,1	9,0	10,3
Well and spring	Number	159 170	172 186	174 279	159 170
	Per cent	39,8	58,0	62,5	63,5

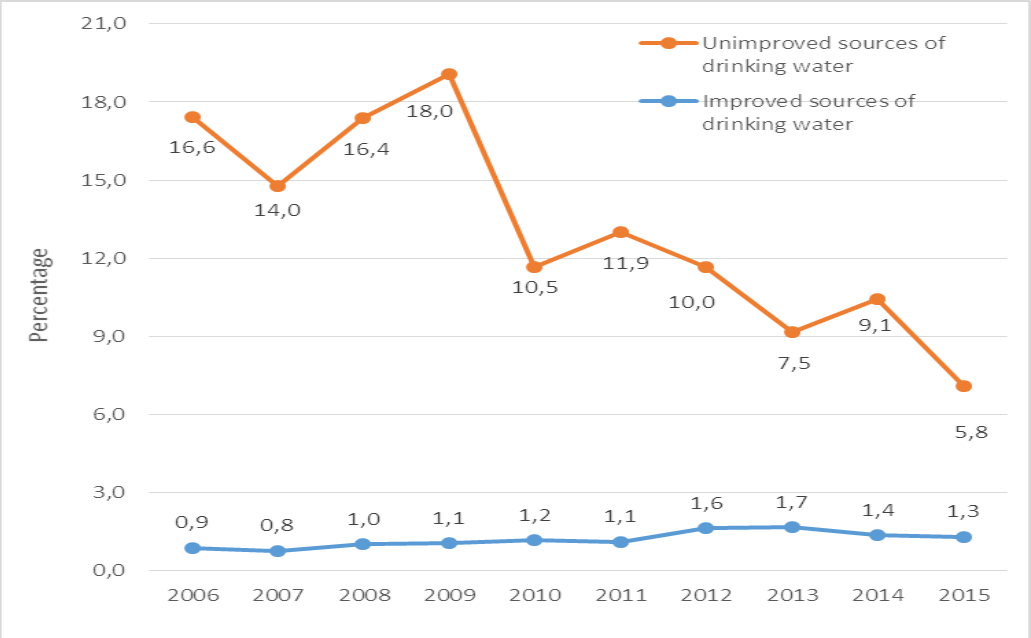
The general perception of households is that water from a rainwater tank in the yard and a water carrier/ tanker are safe, clean, tastes good and does not smell bad. It seems as if households perceive water from a well and a spring as safer, cleaner, tasting good and being free from bad smells when compared to water from a stream/river and stagnant water/dam/pool. Of the water that is from unimproved source, stagnant water/dam/pool was the one considered poor quality. This is presented in Table 6.8.

Table 6.9: Households with access to poor quality water by province, 2006–2015

Year	Statistic	WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
2006	Number	4 718	68 677	6 067	23 424	68 100	11 042	8 156	39 835	10 913	240 932
	Percentage	0,4	4,6	2,4	3,2	3,2	1,2	0,3	4,5	0,9	2,0
2007	Number	8 177	48 515	3 690	15 669	56 668	4 947	3 900	39 921	22 643	204 130
	Percentage	0,6	3,2	1,4	2,1	2,6	0,5	0,1	4,4	1,9	1,6
2008	Number	9 804	75 137	9 417	25 151	61 294	17 842	13 451	39 615	19 157	270 867
	Percentage	0,7	4,9	3,5	3,3	2,8	1,8	0,4	4,2	1,6	2,1
2009	Number	12 089	68 336	7 178	22 185	76 362	13 133	9 694	56 929	34 124	300 030
	Percentage	0,8	4,4	2,6	2,8	3,3	1,3	0,3	5,8	2,7	2,3
2010	Number	3 058	40 206	16 997	17 601	32 555	31 073	9 391	81 381	21 939	254 201
	Percentage	0,2	2,6	6,0	2,2	1,4	3,0	0,3	8,0	1,7	1,9
2011	Number	17 707	31 425	14 114	25 334	50 853	15 316	20 656	64 925	14 112	254 441
	Percentage	1,1	2,0	4,9	3,1	2,1	1,4	0,5	6,2	1,1	1,8
2012	Number	29 341	43 975	10 505	83 503	37 179	9 400	27 002	58 948	13 550	313 402
	Percentage	1,8	2,7	3,5	9,9	1,5	0,9	0,7	5,4	1,0	2,1
2013	Number	14 332	17 476	13 261	76 396	47 298	44 380	22 311	50 821	23 727	310 002
	Percentage	0,9	1,1	4,4	8,9	1,8	3,9	0,5	4,5	1,7	2,1
2014	Number	8 635	12 974	19 403	70 572	48 703	27 980	38 957	49 990	13 278	290 493
	Percentage	0,5	0,8	6,2	8,0	1,8	2,4	0,9	4,3	0,9	1,9
2015	Number	9 875	32 857	11 746	37 913	36 726	26 828	23 842	75 893	2 530	258 209
	Percentage	0,6	1,9	3,7	4,2	1,3	2,2	0,5	6,3	0,2	1,6

For the purpose of this report, poor quality water was defined as when households perceive their drinking water as unsafe, unclear, not tasting good, having a bad smell and treating it before use. This is presented in Table 6.9. For the first four years (2006–2009), Mpumalanga and Eastern Cape consistently reported higher figures for access to poor quality water. Between 2010 and 2011, Free State and Mpumalanga increased their percentages of people who had access to poor quality water, whilst in 2012, the percentage of Northern Cape superseded that of Free State. From the tables it is evident that Mpumalanga was constantly amid the two provinces with access to poor quality water.

Figure 6.38: Households with access to poor quality water by improved/unimproved water sources, 2006–2015



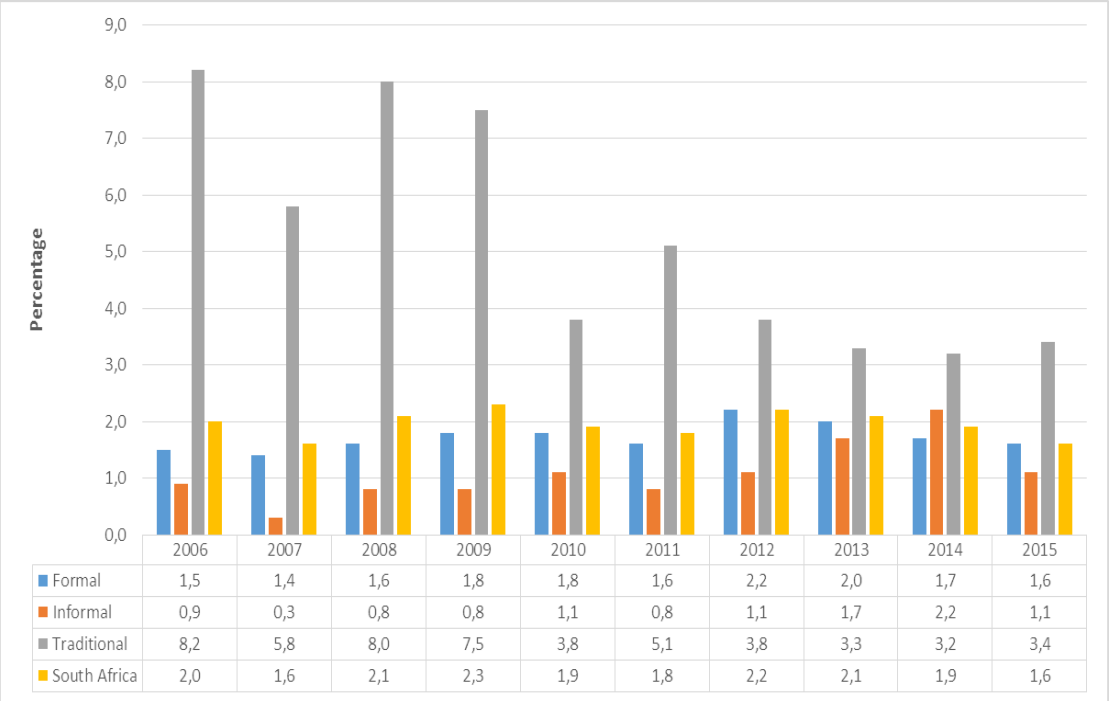
As expected, when comparing households with access to improved and unimproved water sources by poor quality water, the latter performed poorly. However, strides have been made since 2006 when 16,6% of households accessed poor quality water. It is concerning that we still have about one per cent of households in the country who reported using improved sources of drinking water, but who access poor quality water as per Figure 6.38.

Table 6.10: Households with access to poor quality water by rural/urban, 2006–2015

Year	Statistic	Urban	Rural	South Africa
2006	Number	60 786	180 146	240 932
	Percentage	0,7	4,8	2,0
2007	Number	59 927	144 203	204 131
	Percentage	0,7	3,8	1,6
2008	Number	72 514	198 353	270 867
	Percentage	0,8	4,6	2,1
2009	Number	101 071	198 960	300 030
	Percentage	1,1	4,5	2,3
2010	Number	115 418	138 783	254 201
	Percentage	1,3	3,1	1,9
2011	Number	124 612	129 829	254 441
	Percentage	1,3	2,8	1,8
2012	Number	213 454	99 948	313 402
	Percentage	2,1	2,1	2,1
2013	Number	201 549	108 453	310 002
	Percentage	2,0	2,3	2,1
2014	Number	201 258	89 235	290 493
	Percentage	1,9	1,8	1,9
2015	Number	240 670	17 539	258 209
	Percentage	1,6	2,3	1,6

Table 6.10 indicates that the percentage of households with access to poor quality water in urban areas has increased from 0,7% in 2006 to 1,6% in 2015. The percentage of households with access to poor quality water in rural areas has decreased from 4,8% in 2006 to 2,3% in 2015.

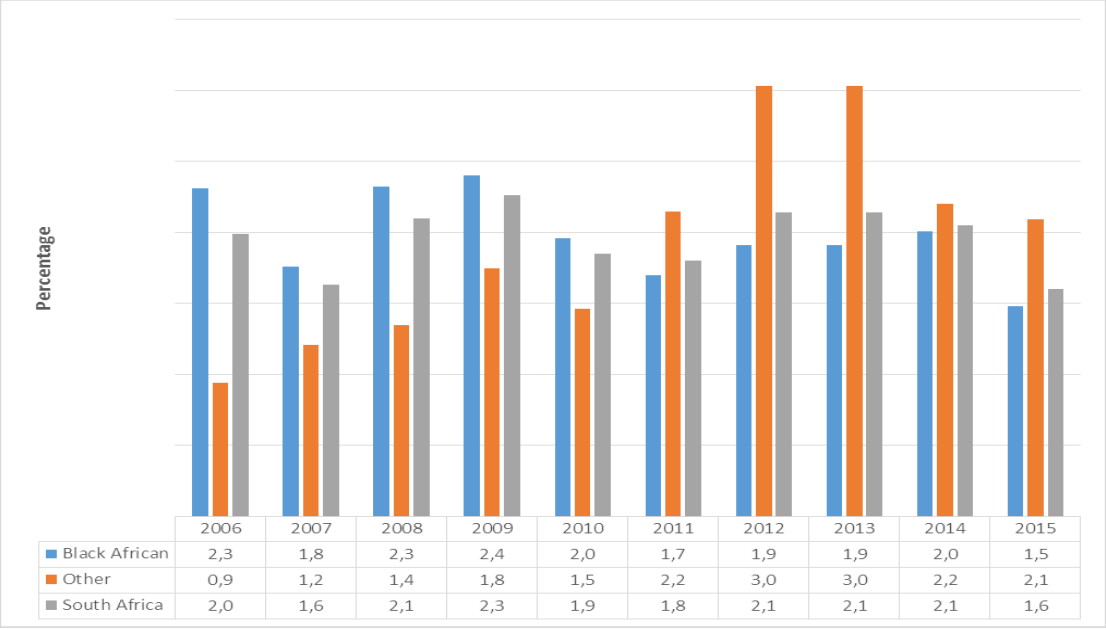
Figure 6.39: Households with access to poor quality water by dwelling type, 2015



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Formal	1,5	1,4	1,6	1,8	1,8	1,6	2,2	2,0	1,7	1,6
Informal	0,9	0,3	0,8	0,8	1,1	0,8	1,1	1,7	2,2	1,1
Traditional	8,2	5,8	8,0	7,5	3,8	5,1	3,8	3,3	3,2	3,4
South Africa	2,0	1,6	2,1	2,3	1,9	1,8	2,2	2,1	1,9	1,6

Nationally, the percentages of households with access to poor quality water has decreased from 2% in 2006 to 1,6% in 2015. Households living in traditional areas were the most unprivileged in terms of access to drinkable water; however, this figure has improved, as access to poor quality water declined from 8,2% in 2006 to 3,4% in 2015.

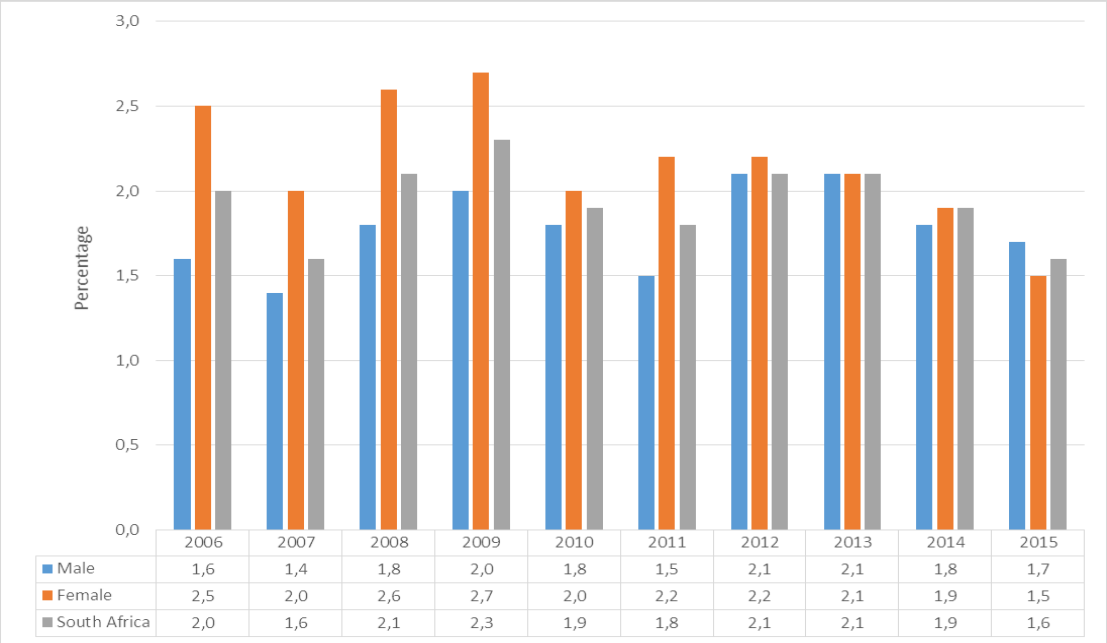
Figure 6.40: Households with access to poor quality water by population group of the household head, 2006–2015



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Black African	2,3	1,8	2,3	2,4	2,0	1,7	1,9	1,9	2,0	1,5
Other	0,9	1,2	1,4	1,8	1,5	2,2	3,0	3,0	2,2	2,1
South Africa	2,0	1,6	2,1	2,3	1,9	1,8	2,1	2,1	2,1	1,6

Figure 6.40 illustrates that the percentage of black African households with access to poor quality water has decreased from 2,3% in 2006 to 1,5% in 2015, while the percentage of other population groups has increased from 0,9% to 2,1% during the same period.

Figure 6.41: Households with access to poor quality water by gender of the household head, 2015



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Male	1,6	1,4	1,8	2,0	1,8	1,5	2,1	2,1	1,8	1,7
Female	2,5	2,0	2,6	2,7	2,0	2,2	2,2	2,1	1,9	1,5
South Africa	2,0	1,6	2,1	2,3	1,9	1,8	2,1	2,1	1,9	1,6

Figure 6.41 illustrates that from 2006 to 2012, female-headed households have always been dominant in terms of access to poor quality water when compared to those headed by males; however, in 2015, the situation changed, with 1,7% of male-headed households having access to poor quality water as compared to 1,5% of female-headed households.

6.7 Water and food security

According to the Food and Agriculture Organization (FAO) (2009), water is the key ingredient to food security. A lack of water can be a major cause of famine and undernourishment – especially in areas where people depend on local production for food and income. Drought is the most common cause of severe food shortages in developing countries. Between 2000 and 2002, drought was responsible for 50% to 80% of all food emergencies in developing countries (FAO, 2009). According to Ludi (2009), food security and rural livelihoods are fundamentally linked to water availability and use, with food security being determined by the options available to people for securing access to their own agricultural production and exchange opportunities. These opportunities are influenced by access to water (FAO, 2009). In developing countries, people who have better access to water have lower levels of undernourishment than those with less access to water.

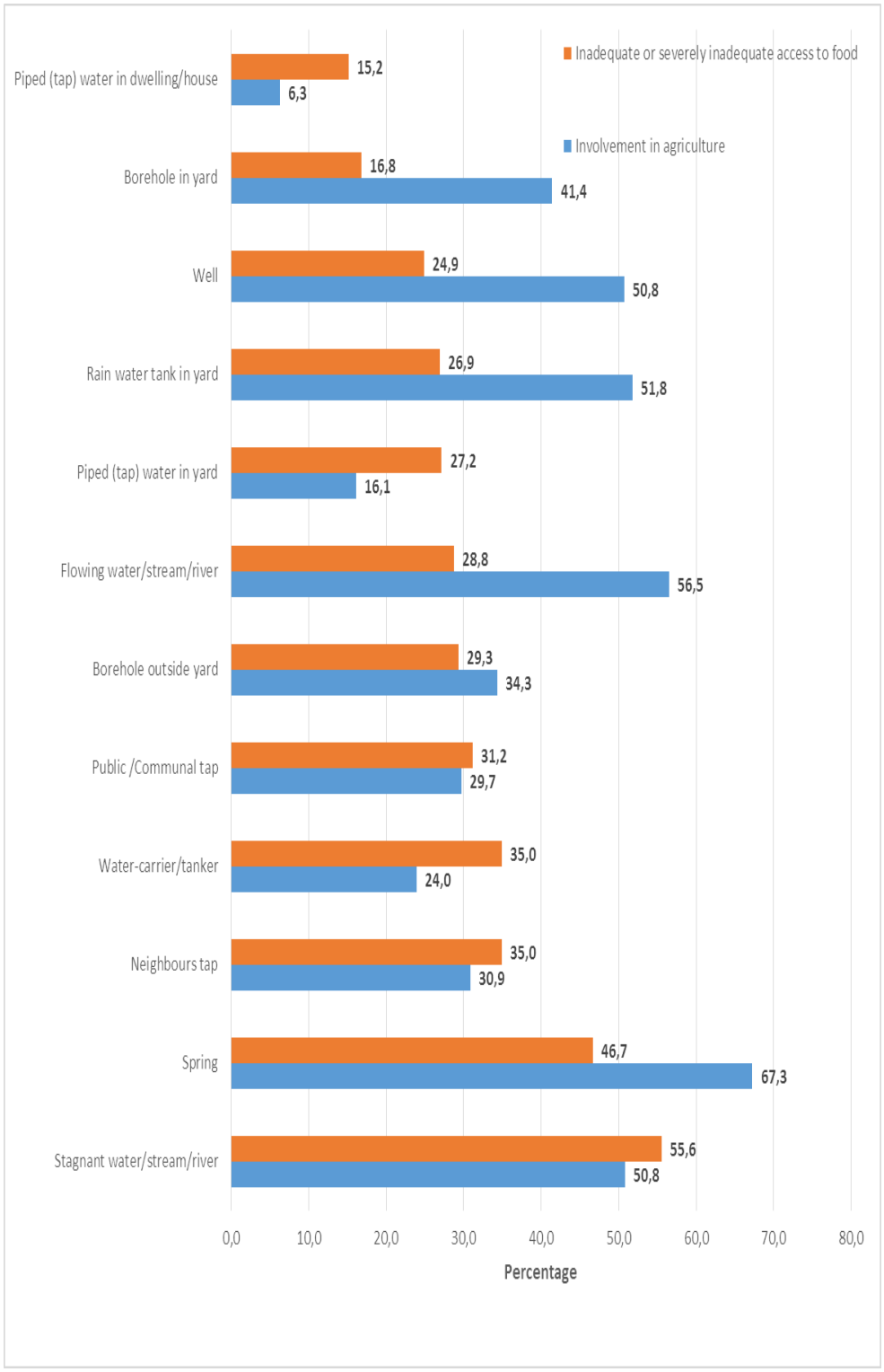
As a key agricultural input, water is inextricably linked to food security as it both directly and indirectly affects food availability, access, utilisation and stability. Food security is defined as a situation when 'all people at all times, have physical, social and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life'. Food security is multidimensional (FAO, 2006):

• Food availability: The availability of sufficient and appropriate quantities and quality of food at both household and national levels supplied through domestic production or imports (including food aid);

- Food access: Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources);
- Food utilisation: Use of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met; and
- Stability: Food security entails stability as, to be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity).

Household involvement in agriculture and access to food by source of drinking water is presented in Figure 6.42. The figure indicates that households with access to unimproved water sources were more likely to be involved in agriculture and have problems with food access, whilst households with access to improved drinking water were generally least likely to have inadequate or severely inadequate access to food and be involved in agricultural activities.

Figure 6.42: Household involvement in agriculture and access to food by source of drinking water, 2015



6.8 Water pollution

Table 6.11: Households who experience water pollution by province, 2003–2015

Year	Statistic	Province									
		Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	South Africa
2003	Number	68 237	377 609	22 504	87 531	383 371	53 295	317 709	71 205	115 028	1 496 488
	Percentage	5,5	26,5	9,5	12,6	19,8	6,2	11,2	8,9	10,8	13,5
2004	Number	136 341	251 697	10 707	79 682	262 093	31 449	288 584	87 671	68 735	1 216 959
	Percentage	10,8	17,4	4,4	11,2	13,1	3,6	9,8	10,6	6,3	10,7
2005	Number	132 805	358 201	19 223	119 092	276 554	66 481	466 123	144 630	77 522	1 660 630
	Percentage	10,2	24,7	7,8	16,6	13,8	7,4	15,3	17,1	6,9	14,3
2006	Number	203 672	338 710	24 279	118 919	446 878	91 786	517 661	100 878	52 191	1 894 975
	Percentage	15,1	23,0	9,6	16,2	21,5	9,9	16,2	11,5	4,5	15,7
2007	Number	223 402	269 645	14 821	105 304	349 356	119 191	511 559	140 082	102 765	1 836 125
	Percentage	16,2	18,0	5,8	14,0	16,3	12,6	15,4	15,4	8,6	14,8
2008	Number	207 808	328 608	26 550	137 183	329 294	167 726	680 160	201 092	103 963	2 182 382
	Percentage	14,7	21,7	10,1	18,1	14,9	17,2	19,8	21,5	8,6	17,2
2009	Number	146 231	172 868	18 246	146 648	294 501	160 821	406 077	133 148	144 486	1 623 026
	Percentage	9,9	11,2	6,6	18,6	12,9	15,9	11,1	13,6	11,4	12,2
2010	Number	137 841	187 058	51 325	89 871	456 640	123 276	517 327	170 810	55 279	1 789 426
	Percentage	9,1	12,1	18,3	11,2	19,6	11,9	13,7	17,0	4,3	13,2
2011	Number	151 581	336 896	53 882	151 438	352 089	151 830	505 769	95 112	77 642	1 876 240
	Percentage	9,8	21,4	19,0	18,6	14,8	14,4	12,9	9,2	5,9	13,5
2012	Number	132 621	351 819	25 755	180 025	463 339	140 846	510 670	175 012	200 733	2 180 818
	Percentage	8,3	21,8	8,8	21,5	18,9	12,9	12,7	16,3	14,6	15,2
2013	Number	198 132	311 652	36 033	204 248	489 434	167 848	568 061	153 848	210 440	2 339 696
	Percentage	12,0	18,9	12,0	23,8	19,2	14,8	13,3	13,8	14,7	15,6
2014	Number	196 668	361 447	40 923	179 192	510 617	183 149	748 845	164 792	214 836	2 600 469
	Percentage	11,5	21,4	13,2	20,5	19,3	15,6	16,8	14,3	14,5	16,8
2015	Number	193 582	342 338	41 789	188 382	556 559	179 116	713 292	197 522	178 785	2 591 365
	Percentage	10,9	19,9	13,1	20,9	20,3	14,9	15,3	16,5	11,7	16,2

As shown in Table 6.11, water pollution has consistently been prevalent in Eastern Cape, KwaZulu-Natal and Free State.

Households' experience of water pollution by income quintle is presented in Figure 6.43. Figure 6.43 shows that experiences of water pollution incease as income decreases. This is evident in the graph, because less than ten per cent of housheods in the wealthiest quintile experienced water pollution, whereas this number more than doubled for households in income quintile 1.

Figure 6.43: Household experience of water pollution by income quintile, 2015

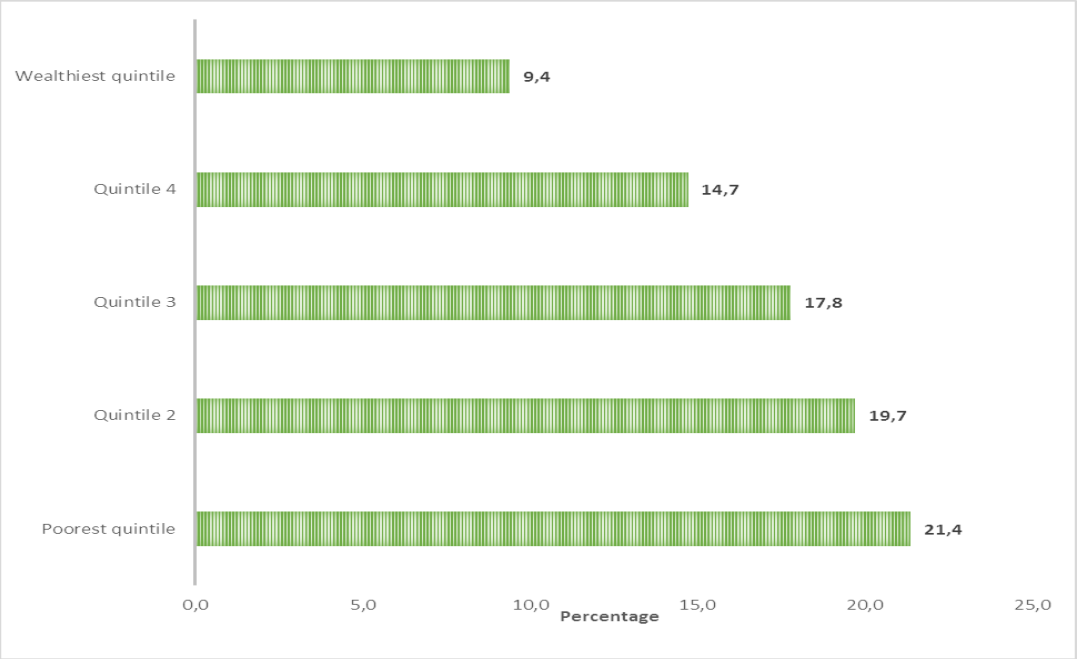
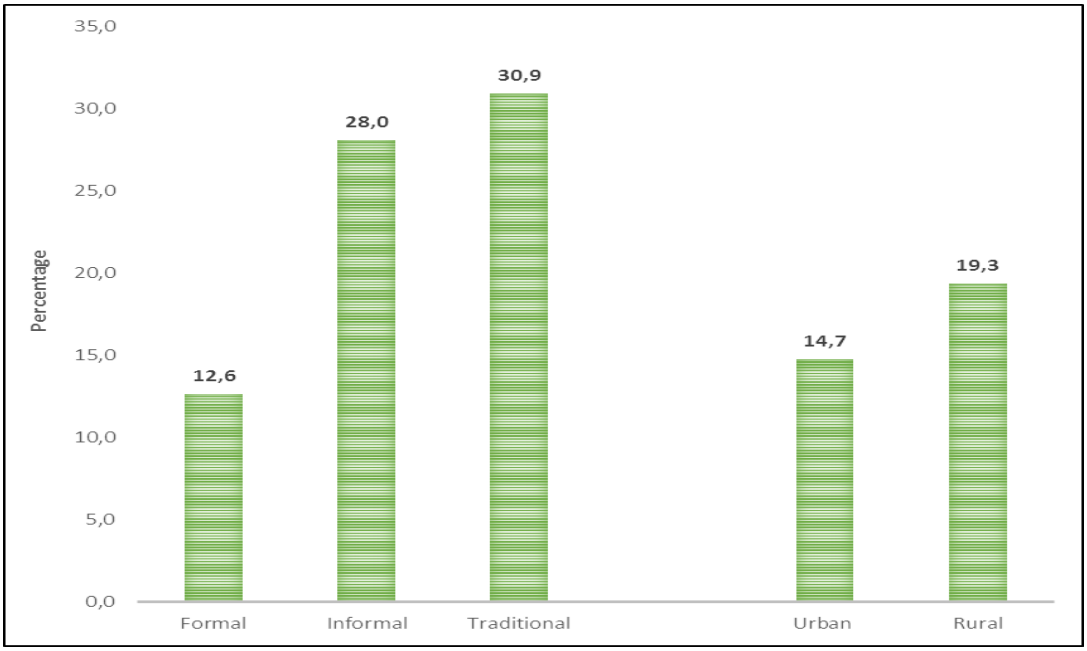
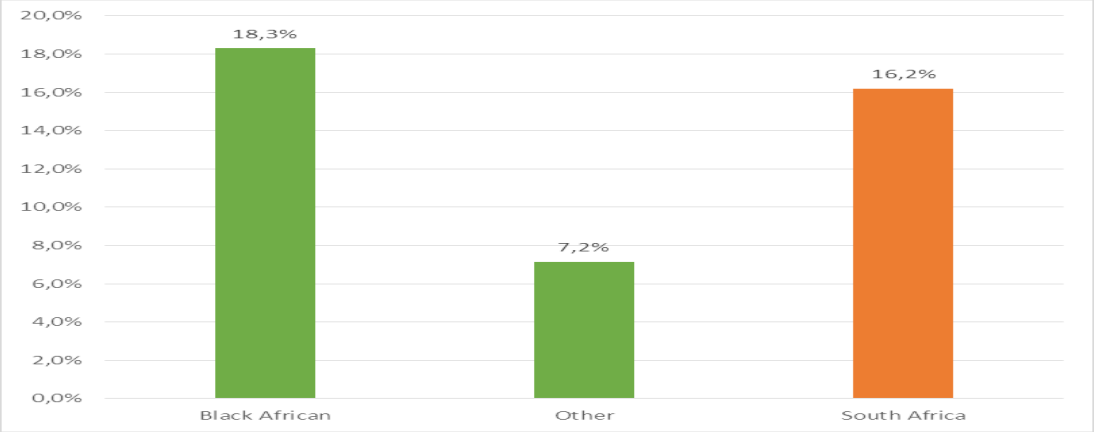


Figure 6.44: Household experience of water pollution by dwelling and rural/urban area, 2015



As shown in Figure 6.44, almost 31% of households living in traditional dwellings experienced water pollution as compared to 28% and 13% of households in informal and formal dwellings, respectively. Nearly 20% of households in rural areas experienced water pollution.

Figure 6.45: Household experience of water pollution by population group of the household head, 2015



Black African-headed households were more likely to experience water pollution than households headed by coloureds, Indians/Asians and whites, as can be seen in Figure 6.45.

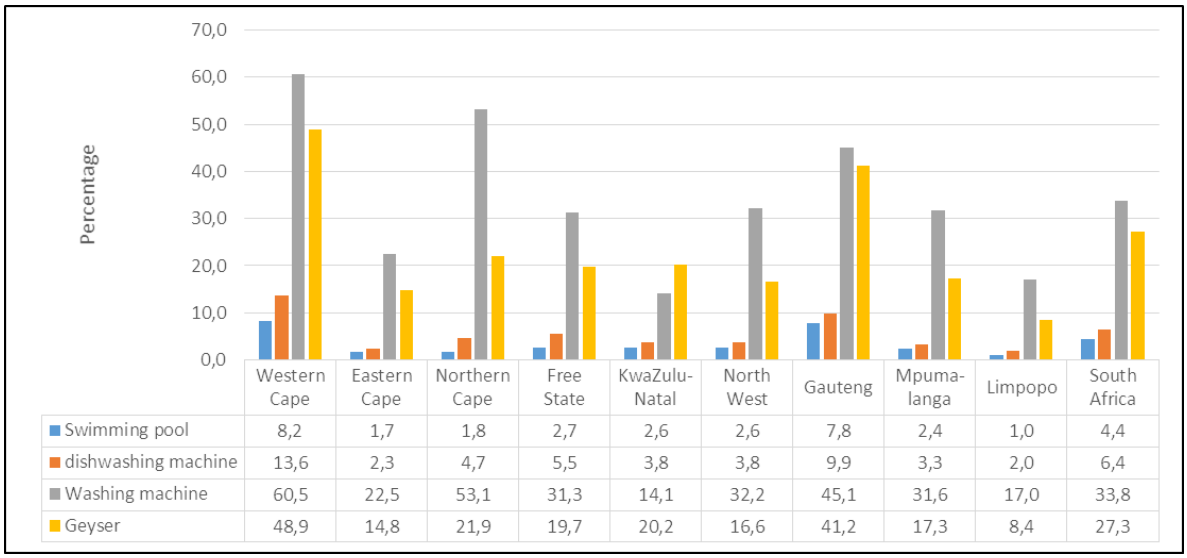
6.9 Ownership of assets

Table 6.12: Household ownership of selected water consuming/storing assets by province, 2012–2015

Year	Statistic	Province									
		Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	South Africa
		Number ('000)									
2012	Swimming pool	142	39	7	24	97	18	317	31	22	698
	Dishwashing machine	232	44	14	52	133	49	448	65	38	1 077
	Washing machine	966	302	131	212	403	332	1 739	308	168	4 561
	Geyser	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2013	Swimming pool	122	24	7	19	83	18	344	37	17	672
	Dishwashing machine	242	44	16	43	117	47	431	48	46	1 033
	Washing machine	993	296	138	234	393	360	1 850	358	201	4 823
	Geyser	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2014	Swimming pool	126	30	11	22	88	26	363	32	21	719
	Dishwashing machine	214	35	17	39	127	44	479	40	37	1 032
	Washing machine	1 050	322	154	276	424	403	2 043	378	244	5 294
	Geyser	846	302	87	193	551	228	1 967	228	134	4 535
2015	Swimming pool	144	29	6	24	71	32	361	28	15	710
	Dishwashing machine	240	39	15	50	103	46	461	39	30	1 023
	Washing machine	1 070	385	169	282	386	389	2 096	376	259	5 414
	Geyser	865	254	70	178	553	200	1 909	206	128	4 363

Table 6.12 illustrates household ownership of selected water consuming or storing assets from 2012 to 2015. The table shows that 'washing machine' was the most generally owned asset, followed by 'geyser' (the 'geyser' option was introduced in 2014).

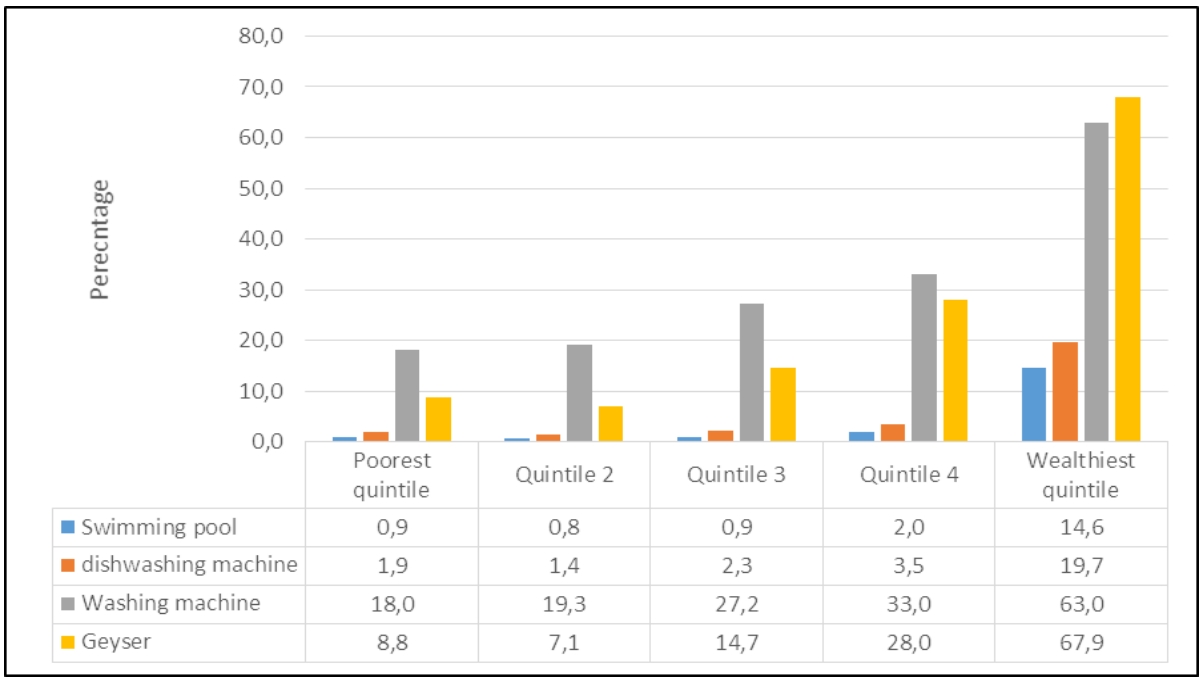
Figure 6.46: Household ownership of selected water consuming/storing assets by province, 2015



	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpuma-langa	Limpopo	South Africa
Swimming pool	8,2	1,7	1,8	2,7	2,6	2,6	7,8	2,4	1,0	4,4
dishwashing machine	13,6	2,3	4,7	5,5	3,8	3,8	9,9	3,3	2,0	6,4
Washing machine	60,5	22,5	53,1	31,3	14,1	32,2	45,1	31,6	17,0	33,8
Geyser	48,9	14,8	21,9	19,7	20,2	16,6	41,2	17,3	8,4	27,3

As shown in Figure 6.46, assets ownership is a function of income; hence, 60,5% of households in Western Cape and 45,1% of households in Gauteng owned a washing machine. Similarly, nearly half of the households in Western Cape owned a geyser as compared to 41% of households in Gauteng. The percentage assets ownerhip was smaller in the rural provinces such as Limpopo, Eastern Cape and Mpumalanga.

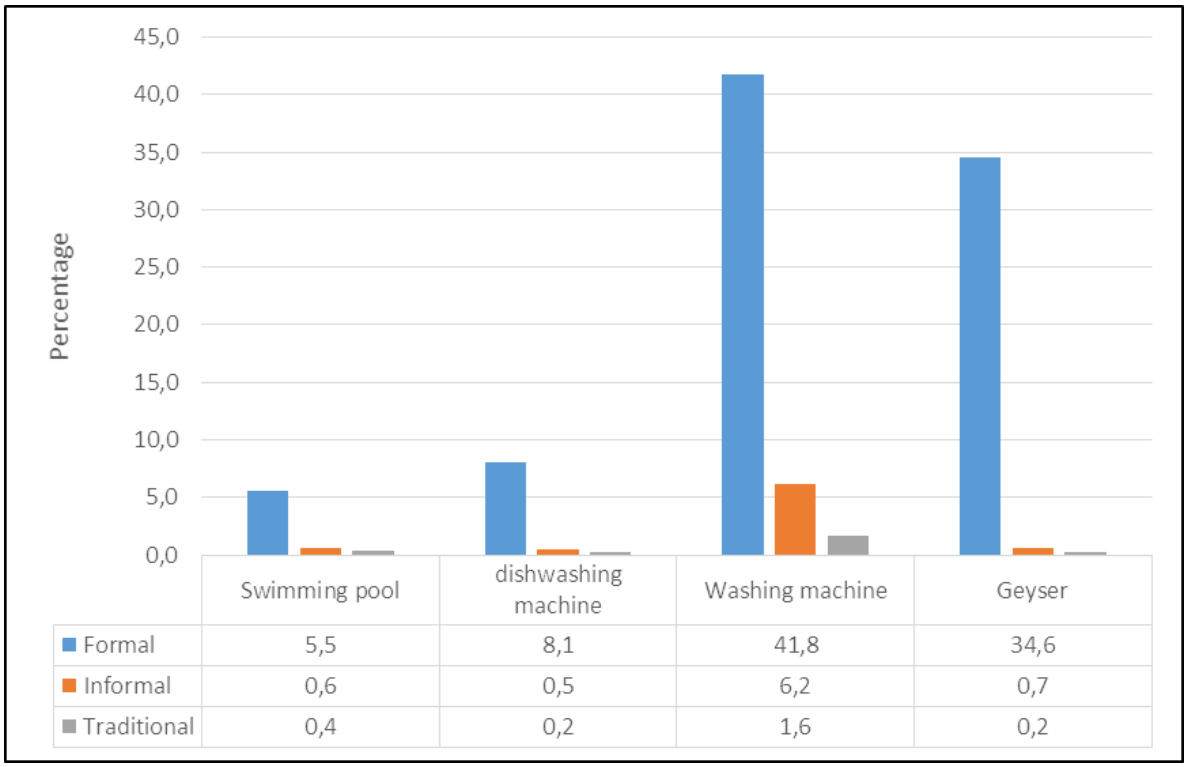
Figure 6.47: Household ownership of selected water storing/consuming assets by income quintile, 2015



	Poorest quintile	Quintile 2	Quintile 3	Quintile 4	Wealthiest quintile
Swimming pool	0,9	0,8	0,9	2,0	14,6
dishwashing machine	1,9	1,4	2,3	3,5	19,7
Washing machine	18,0	19,3	27,2	33,0	63,0
Geyser	8,8	7,1	14,7	28,0	67,9

Figure 6.47 confirms the findings of Figure 6.46 above, namely that assets ownership is positively related to income. Households in the wealthiest income quintile have consistently reported owning assets that households in the other income quintiles did not necessarily own.

Figure 6.48: Household ownership of selected water consuming/storing assets by dwelling type, 2015



	Swimming pool	dishwashing machine	Washing machine	Geyser
Formal	5,5	8,1	41,8	34,6
Informal	0,6	0,5	6,2	0,7
Traditional	0,4	0,2	1,6	0,2

Figure 6.48 shows that households in formal dwellings were most likely to own assets, whilst households in informal dwellings were also likely to own assets (but to a lesser extent), and households in traditional dwelling were the least likely to own assets.

7. Findings: Sanitation

7.1 Introduction

Sanitation makes a key contribution to public health, particularly in densely populated areas. Adequate sanitation is defined as any private or shared, but not public, facility that guarantees that waste is hygienically separated from human contact (JMP, 2000). Adequate sanitation reduces the risk of a broad range of diseases – including respiratory ailments, malaria, and diarrhoea – and reduces the prevalence of malnutrition. Access to this standard of sanitation produces direct health gains by preventing disease and delivering economic and social benefits. It is estimated that a reduction in diarrhoea illness would produce a gain of 99 million days of school and 456 million days of work for the working population (age 15–59) in Africa. The workdays alone represent economic benefits equal to as much as US$116 million (Hutton and Haller, 2004).

7.2 Access to sanitation facilities

Table 7.1: Type of toilet facility used by households (in thousands), 2002–2015

		Year											
Water source	**Statistic**	**2002**	**2004**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Flush toilet connected to a public sewerage system	Number	6 061	6 369	6 440	7 174	7 191	7 586	8 004	8 249	8 556	8 891	9 300	9 641
	Percentage	56,1	55,7	53,2	57,5	55,8	57,0	58,3	58,2	58,5	58,9	59,6	59,8
Flush toilet connected to a septic tank	Number	207	417	967	476	539	370	416	491	443	527	531	516
	Percentage	1,9	3,7	8,0	3,8	4,2	2,8	3,0	3,5	3,0	3,5	3,4	3,2
Chemical toilet	Number	36	49	52	74	58	50	51	100	149	87	70	45
	Percentage	0,3	0,4	0,4	0,6	0,5	0,4	0,4	0,7	1,0	0,6	0,5	0,3
Pit latrine/toilet with ventilation pipe	Number	468	792	871	1 080	1 255	1 678	1 594	1 859	2 043	2 296	2 530	2 680
	Percentage	4,3	6,9	7,2	8,7	9,7	12,6	11,6	13,1	14,0	15,2	16,2	16,6
Pit latrine/toilet without ventilation pipe	Number	2 699	2 586	2 746	2 632	2 806	2 724	2 432	2 479	2 375	2 456	2 310	2 343
	Percentage	25,0	22,6	22,7	21,1	21,8	20,5	17,7	17,5	16,2	16,3	14,8	14,5
Bucket toilet	Number	273	227	285	212	190	146	93	74	137	177	197	179
	Percentage	2,5	2,0	2,4	1,7	1,5	1,1	0,7	0,5	0,9	1,2	1,3	1,1
Ecological sanitation	Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13	30
	Percentage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0,1	0,2
None	Number	1 061	979	730	751	778	711	673	672	629	587	558	580
	Percentage	9,8	8,6	6,0	6,0	6,0	5,3	4,9	4,7	4,3	3,9	3,6	3,6
Other	Number	0	0	0	0	0	38	21	20	23	25	49	53
	Percentage	0,0	0,0	0,0	0,0	0,0	0,3	0,2	0,1	0,2	0,2	0,3	0,3
Subtotal	**Number**	10 804	11 418	12 090	12 397	12 817	13 302	13 284	13 943	14 354	15 046	15 558	16 067
	Percentage	99,9	99,9	99,9	99,3	99,5	100,0	96,7	98,4	98,1	99,6	99,7	99,7
Unspecified	**Number**	10	7	16	88	69	1	447	230	278	61	44	55
Total	**Number**	0,1	0,1	0,1	0,7	0,5	0,0	3,3	1,6	1,9	0,4	0,3	0,3

Table 7.1 indicates that the number of households who used a flush toilet connected to a public sewerage system increased by 3,6 million between 2002 and 2015. Similarly, the number of households who used a flush toilet connected to a septic tank, or a pit latrine with ventilation pipe also increased during the same period. Households

with no toilet facilities were almost reduced by half between 2002 and 2015, whilst fluctuations are observed for households who used VIPs without a ventilation pipe.

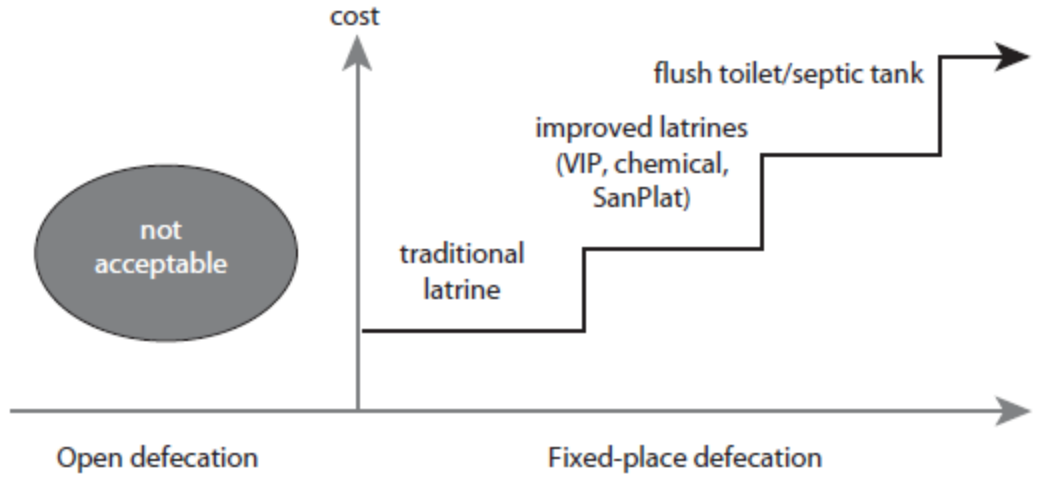
An improved sanitation facility is defined as one that hygienically separates human excreta from human contact. To allow for international comparability of estimates, the Joint Monitoring Programme (JMP) uses the classification represented in Table 7.2 to differentiate between improved and unimproved types of sanitation facilities. Note that, in line with the official indicators for the MDG sanitation target, only users of 'improved' sanitation facilities are considered as having 'access to sanitation'. The 'use of an improved sanitation facility' has been adopted as a reasonable and measurable proxy measure of sustainable access to basic sanitation. (Please note that the column 'Unimproved sanitation facilities' refers to 'hanging toilet or hanging latrine' – these terminologies are not used in South Africa).

Table 7.2: Improved sanitation methodology

Improved sanitation facilities	Unimproved sanitation facilities
Flush toilet	Flush or pour-flush to elsewhere
Flush or pour-flush to:	Pit latrine without slab or open pit
-piped sewer system	Bucket
-septic tank	Hanging toilet or hanging latrine
-pit latrine	No facilities or bush or field (open defecation)
Ventilated improved pit latrine (VIP)	Shared or public facilities
Pit latrine with slab	
Composting toilet	

Source: Joint Monitoring Programme (JMP) for Water Supply and Sanitation

Figure 7.1: The Sanitation Ladder



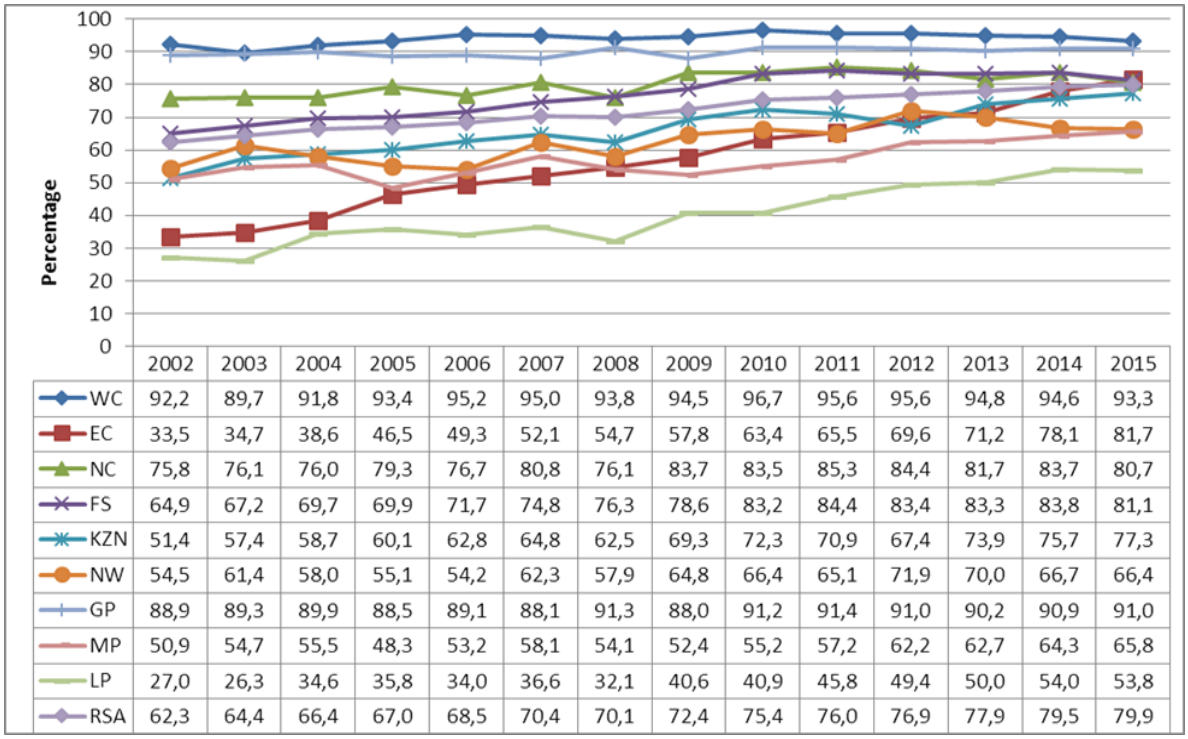
Source: Banerjee and Morella, World Bank 2008

Sanitation can be provided on numerous distinct levels that can be graphically represented as rungs on a ladder. Starting from open defecation, the successive increments are traditional latrines (various kinds of pits), improved latrines (including SanPlat, VIP latrines, and basic pits with slabs), and flush toilets (connected to either a septic tank or a waterborne sewage network). The higher rungs of the ladder carry higher unit costs, and lower levels carry a perceived health risk, as indicated in Figure 7.1.

This concept carries over to water, but not as clearly, because the sources cannot be ranked on the basis of quality or cost. It is evident, however, that surface water represents the bottom rung, and household connections to piped water and piped water delivered through public stand posts are at the upper end of the ladder. What comes out very clearly in the literature is that the distance to the water source makes a substantial difference to health outcomes and time saving.

Figure 7.2 identifies the percentage of households per province that had access to improved sanitation facilities (i.e. flush toilets connected to a public sewerage system or a septic tank, and a pit toilet with a ventilation pipe). Nationally, the percentage of households with access to improved sanitation facilities increased from 62,3% in 2002 to 80% in 2015. The majority of households in Western Cape (93,3%) and Gauteng (91%) had access to improved sanitation facilities, while about half of those in Limpopo (54%) and just below two-thirds of those in Mpumalanga (65,8%) had access to improved sanitation facilities. It is notable that access to improved sanitation facilities grew most rapidly in Eastern Cape (+48,2 percentage points) between 2002 and 2015.

Figure 7.2: Households with access to improved sanitation facilities by province, 2002–2015



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
WC	92,2	89,7	91,8	93,4	95,2	95,0	93,8	94,5	96,7	95,6	95,6	94,8	94,6	93,3
EC	33,5	34,7	38,6	46,5	49,3	52,1	54,7	57,8	63,4	65,5	69,6	71,2	78,1	81,7
NC	75,8	76,1	76,0	79,3	76,7	80,8	76,1	83,7	83,5	85,3	84,4	81,7	83,7	80,7
FS	64,9	67,2	69,7	69,9	71,7	74,8	76,3	78,6	83,2	84,4	83,4	83,3	83,8	81,1
KZN	51,4	57,4	58,7	60,1	62,8	64,8	62,5	69,3	72,3	70,9	67,4	73,9	75,7	77,3
NW	54,5	61,4	58,0	55,1	54,2	62,3	57,9	64,8	66,4	65,1	71,9	70,0	66,7	66,4
GP	88,9	89,3	89,9	88,5	89,1	88,1	91,3	88,0	91,2	91,4	91,0	90,2	90,9	91,0
MP	50,9	54,7	55,5	48,3	53,2	58,1	54,1	52,4	55,2	57,2	62,2	62,7	64,3	65,8
LP	27,0	26,3	34,6	35,8	34,0	36,6	32,1	40,6	40,9	45,8	49,4	50,0	54,0	53,8
RSA	62,3	64,4	66,4	67,0	68,5	70,4	70,1	72,4	75,4	76,0	76,9	77,9	79,5	79,9

There is universal access to improved sanitation for households living in formal dwellings in Western Cape (99%) and Gauteng (98%). The lowest percentage of households living in formal dwellings with access to improved sanitation was reported in Limpopo (55%), Mpumalanga (68%) and North West (76%). This is reflected in Figure 7.3.

Figure 7.3: Households living in formal dwellings with access to improved sanitation facilities by province, 2002–2015

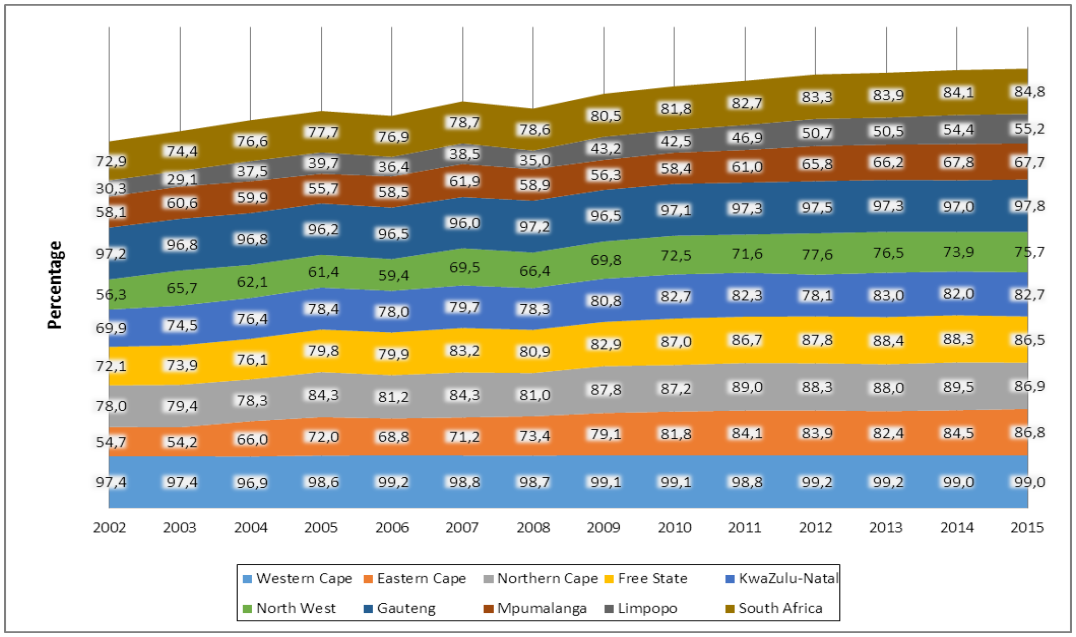


Figure 7.4 indicates that a 58% of households living in informal dwellings had access to improved sanitation facilities. The challenge for improving sanitation facilities in informal dwellings is that the household might be moved to a formal dwelling or an RDP house at any given time. Figure 7.4 indicates that of all households living in informal dwellings in the country, households in North West, Mpumalanga and Limpopo reported the least percentages as far as access to improved sanitation facilities was concerned.

Figure 7.4: Households living in informal dwellings with access to improved sanitation facilities by province, 2002–2015

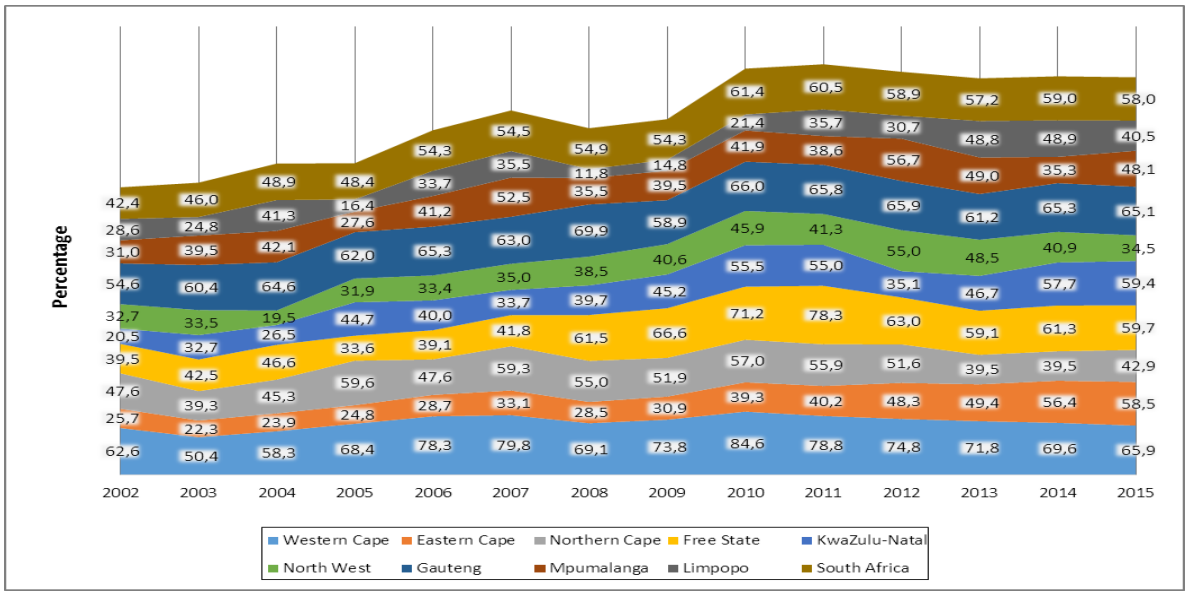
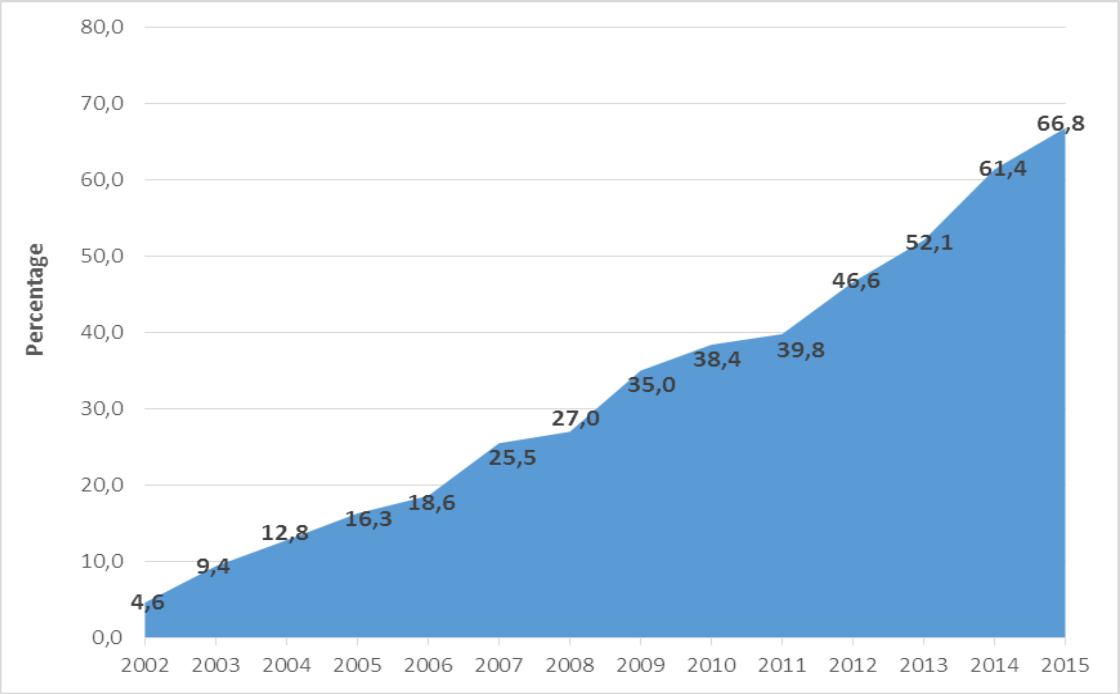
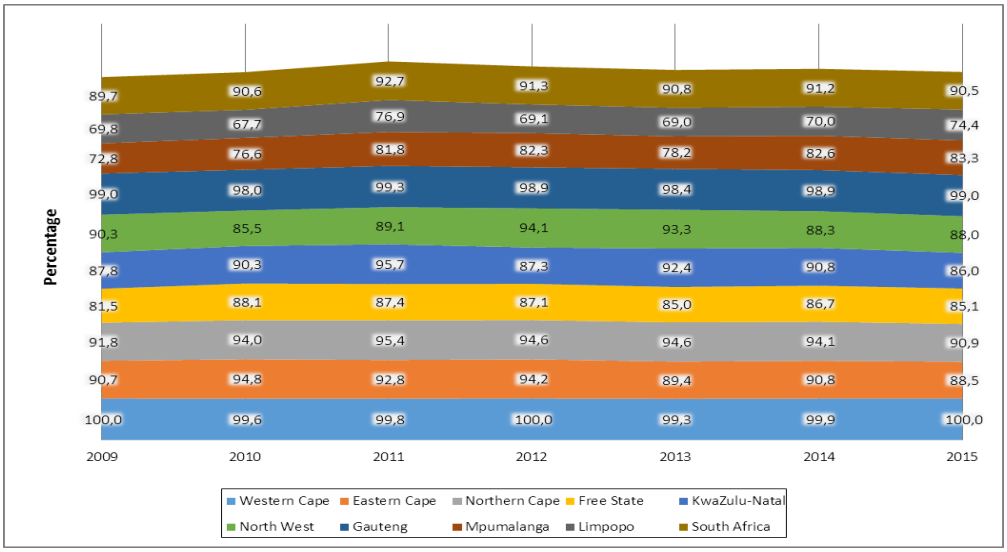


Figure 7.5: Households living in traditional dwellings with access to improved sanitation facilities, 2002–2015



In 2002, 51 207 (4,6%) of households living in traditional dwellings had access to improved sanitation facilities. However, 14 years later, this number has increased significantly to 733 979 (66,8%). This represents an increase of 62,2 percentage points, as shown in Figure 7.5.

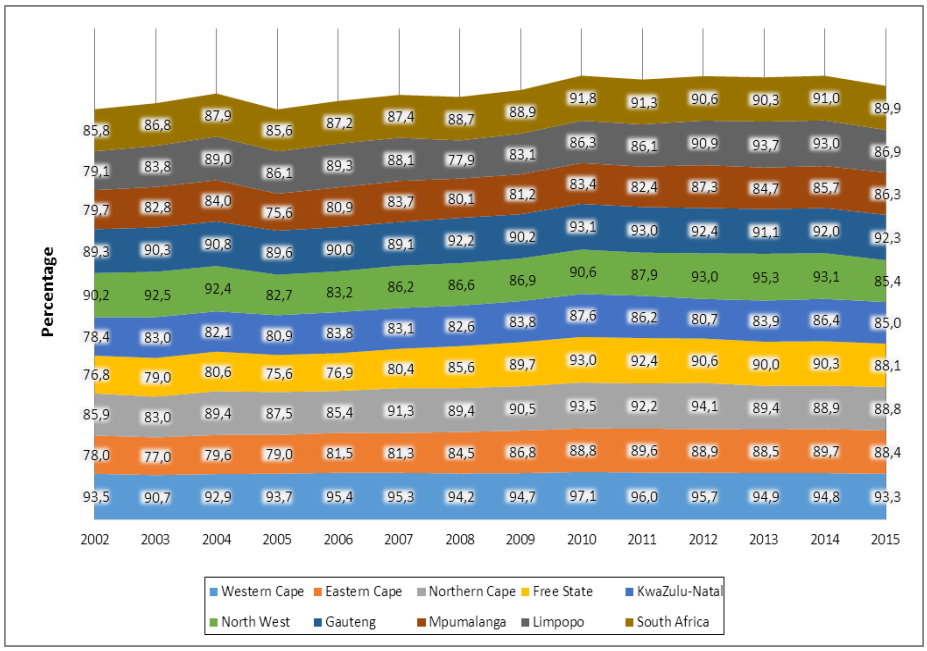
Figure 7.6: Households living in RDP dwellings with access to improved sanitation facilities by province, 2009–2015



The percentage of households living in RDP dwellings with access to improved sanitation was stagnant between 2009 and 2015. Similar trends were experienced provincially. This is presented in Figure 7.6.

Urban households in the two wealthiest provinces (Gauteng and Western Cape) had greater access to improved sanitation facilities than those living in the other seven provinces. The flat graph shows that the percentage of urban households with access to this level of sanitation has been stagnant nationally and provincially since 2002. Figure 7.7 further indicates that urban households in Western Cape (93,3%) and Gauteng (92,3%) were most likely to have access to improved sanitation facilities, whilst households in KwaZulu-Natal and North West (85% each) were less likely to have access to improved sanitation facilities.

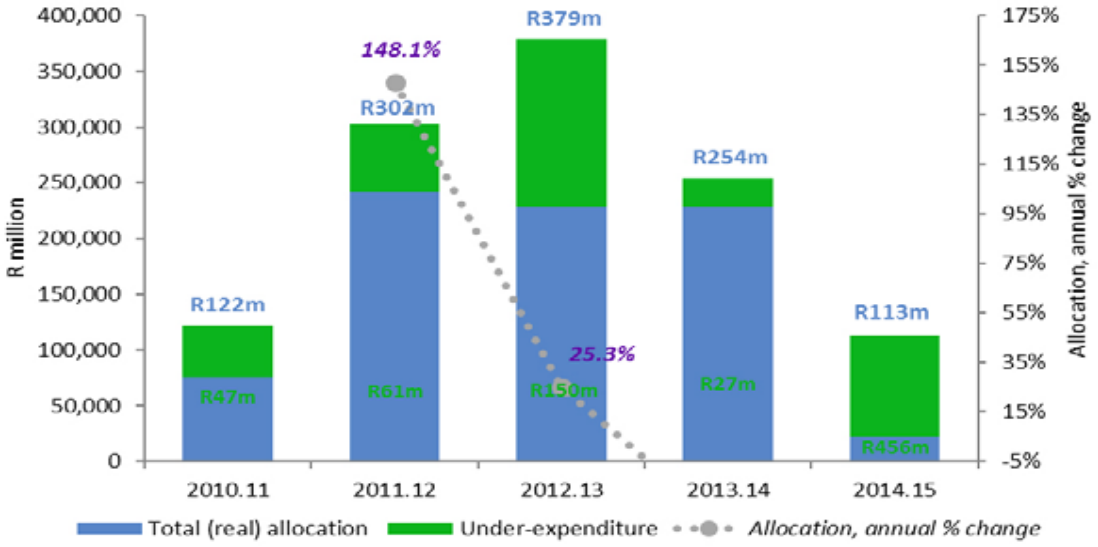
Figure 7.7: Urban households with access to improved sanitation facilities by province, 2002–2015



The Rural Household Infrastructure Grant (RHIG) was introduced in 2010/11 to provide specific capital funding for the reduction of rural sanitation backlogs and to target existing households where bulk-dependant services are not available. Between 2010/11 and 2014/15 the grant was run by the Department of Human Settlements (DHS), and in 2014/15 it was transferred to the Department of Water and Sanitation (DWS). The key objectives of the RHIG, at the time of its establishment, were:

- To support municipalities to address rural basic sanitation (and water supply) backlogs;
- To improve the quality of life in rural communities;
- To contribute to the rural development priorities of government; and
- To contribute to job creation and local economic development.

Figure 7.8: RHIG – real allocations, annual % change and under-expenditure, 2010/11–2014/15



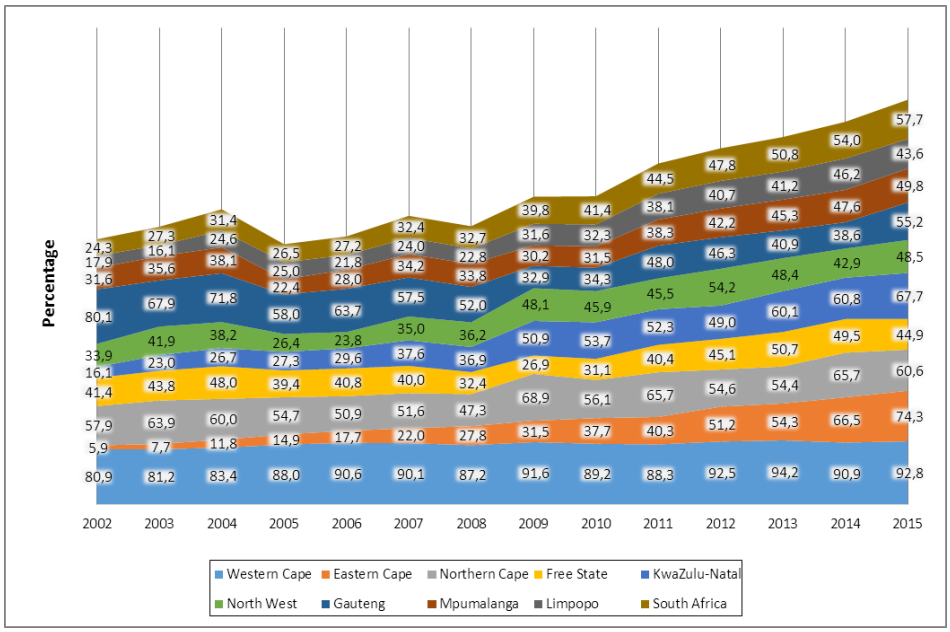
Source: SPII, 2016

Figure 7.8 indicates that the grant allocation fluctuated significantly since its establishment: from R122m in 2010/11 the allocation has sharply increased to R379m in 2012/13, when it started to decrease back to R113m in 2014/15. The fluctuation in allocations is heavily linked to the poor performance and underspending of the programme, which has been the grant's feature since its inception (SPII, 2016).

The average under-expenditure of the grant through all the years was 32%, with the lowest under-expenditure of 10,4% recorded in 2013/14 and the highest in 2014/15, when the under-expenditure was as high as 80% of the total allocation of the grant. In real terms, the under-expenditure was the highest in 2012/13, when it was R150m or 39,7% of the grant. It is clear that continuous underspending of the budget prevents responsible departments from achieving their objectives in respect of providing sanitation services to rural communities. Among a range of issues self-reported by DHS and DWS, the RHIG has under-spent and under-delivered due to delays in the appointment of service providers, problems with sourcing, delayed delivery of materials by suppliers, difficult ground conditions, etc. (SPII, 2016).

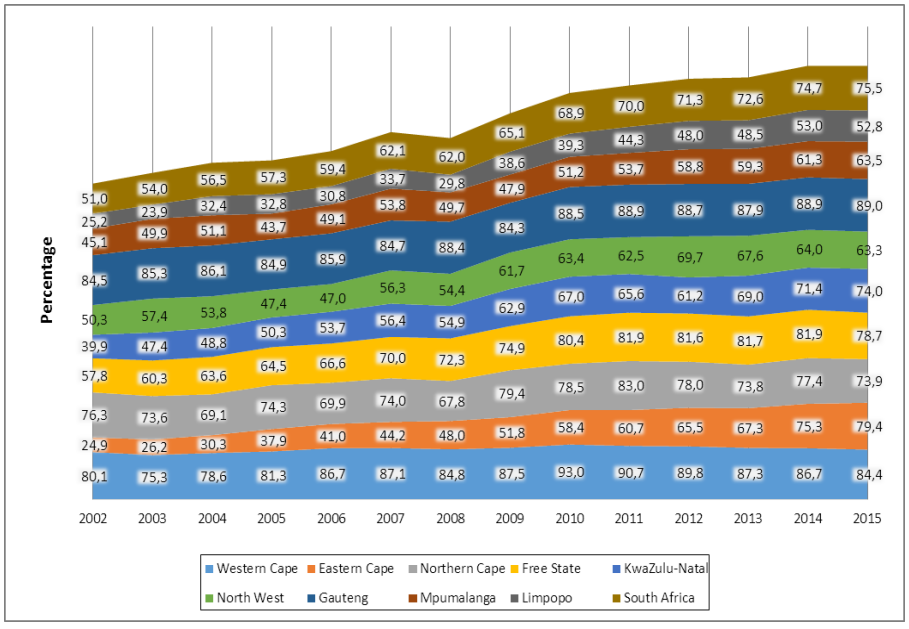
According to Figure 7.9, rural households with access to improved sanitation facilities more than doubled between 2002 and 2015. All provinces recorded increases for rural households with access to improved sanitation facilities. The highest increase was recorded in Eastern Cape, where 74,3% of households had access to improved sanitation facilities in 2015, compared to the almost 6% of households who had access in 2002.

Figure 7.9: Rural households with access to improved sanitation facilities by province, 2002–2015



Households headed by black Africans in Western Cape were more likely to have access to improved sanitation facilities, whilst households in Limpopo were least likely to have such access, as indicated in Figure 7.10. All provinces recorded a noticeable increase in access to improved sanitation for black African-headed households, with Eastern Cape recording the highest percentage point increase.

Figure 7.10: Black African-headed households with access to improved sanitation facilities by province, 2002–2015



Generally, households headed by coloureds had extensive access to improved sanitation facilities in 2015 as per Figure 7.11. The figure shows that 96% of coloured-headed households in the country had access to improved sanitation facilities. The highest percentages were reported in Limpopo (100%), Gauteng (99,5%), KwaZulu-Natal (97,9%) and Western Cape (97,3%).

Figure 7.11: Coloured-headed households with access to improved sanitation facilities by province, 2002–2015

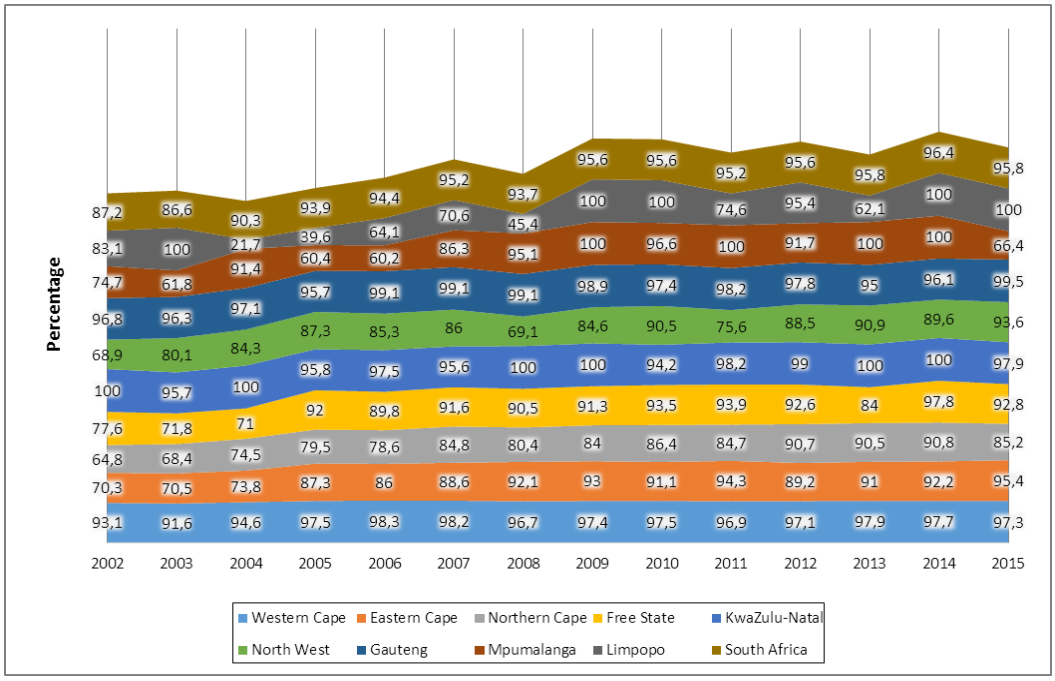
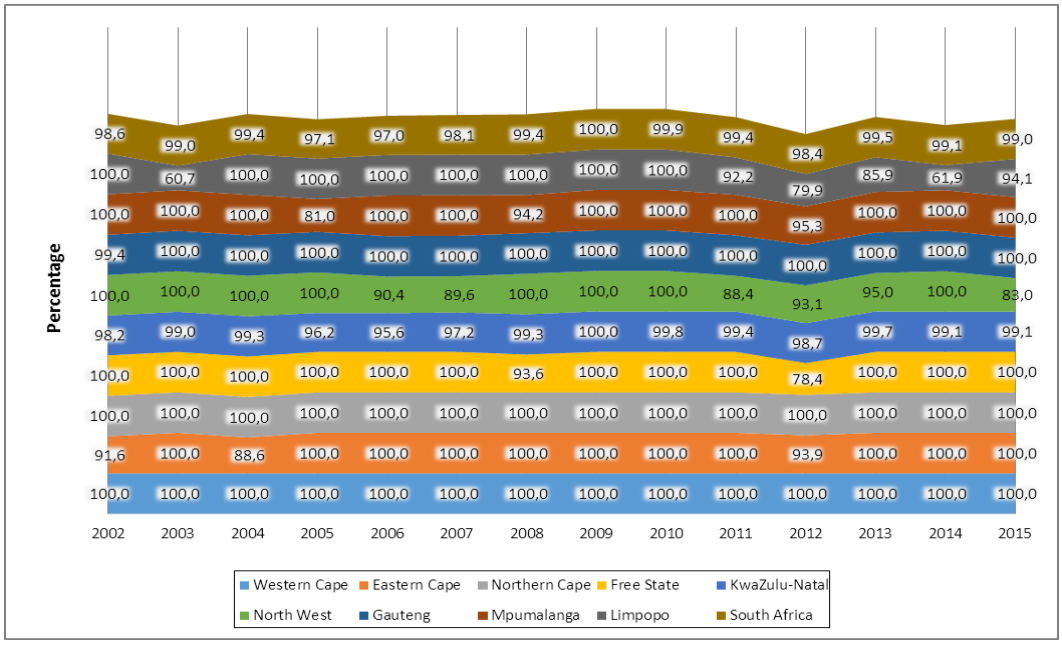
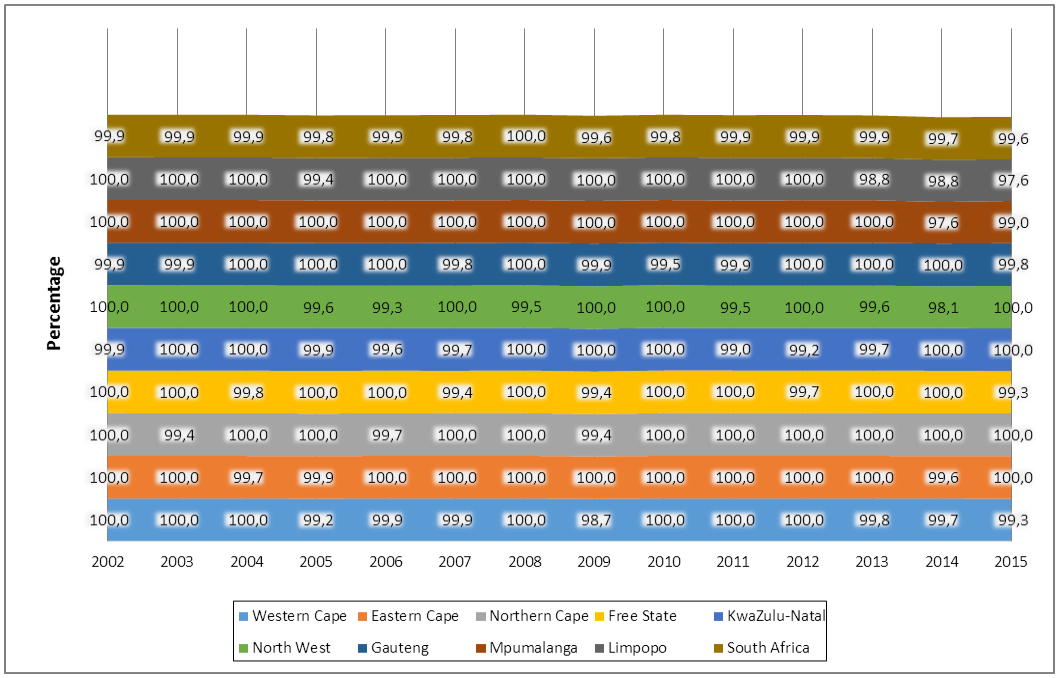


Figure 7.12: Indian/Asian-headed households with access to improved sanitation facilities by province, 2002–2015



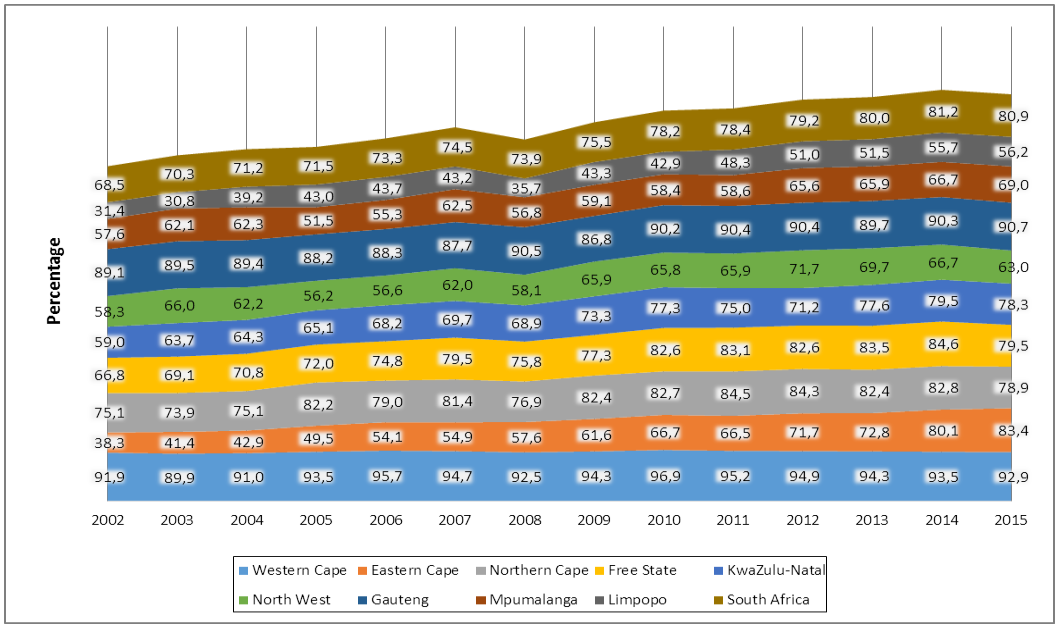
Indian/Asian-headed households had universal access to improved sanitation for most provinces and during most years. This is outlined in Figure 7.12.

Figure 7.13: White-headed households with access to improved sanitation facilities by province, 2002–2015



Even though households headed by Coloureds and Indians/Asians had almost universal access to improved sanitation, white-headed households had an even greater access that these two population groups, as shown in Figure 7.13.

Figure 7.14: Male-headed households with access to improved sanitation facilities by province, 2002–2015



The percentage of male-headed households with access to improved sanitation facilities is demonstrated in Figure 7.14. Nationally, the percentage of male-headed households with access to improved sanitation increased from 68,5% to 80,9% since 2002. The provinces with the highest percentage of male-headed households with access to improved sanitation were Western Cape (92,9%), Gauteng (90,7%) and Eastern Cape (83,4%).

Figure 7.15: Female-headed households with access to improved sanitation facilities by province, 2002–2015

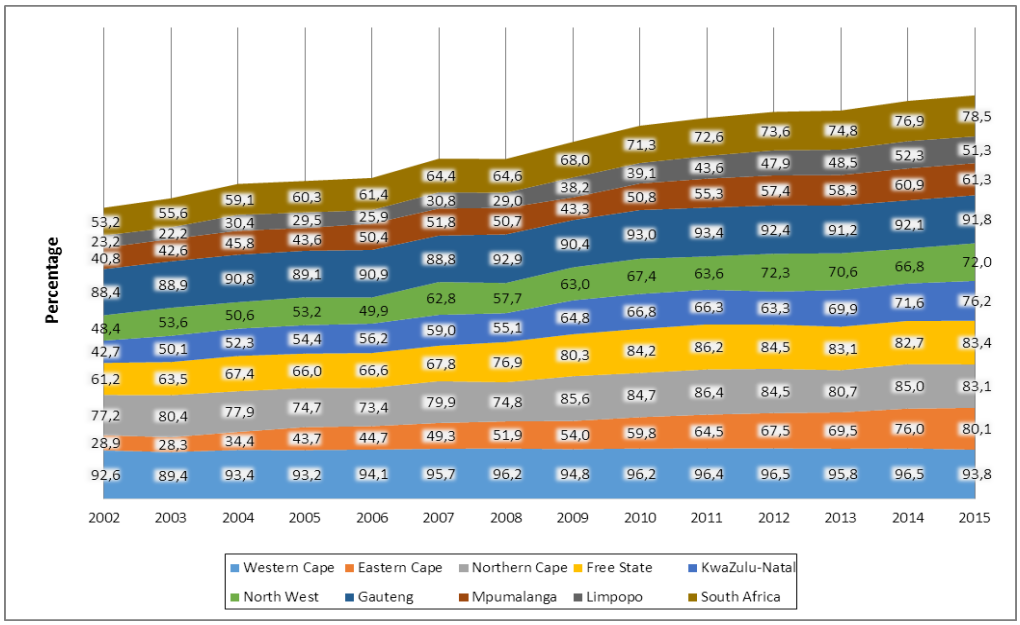


Figure 7.15 illustrates that nationally, the percentage of female-headed households with access to improved sanitation facilities increased from 53,2% in 2002 to 78,5% in 2015. Female-headed households in Western Cape and Gauteng have always recorded the highest percentage with regard to access to improved sanitation facilities when compared with other provinces. Generally, South African female-headed households have been improving in terms of access to improved sanitation facilities since 2002.

Figure 7.16: Households with access to improved sanitation facilities by income quintile, 2015

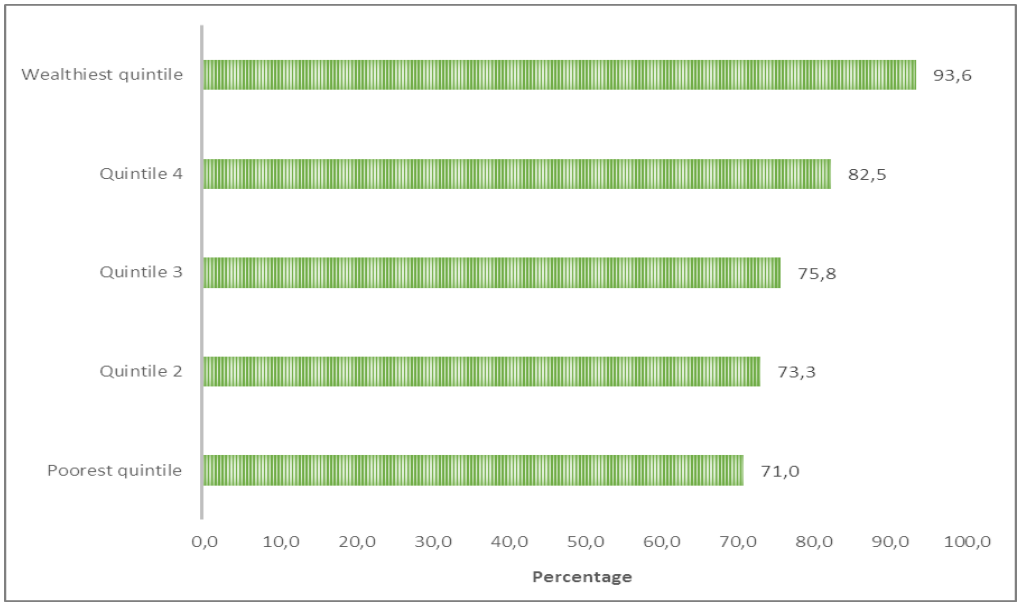
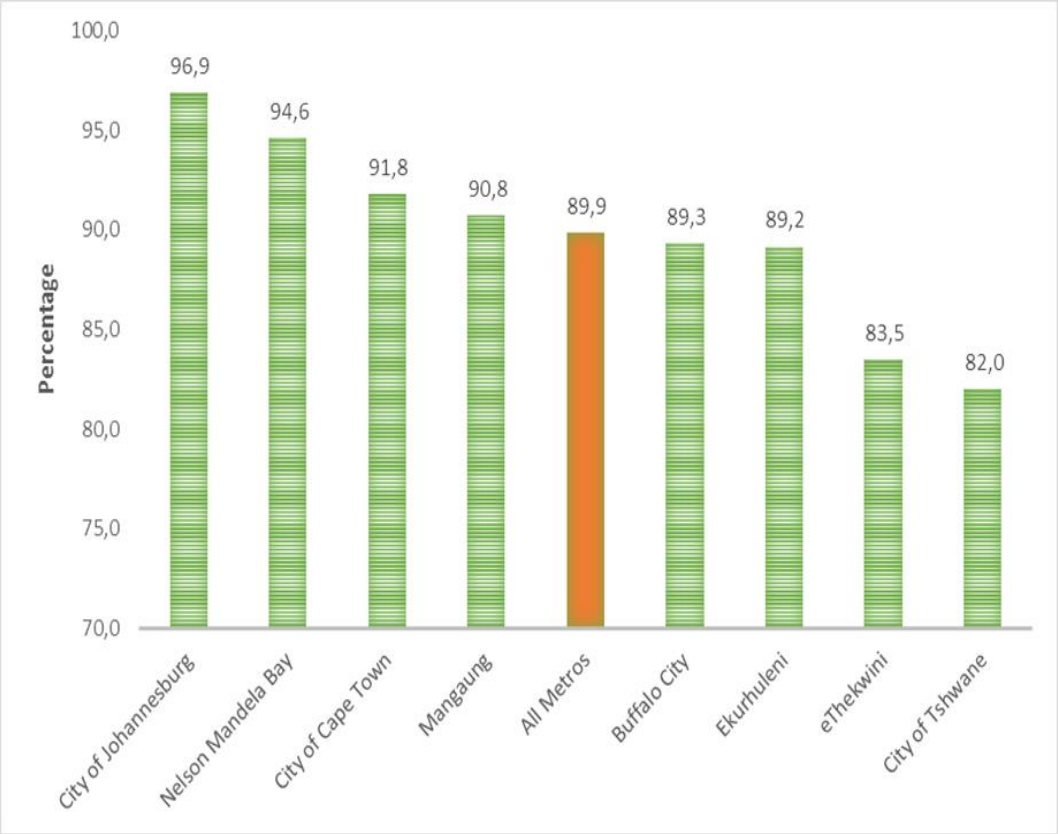


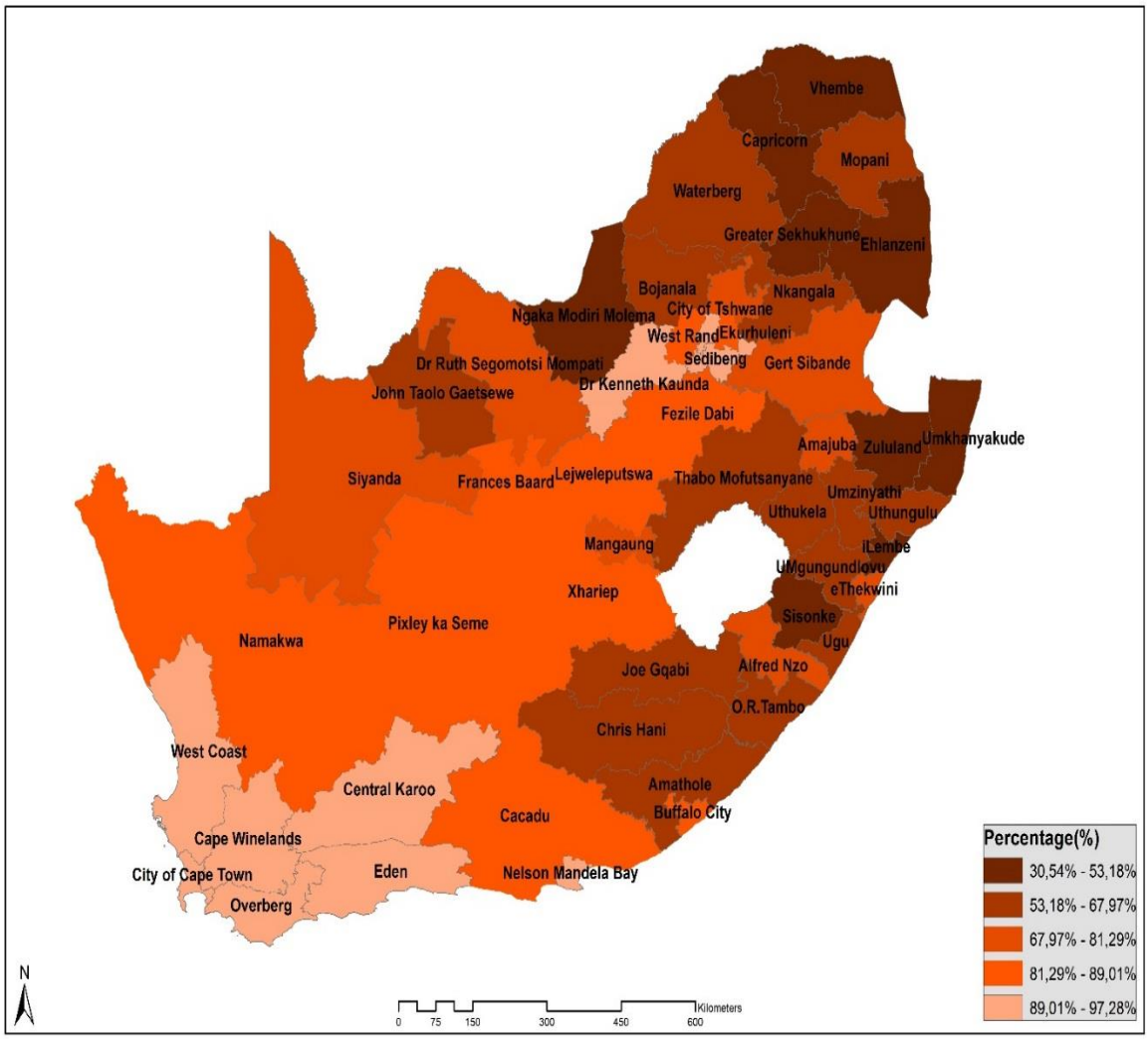
Figure 7.16 shows that the wealthiest households were more likely to have access to improved sanitation facilities, as the highest percentage of households with access to improved sanitation facilities were observed in the richest quintile while the lowest percentage were observed in the poorest quintile.

The percentage of households with access to improved sanitation facilities by metropolitan area are presented in Figure 7.17. The metros with the highest percentage of households with access to improved sanitation facilities were the City of Johannesburg (96,9%), Nelson Mandela Bay (94,6%) and the City of Cape Town (91,8%). The metros with the lowest percentage of households with access to improved sanitation facilities were the City of Tshwane (82%) and eThekwini (83,5%).

Figure 7.17: Households with access to improved sanitation facilities by metropolitan area, 2015



Map 7.1: Households with access to improved sanitation facilities by district council, CS 2016



Source: Community Survey 2016

Households living in Central Karoo (97,3%), Cape Winelands (96%), Overberg (95,5%) and Eden (94,6%) reported the highest percentages as far as access to improved sanitation facilities was concerned. It is worth noting that these five districts are situated in Western Cape. The districts with the lowest percentage of households with access to improved sanitation were Greater Sekhukhune (30%), Ehlanzeni (43%), iLembe (45%), Umkhanyakude (47%), Zululand and Sisonke (49% each). When comparing Figure 7.17 and Map 7.1, it is clear that the two surveys speak to each other. However, the Community Survey 2016 percentages were slightly higher than the GHS 2015 percentages. The only outlier was Mangaung, which ranked fourth amongst metropolitan areas with regard to access to improved sanitation when using GHS data, whereas the results of CS 2016 ranked it at eighth position.

Table 7.3: Predictors of households with access to unimproved sanitation facilities using logistic regression, 2015

Probability modelled	Unimproved sanitation facilities		
	Urban	Rural	South Africa
Likelihood ratio chi-square	3 303	686	5639
Hosmer and Lemeshow goodness of fit test (P-value)	0,0001	0,0001	0,0001
N	12 903	7 165	20 068
Intercept	-5.5903	-3.3274	-4,8322
Odds ratio			
Province	**Urban**	**Rural**	**South Africa**
Western Cape (reference category)			
Eastern Cape	1,499	1,456	1,015*
Northern Cape	2,638	2,966	2,318
Free State	2,249	6,522	2,755
KwaZulu-Natal	2,182	2,247	1,909
North West	1,628	3,688	2,347
Gauteng	1,510	3,978	1,162*
Mpumalanga	2,193	4,829	3,687
Limpopo	2,104	5,569	3,856
Geographical location			
Urban (reference category)	n/a	n/a	
Rural	n/a	n/a	3,859
Metropolitan status			
Metro (reference category)		n/a	n/a
Non-metro	1,837	n/a	n/a
Dwelling type			
Formal (reference category)			
Traditional	5,030	0,969*	0,975*
Informal	5,110	2,674	5,550
Per capita income quintile			
Wealthiest quintile (reference category)			
Poorest quintile	2,790	1,640	1,961
Quintile 2	1,943	1,558	1,787
Quintile 3	2,079	1,728	1,978
Quintile 4	1,868	1,468	1,746
Water sources			
Piped water in house/dwelling/yard (reference category)			
Borehole/rainwater tank in yard	2,359	1,149*	1,984
Piped water outside yard	13,325	1,524	3,593
Borehole/water tank outside yard	19,810	1,329	2,732
Flowing/ground water	18,777	1,110*	1,934
Population group of household head			
Coloureds, whites and Indians/Asians (reference category)			
Black African	2,137	3,181	2,673

* Insignificant values at 95%.

A model to predict households with access to unimproved sanitation facilities using logistic regression is presented in Table 7.3. The odds of households in the other eight provinces to have access to unimproved sanitation facilities

were greater than the odds of households in Western Cape, including rural and urban households in Western Cape. However, it should be noted that the differences between households in Western Cape and households in Eastern Cape and Gauteng were insignificant. The odds of rural households were 3,859 times more than the odds of urban households to have access to unimproved sanitation facilities. The odds of households living in non-metro areas were 1,837 times more than the odds of households living in urban areas to have access to unimproved sanitation facilities. Households living in rural and urban informal dwellings were more likely to have access to unimproved sanitation facilities than households living in rural and urban formal dwellings. The odds of households with access to other sources of water were greater than the odds of households with access to piped water to use unimproved sanitation facilities. Households in quintiles 1–4 had the larger odds of accessing unimproved sanitation facilities than wealthiest households in rural and urban areas and in South Africa in general. The odds of households headed by black Africans were 2,137 in urban dwellings, 3,181 in rural dwellings and 2,673 in South Africa times more than the odds of households headed by coloureds, whites and Indians/Asians to have access to unimproved sanitation facilities.

7.3 Distance to outside-yard toilet facility

Improved access to safe water supplies has beneficial effects for women and girls, who enjoy time saving and sometimes a reduced workload as a result. When water must be fetched from distant and sometimes multiple sources, women and girls are normally the ones who bear the burden. There are social and institutional benefits for women, too, when rural water and sanitation programmes stimulate their participation. However, time saving and reduced workload only achieve limited benefits in terms of increased income. The time saved is usually devoted to other unpaid work such as collection of firewood or unpaid agricultural labour.

Table 7.4: Distance to outside-yard toilet facility, 2009–2015

Distance	Statistic	Year						
		2009	2010	2011	2012	2013	2014	2015
Less than 200 metres	Number	410 681	395 845	348 337	398 672	403 391	436 529	491 151
	Percentage	87,9	86,4	86,9	91,4	89,0	98,7	93,9
201–500 metres	Number	53 946	56 766	50 677	37 005	43 041	5 602	21 082
	Percentage	11,6	12,4	12,6	8,5	9,5	1,3	4,0
More than 500 metres	Number	2 596	5 585	1 825	714	6 851	0	10 949
	Percentage	0,6	1,2	0,5	0,2	1,5	0,0	2,1

Table 7.4 illustrates that in 2009, 88% households resided less than 200 metres away from the outside-yard toilet facility, whereas in 2015, the percentage increased to 94%. However, the highest percentage (99%) of households living less than 200 metres away from the outside-yard toilet facility was recorded in 2014. Thus, there were no households who reported walking more than 500 metres to the outside-yard toilet facility in 2014, while throughout other years, the percentage has been fluctuating with no definite trend.

Table 7.5: Distance to outside-yard toilet facility by province, 2015

Distance	Statistic	Province									
		Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	South Africa
Less than 200 metres	Number	126 764	33 229	3 444	19 096	122 050	17 177	128 413	28 585	12 394	491 151
	Percentage	98,1	98,7	100,0	96,0	83,8	80,7	99,5	100,0	100,0	93,9
201-500 metres	Number	2 399	450	0	799	15 790	1 644	0	0	0	21 082
	Percentage	1,9	1,3	0,0	4,0	10,8	7,7	0,0	0,0	0,0	4,0
More than 500 metres	Number	0	0	0	0	7 781	2 454	714	0	0	10 949
	Percentage	0,0	0,0	0,0	0,0	5,3	11,5	0,6	0,0	0,0	2,1

Table 7.5 depicts that nationally, most households (94%) lived less than 200 metres away from the outside-yard toilet facility compared to 4% of households whose dwelling was 201–500 metres away from such facility, while the other two per cent lived more than 500 metres away from the outside-yard toilet facility. Furthermore, during the reference period, most households reported living less than 200 metres away from the outside-yard toilet facility. North West (11,5%) followed by KwaZulu-Natal (5,3%) had the largest percentage of households who resided more than 500 metres away from the outside-yard toilet facility.

Figure 7.18: Households who lived more than 200 metres away from the outside-yard toilet facility by rural/urban area, 2014 and 2015

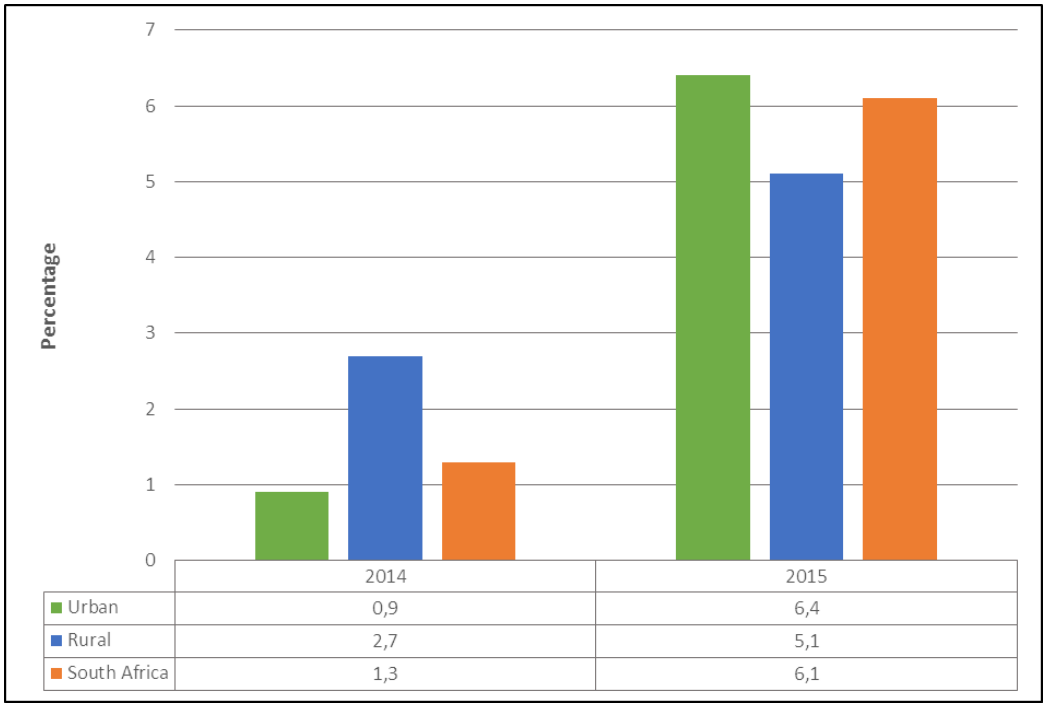


Figure 7.18 shows that nationally, the percentage of households who reported living more than 200 metres away from the outside-yard toilet facility increased from 1,3% in 2014 to 6,1% in 2015. It is evident from Figure 7.18 that a

larger percentage of households in urban areas lived more than 200 metres away from the outside-yard toilet facility as compared to households in rural areas.

Figure 7.19: Households who lived more than 200 metres away from the outside-yard toilet facility by gender of the household head, 2014 and 2015

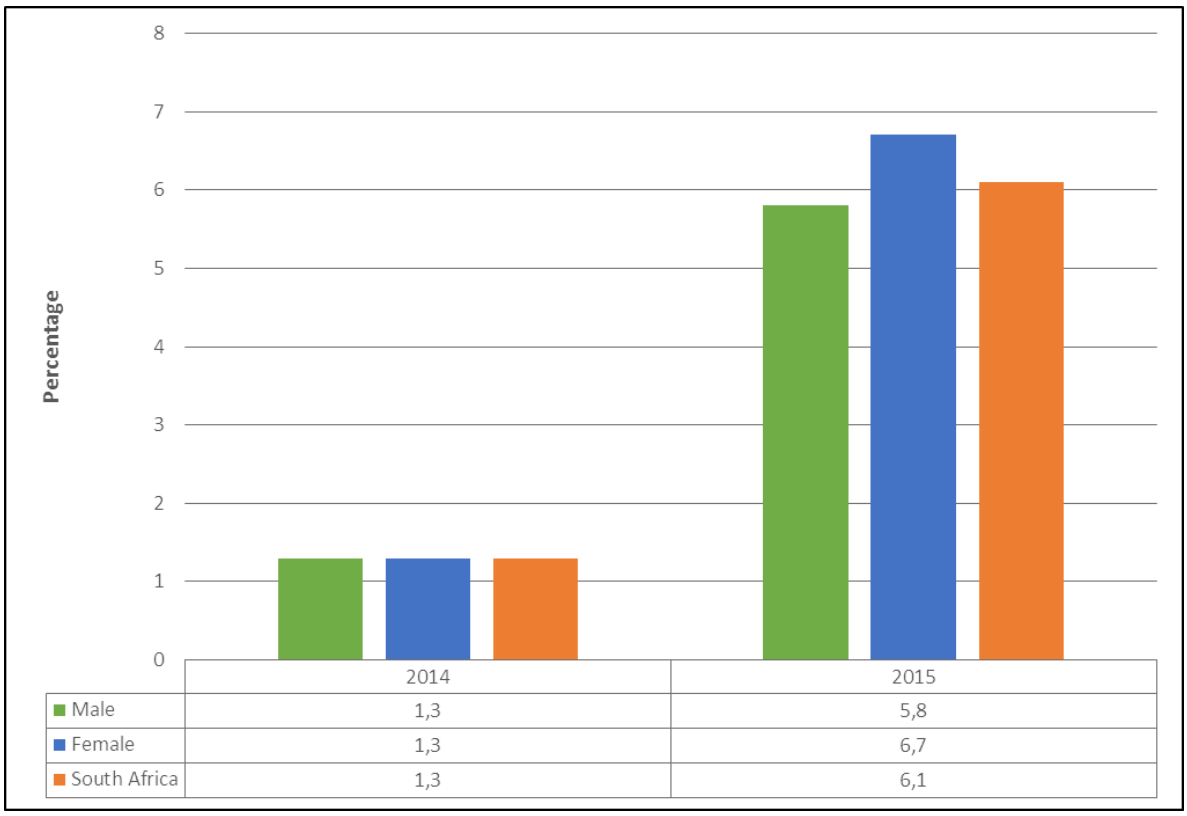


Figure 7.19 indicates that during 2015, female-headed households lived furthest to the outside-yard toilet facility as compared to male-headed households. There has been a noticeable growth in the percentage of both male- and female-headed households who reported living more than 200 metres away from the outside-yard toilet facility between 2014 and 2015.

7.4 Hygiene

Table 7.6: Percentage of households who shared toilet facilities by province, 2005–2015

Year	Statistic	Province									
		Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	South Africa
2005	Number	304 232	217 234	40 318	151 189	462 745	209 311	1 080 477	129 809	213 852	2 809 166
	Percentage	24,4	19,7	17,6	21,8	25,2	25,0	36,0	16,8	22,0	26,3
2006	Number	365 494	239 938	38 736	140 133	457 086	236 121	1 213 956	152 512	257 588	3 101 563
	Percentage	27,6	20,6	16,4	19,7	24,0	27,2	38,5	18,5	24,1	27,5
2007	Number	419 462	244 169	40 526	184 163	489 047	263 990	1 271 951	162 377	235 249	3 310 935
	Percentage	31,8	21,1	17,2	25,3	25,7	30,0	39,4	19,5	22,8	29,3
2008	Number	305 006	164 464	38 481	119 664	416 836	240 532	1 076 822	174 036	173 025	2 708 865
	Percentage	23,3	14,0	16,4	16,7	21,1	26,7	33,3	19,9	16,3	23,6
2009	Number	379 911	181 632	31 738	134 710	389 193	229 947	1 243 087	122 960	164 134	2 877 310
	Percentage	26,4	14,6	12,5	17,6	18,4	24,1	35,0	13,3	14,5	23,3
2010	Number	359 869	177 868	32 620	102 608	431 988	222 766	1 128 955	136 222	120 304	2 713 200
	Percentage	24,6	13,9	12,8	14,1	20,3	23,2	30,9	14,9	10,5	21,7
2011	Number	317 798	188 322	32 760	113 461	438 826	232 877	1 218 884	115 805	120 302	2 779 035
	Percentage	21,1	14,3	12,3	14,4	19,5	23,3	31,3	12,1	9,9	21,1
2012	Number	350 747	208 324	40 109	107 686	436 560	213 457	1 124 752	156 704	189 841	2 828 179
	Percentage	22,8	15,0	14,4	13,7	19,0	20,8	28,6	15,7	14,9	20,9
2013	Number	405 219	235 410	42 599	131 176	498 090	240 965	1 326 369	154 588	173 885	3 208 301
	Percentage	25,0	15,8	15,0	15,8	20,6	22,4	31,4	14,8	13,1	22,4
2014	Number	411 586	236 866	47 717	119 773	564 218	218 731	1 422 107	140 017	175 412	3 336 427
	Percentage	24,7	15,6	16,6	14,4	22,8	20,0	33,6	13,4	12,8	23,0
2015	Number	423 774	280 907	34 119	166 981	584 141	257 897	1 662 149	212 690	276 165	3 898 824
	Percentage	24,5	17,7	11,4	19,3	22,6	22,9	36,7	18,8	19,6	25,6

As shown in Table 7.6, nationally, the percentage of households who shared toilet facilities has reduced from 26,3% in 2005 to 25,6% in 2015. Throughout the reference period, Gauteng was the leading province with the highest number and percentage of households who shared toilet facilities. In 2015, Northern Cape recorded the lowest percentage of households who shared toilet facilities compared to other provinces.

Figure 7.20: Percentage of households who shared toilet facilities by rural/urban area, 2015

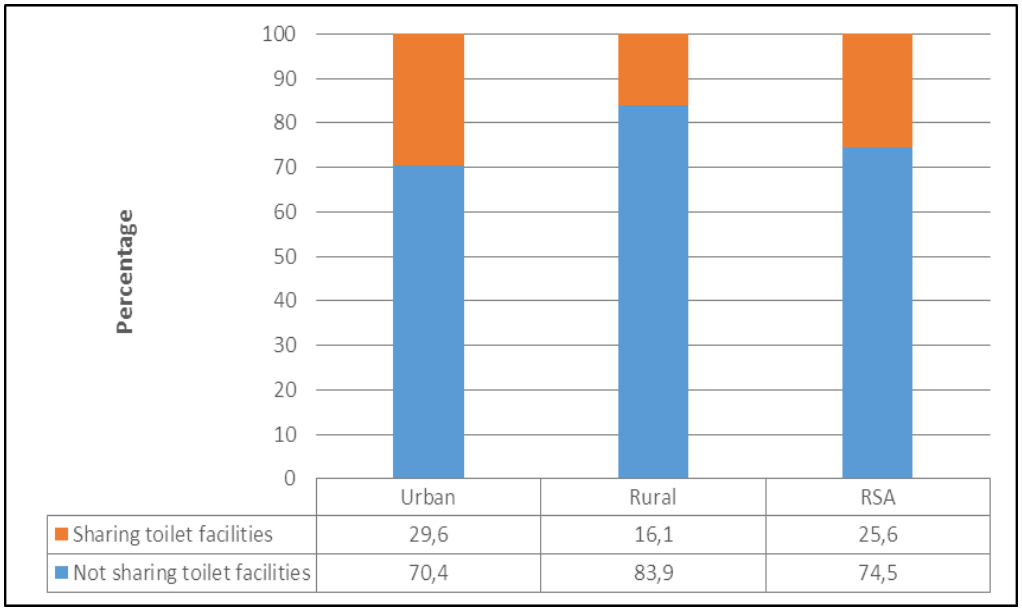


Figure 7.20 indicates that urban households (30%) were more likely to share toilet facilities than rural households (16%).

More than two-thirds (68%) of households living in informal dwellings shared toilet facilities in comparison to nearly a fifth (19%) of households in formal dwellings and 12% of households living in traditional dwellings. This is presented in Figure 7.21.

Figure 7.21: Percentage of households who shared toilet facilities by dwelling type, 2015

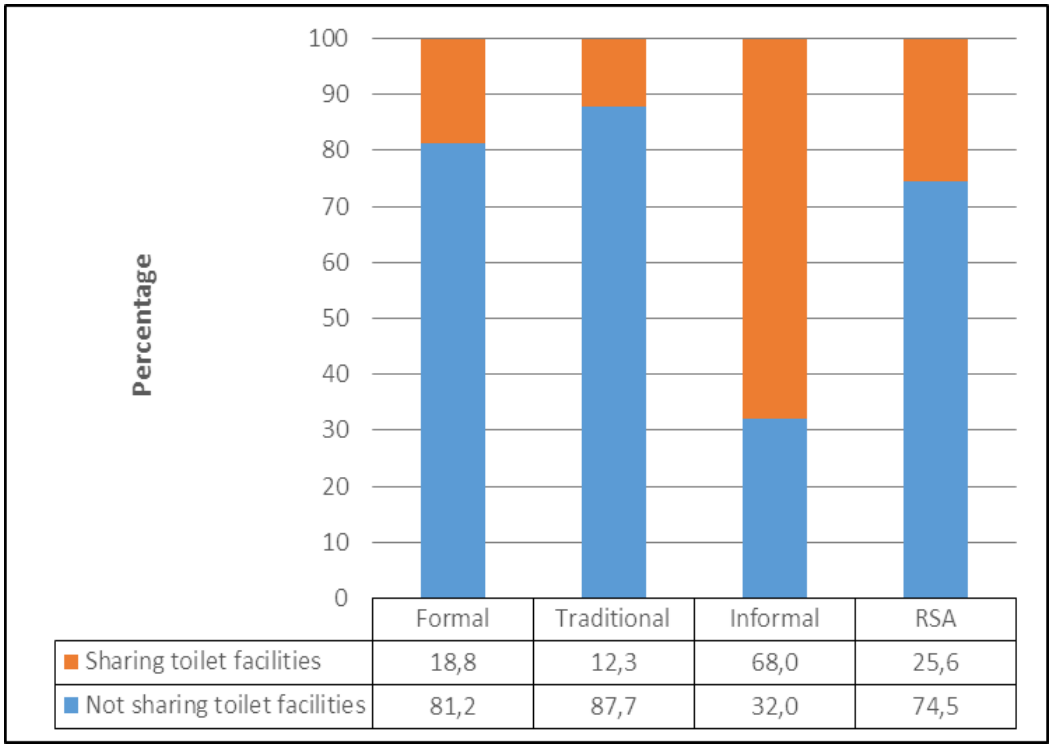


Figure 7.22: Percentage of households who shared a toilet facility in the dwelling, yard and outside yard, 2015

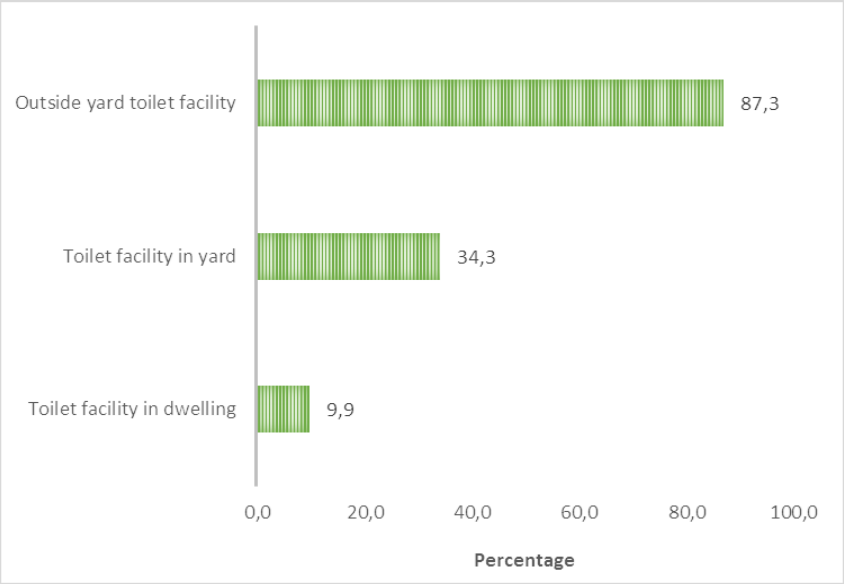
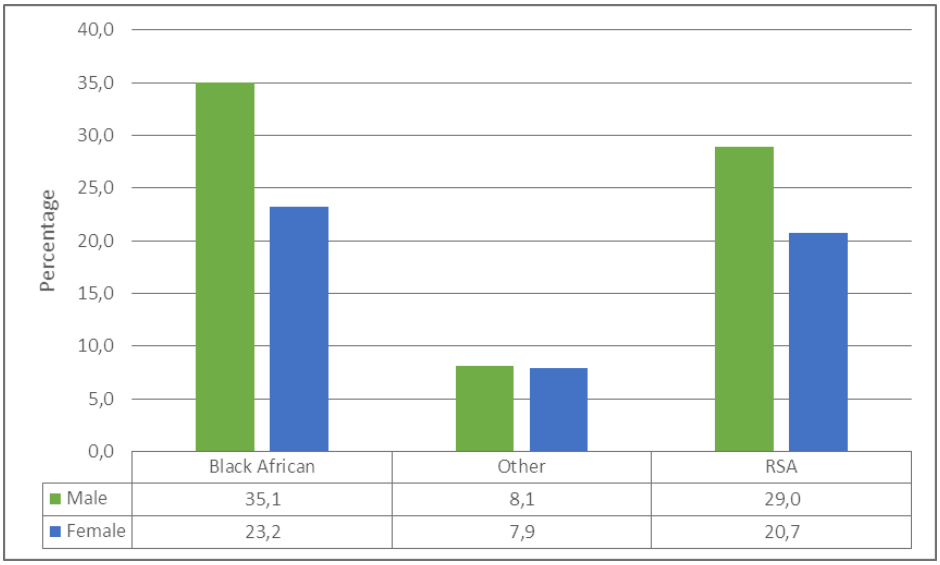


Figure 7.22 displays data regarding households who shared a toilet facility in the dwelling, yard and outside yard. Nearly ninety per cent of households who accessed an outside-yard toilet facility indicated that they were sharing such facility. Over a third (34,3%) of households with access to a toilet facility in the yard indicated that they were sharing it with other households. A tenth of households (9,9%) whose toilet facility was in the dwelling indicated that they were sharing it with other households.

Figure 7.23: Percentage of households who shared a toilet facility by gender and population group of the household head, 2015



	Black African	Other	RSA
Male	35,1	8,1	29,0
Female	23,2	7,9	20,7

Slightly more than a third (35,1%) of households headed by male black Africans shared a toilet facility, while nearly a quarter (23,2%) of female-headed black African households shared such facility. A little more than eight per cent of households headed by coloureds, Indians/Asians and whites shared a toilet facility. This is illustrated in Figure 7.23.

Figure 7.24: Problems experienced by households that share sanitation facilities during the six months before the survey, 2015

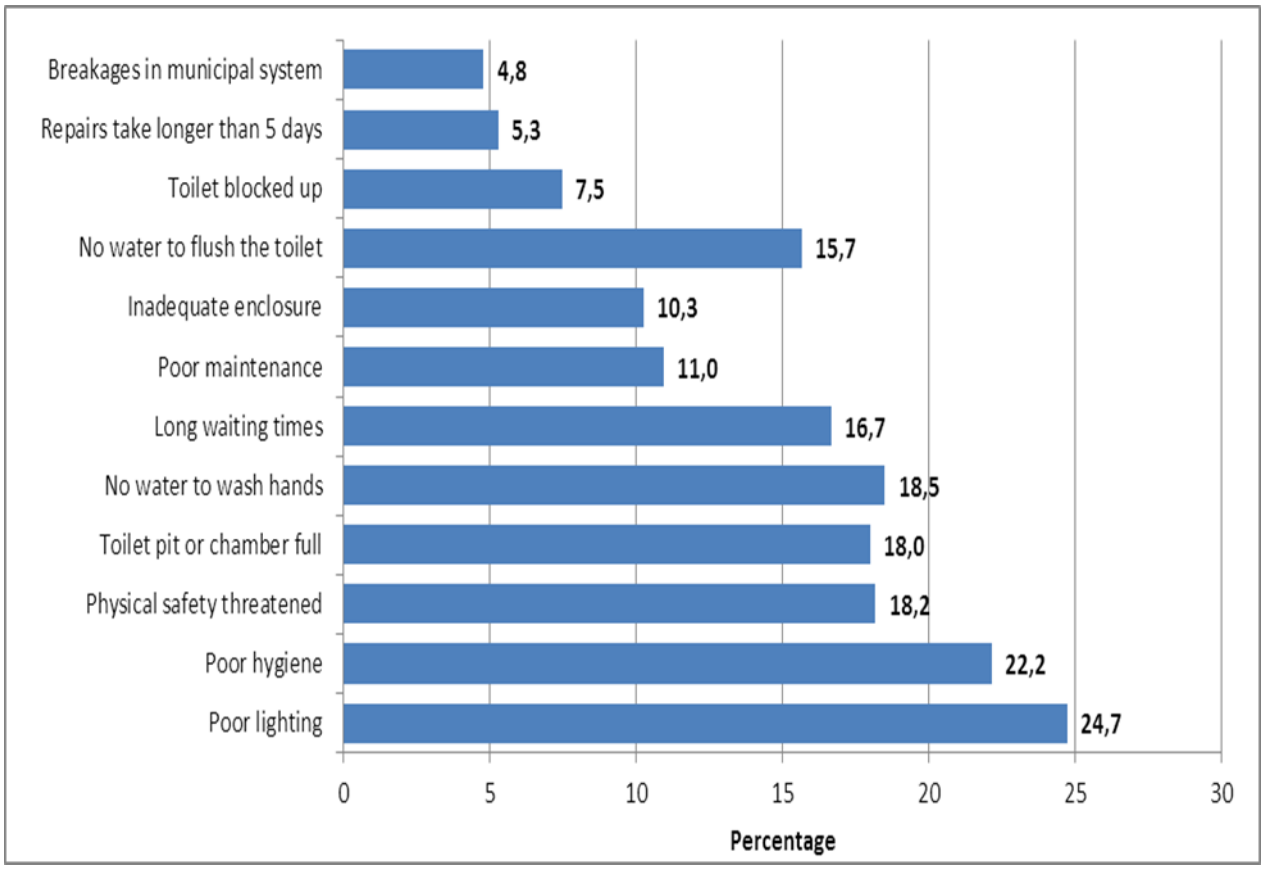


Figure 7.24 outlines the extent to which households that share toilet facilities, regardless of its modality, have experienced some of the issues raised in the questionnaire. About one-quarter (24,7%) of households were concerned by poor lighting and inadequate hygiene (22,2%), while 18,2% felt that their physical safety was threatened when using the toilet. About one-fifth (18,5%) complained that there was no water to wash their hands after they had used the toilet, and another 16,7% pointed to long waiting times. Only 10,3% of households complained that the toilets were not properly enclosed. Only 4,8% of households complained that there were breakages in the municipal system and 7,5% of the household had blocked up toilets.

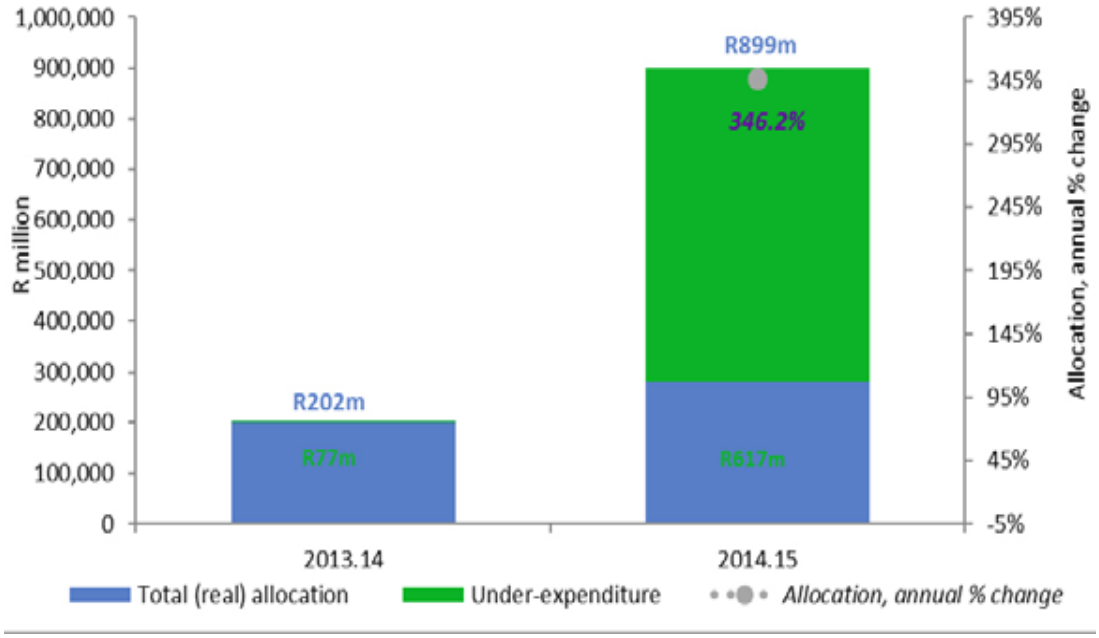
7.5 Bucket toilet system

The Water Commission report states that the national government took a decision to accelerate the eradication of the bucket sanitation system because this system was considered unhygienic and expensive to maintain. The system is also considered as violating the human dignity of the users and of those responsible for collection and disposal of human waste from bucket toilets (WRC, 2016). It is important to note that the bucket system should have already been completely phased out by government. In his 2014 State of the Nation Address, President Jacob Zuma stated that, 'Government has begun an intensive programme to eliminate the bucket system as part of restoring the dignity of the people of South Africa'. According to President Zuma, 'Phase One of the programme will eradicate buckets in formalised townships of the Free State, Eastern Cape and Northern Cape. Phase Two will eradicate buckets in informal settlements in all provinces'.

It is worth mentioning that measuring access to the bucket toilet system has its own challenges, especially when using survey data. Literature shows that rural households use bucket toilets at night due to fear of going outside

when it is dark. Some of the pit latrines do not have adequate roofing or lighting, and most rural households would not use such toilets – especially at night or when it is raining. Household sanitation practice in terms of the extent to which households use the bucket system within their own homes for the collection and storage of night soil, the disposal of the contents and the storage of the containers is therefore important when dealing with buckets toilets. In an effort to differentiate between the actual use of the bucket toilet system and the practice of using the bucket toilet system only at night, the 'bucket toilet' option was improved in 2014 to include 'bucket toilet emptied by the municipality' and 'bucket toilet emptied by the household'. The results, however, show that most households actually used the bucket toilet system emptied by the municipality as opposed to the bucket toilet being emptied by the household, although it is not shown in this report. One of the problems that are associated with households who empty the contents of the bucket toilet is that the households empty the contents of the buckets at the closest and most convenient, but not necessarily the most hygienic or appropriate, place.

Figure 7.25: Bucket Eradication Grant – real allocations, annual percentage change and under-expenditure, 2013/14–2014/15



Source: SPII, 2016

The Bucket Eradication Grant is an allocation for the replacement of bucket toilets with full waterborne sanitation (flushing toilets) with a water and sewer connection to a reticulation network. In 2013/14, the Bucket Eradication Grant was established as a conditional sub-grant and as part of the Human Settlements Development Grant (HSDG) aimed at upgrading urban informal settlements in the eight metropolitan municipalities. To accelerate the eradication of bucket sanitation backlogs, conditions were added to the HSDG to require metropolitan municipalities to prioritise this commitment. If municipalities fail to make this a priority or are unable to implement projects, funds could be converted to an indirect grant for the national government to provide infrastructure on behalf of the municipality.

With only R202 million allocated in the year 2013/14, the grant allocation steeply increased by 346,2% in 2014/15, when R899 million was allocated for the eradication of bucket system. These figures are presented in Figure 7.25. However, implementation of the grant proved to be challenging, resulting in 68,7% under-expenditure. The under-expenditure is attributed to insufficient support for the programme by the targeted municipalities, cash flow challenges experienced by the implementing agents (due to a late transfer of funds by DHS), and severe hard rock and adverse geotechnical soil conditions that delayed the excavation process. Furthermore, challenges in implementation (as a result of which the high number of households in informal settlements continue to utilise the bucket system) recognised by the Portfolio Committee on Water and Sanitation were, amongst others, lack of capacity of municipalities (including to take in contractors), urban migration, availability of bulk infrastructure to service projects, and a decrease in funding that continue to put an extra burden on the delivery of services (SPII, 2016).

In order to reach the bucket eradication goals, including an estimated 140 000 households in informal settlements who are still utilising this system, the Portfolio Committee on Water and Sanitation called for an integrated governmental approach that would improve the working relationship of DWS with other government departments, such as the Department of Human Settlements, the Department of Rural Development and Land Reform, the Department of Cooperative Governance and Traditional Affairs, the Department of Education, and the National Treasury, with the aim to find workable solutions to these challenges (SPII, 2016).

The RHIG and the BEG are two grants aimed directly at improving the sanitation services in South Africa. However, as seen from the data provided above, both grants were faced with continuous under-spending of the budget, which prevents achievement of the objectives related to providing sanitation services to rural as well as to urban communities, including the relatively high number of users of bucket toilets in informal settlements (SPII, 2016).

Figure 7.26: Households using the bucket toilet system by province, 2015

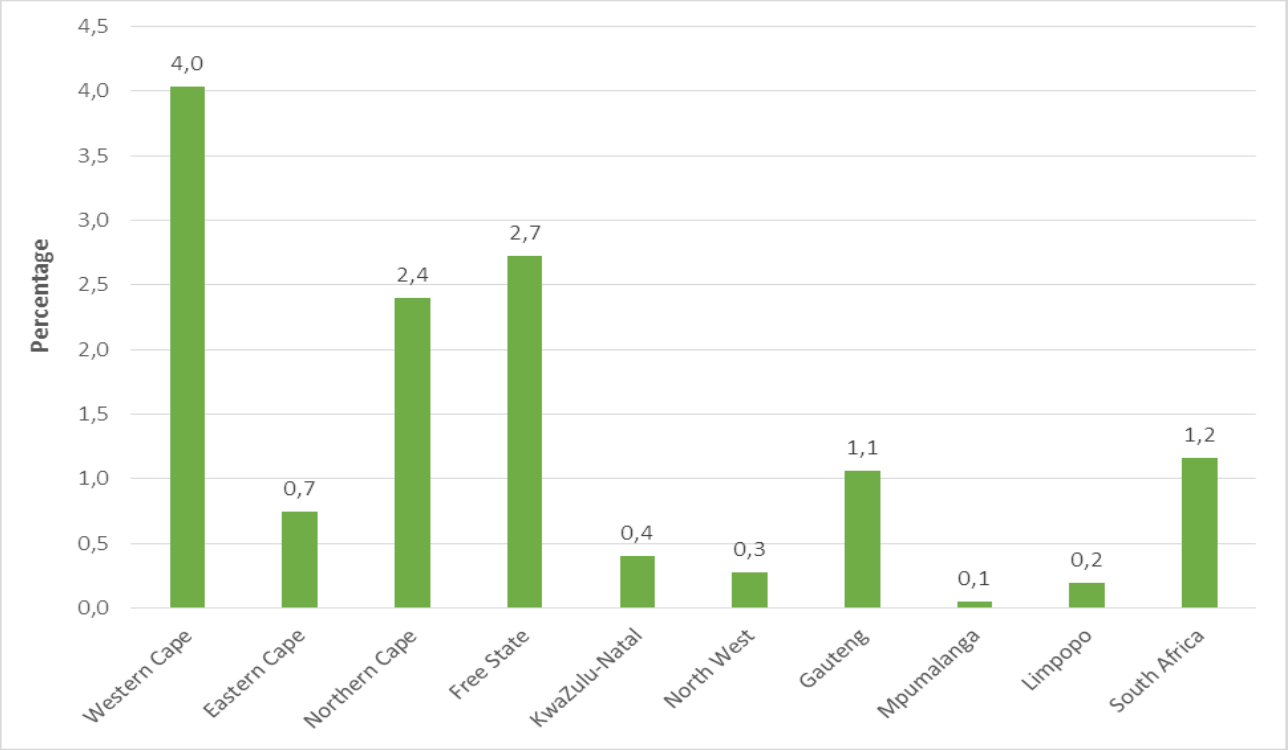
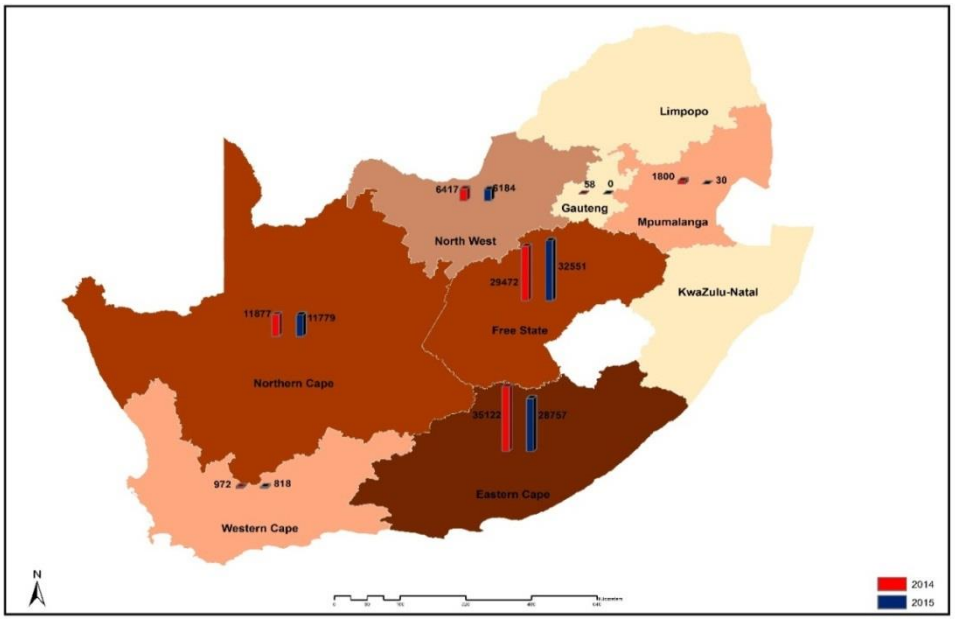


Figure 7.26 illustrates that there are still households who use the bucket toilet system in South Africa. According to the results, Western Cape (4%), recorded the highest percentage of households using the bucket toilet system, followed by Free State (2,7%) and Northern Cape (2,4%), while Mpumalanga (0,1%) reported the lowest number of households using the bucket toilet system, followed by Limpopo (0,2%) and North West (0,3%). In absolute numbers, 70 347, 49 011 and 23 731 of households in Western Cape, Gauteng and Free State respectively, reported using the bucket toilet system during 2015.

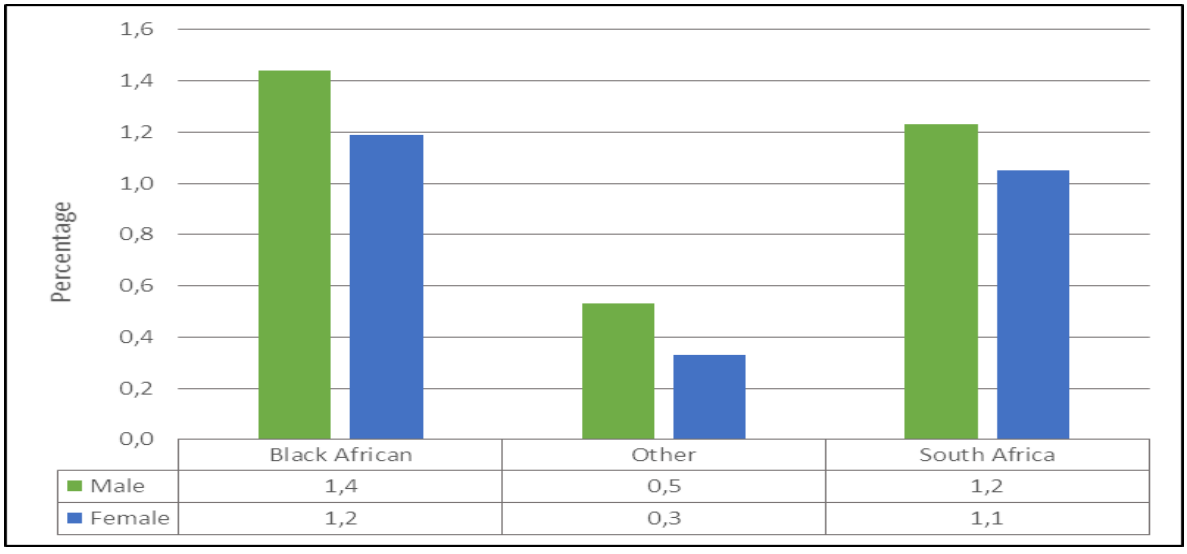
Map 7.2: Number of consumer units using the bucket toilet system provided by municipalities in each province, 2014 and 2015



Source: Non-financial census of municipalities for the year ended 30 June 2015

Over the period 2014 to 2015, Free State was the only province that showed an increase in the provision of the bucket toilet system. All other eight provinces showed a decrease in the provision of the bucket toilet system, with Gauteng reporting zero in 2015. This is presented in Map 7.2.

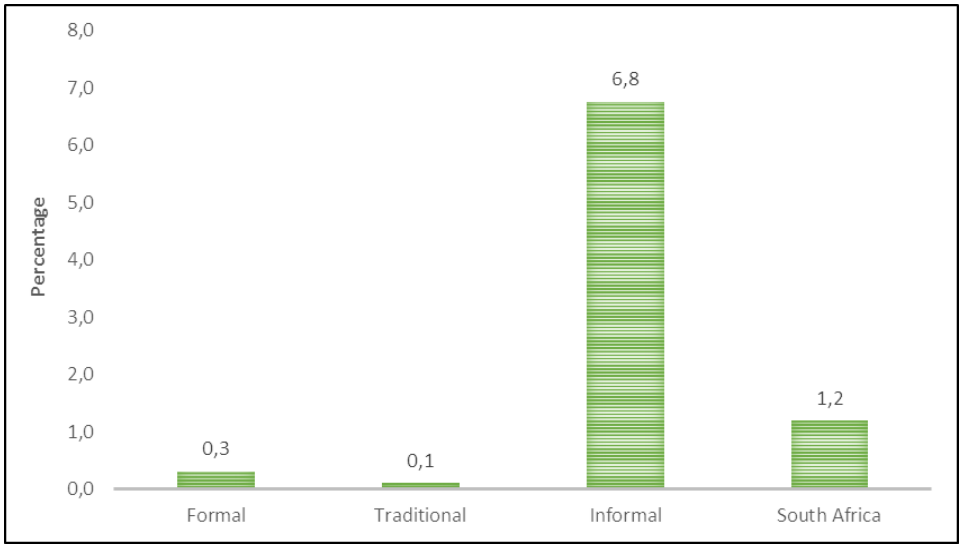
Figure 7.27: Households using the bucket toilet system by gender and population group of the household head, 2015



	Black African	Other	South Africa
Male	1,4	0,5	1,2
Female	1,2	0,3	1,1

As indicated in Figure 7.27, there is an insignificant difference between male- and female-headed households who reported using the bucket toilet system nationally (1,2% and 1,1%, respectively). More households headed by black Africans (both male and female) reported using the bucket toilet system than households headed by other population groups.

Figure 7.28: Households using the bucket toilet system by dwelling type, 2015



Even though nationally only 1,2% of households reported using the bucket toilet system, there is still a large proportion of households living in informal dwellings (6,8%) who reported using the bucket toilet system, but for households living in traditional and formal dwellings there is an insignificant difference in the percentage of these households who reported using bucket toilets (0,1% and 0,3%, respectively). This is presented in Figure 7.28. One of the aims of the DHS was to improve basic sanitation services, including the eradication of the bucket system in informal settlements. However, the challenge in this regard is the large number of migrants from rural to urban places who often take up residence in poor informal and often illegal settlements, which consequently results in an increase in the number of people using the bucket toilet system.

Figure 7.29: Households using the bucket toilet system by metropolitan area, 2015

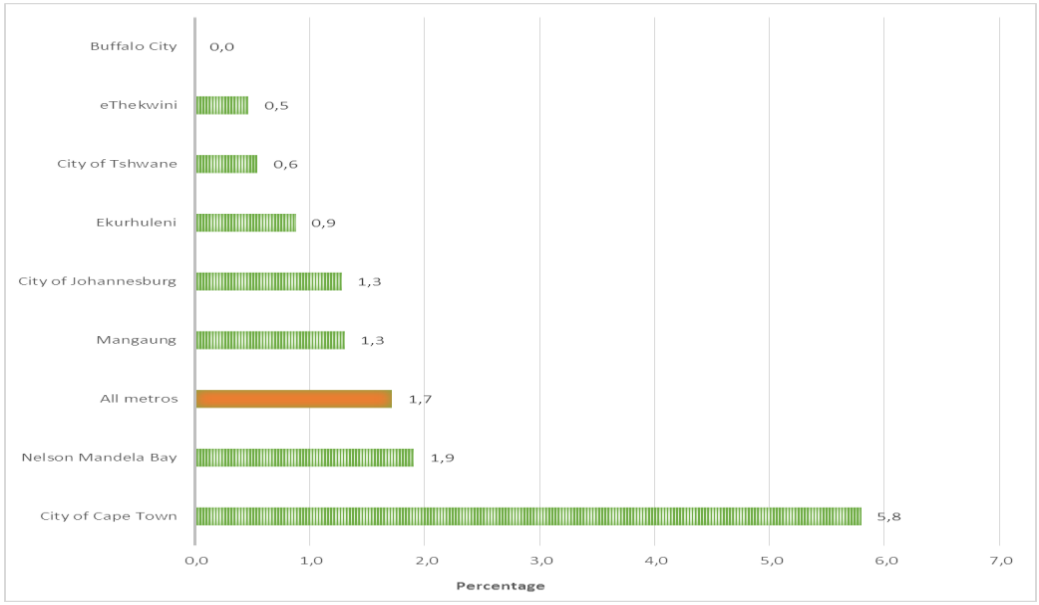
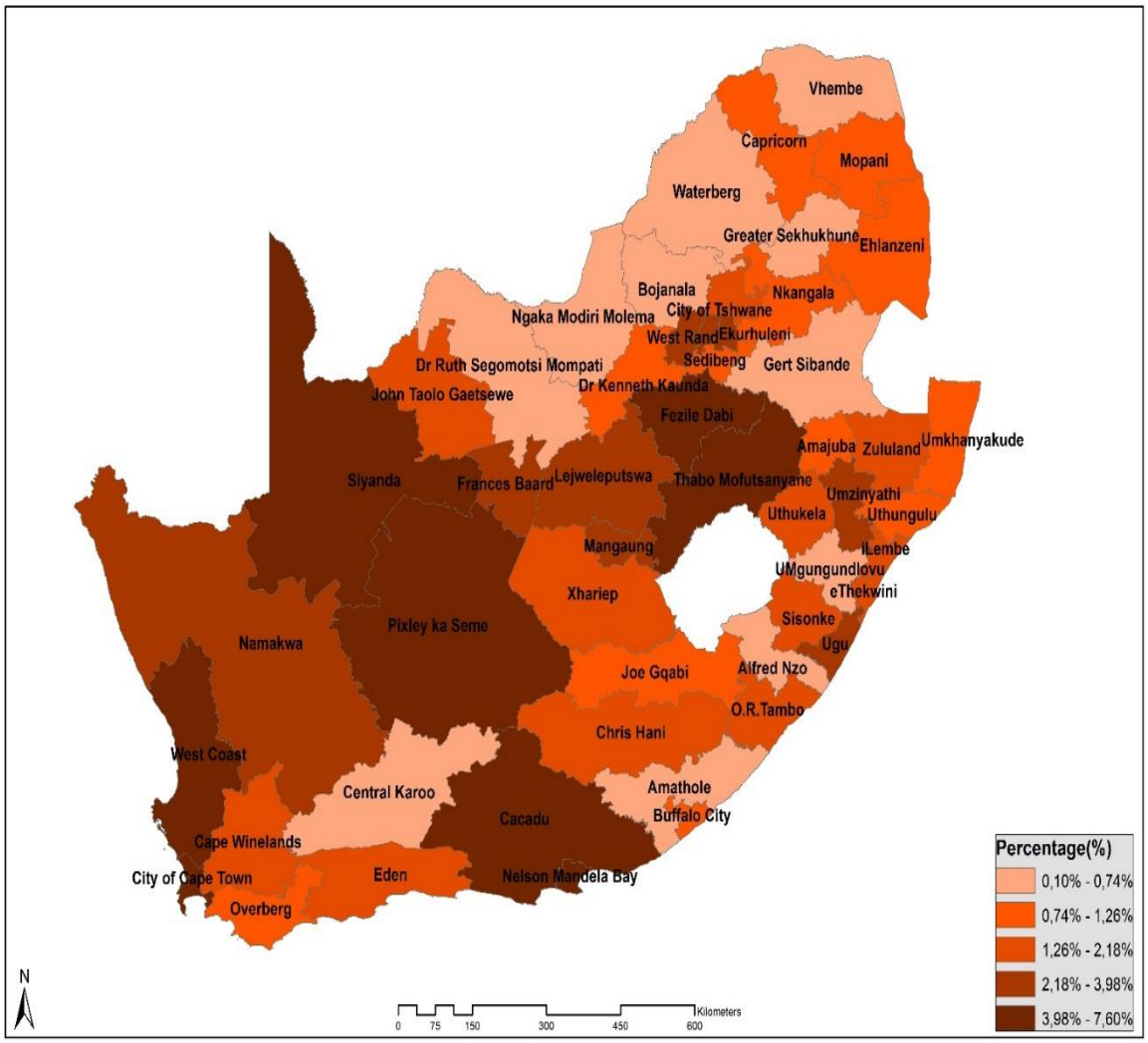


Figure 7.29 indicates that when comparing metros, the largest percentage of households still using the bucket toilet system resided in the City of Cape Town (5,8%) and Nelson Mandela Bay (1,9%). These percentages were higher than the average for all metros (1,7%).

Map 7.3: Households using the bucket toilet system by district council, CS 2016

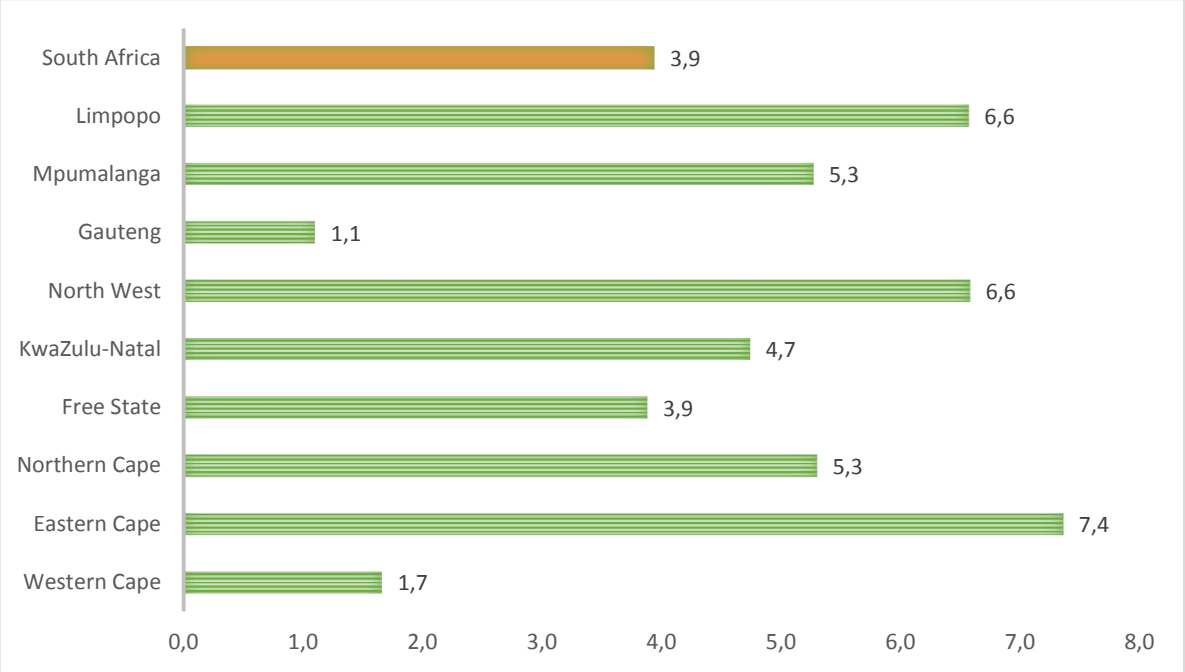


Source: Community Survey 2016

Map 7.3 shows that households in Nelson Mandela Bay (4,7%) and the City of Cape Town (4,5%) used the bucket toilet system. According to both CS 2016 and GHS 2015 data, households who lived in Buffalo City, eThekwini and the City of Tshwane were the least likely to use the bucket toilet system.

Even though the bucket eradication grant increased by 346% between the 2013/2014 and 2014/2015 financial years (as indicated by SPII, 2016), there were still some households using the bucket toilets system. The districts with the highest percentage of households using the bucket toilet system were Siyanda (7,6%), Cacadu (5,4%), Fezile Dabi (5,3%) and Pixley ka Seme (5,1%).

Figure 7.30: Households practising open defecation by province, 2015



For the purpose of this report, 'open defecation' refers to households with no toilet facility. Figure 7.30 indicates that, nationally, almost 4% of households practise open defecation. Eastern Cape (7,4%),North West (6,6%) and Limpopo(6,6%) were observed to be the provinces with the highest percentage of households that practises open defecation.

Figure 7.31: Households practising open defecation by dwelling type, 2015

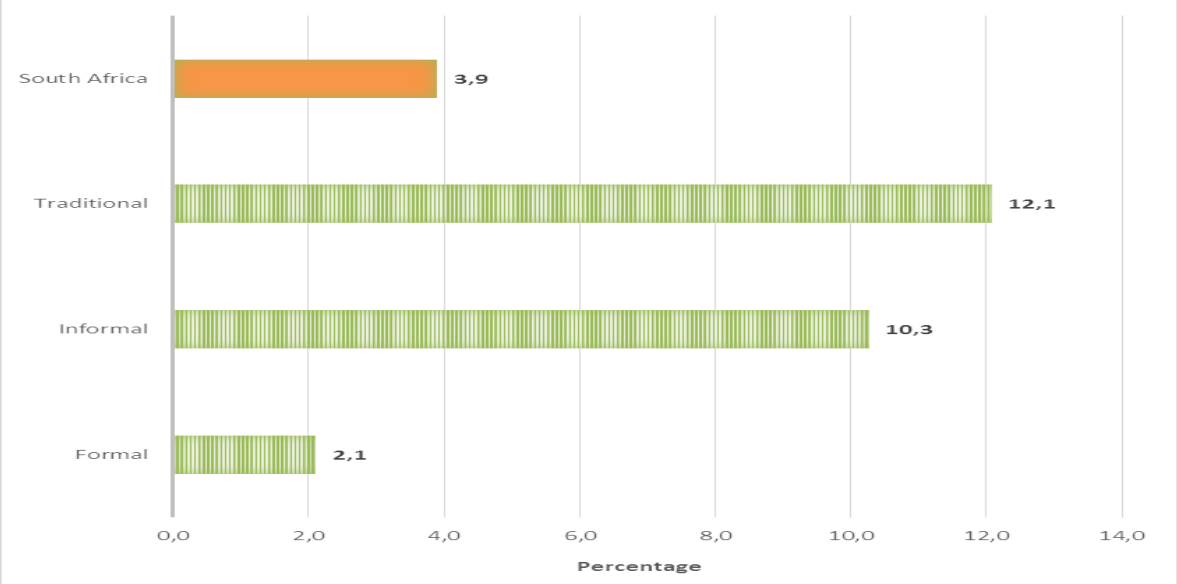


Figure 7.31 indicates that the number of households that practise open defecation were higher for households living in traditional dwellings (12,1%) and informal dwellings(10,3%) as compared to households living in formal dwellings (2,1%).

Figure 7.32: Households practising open defecation by rural/urban area, 2015

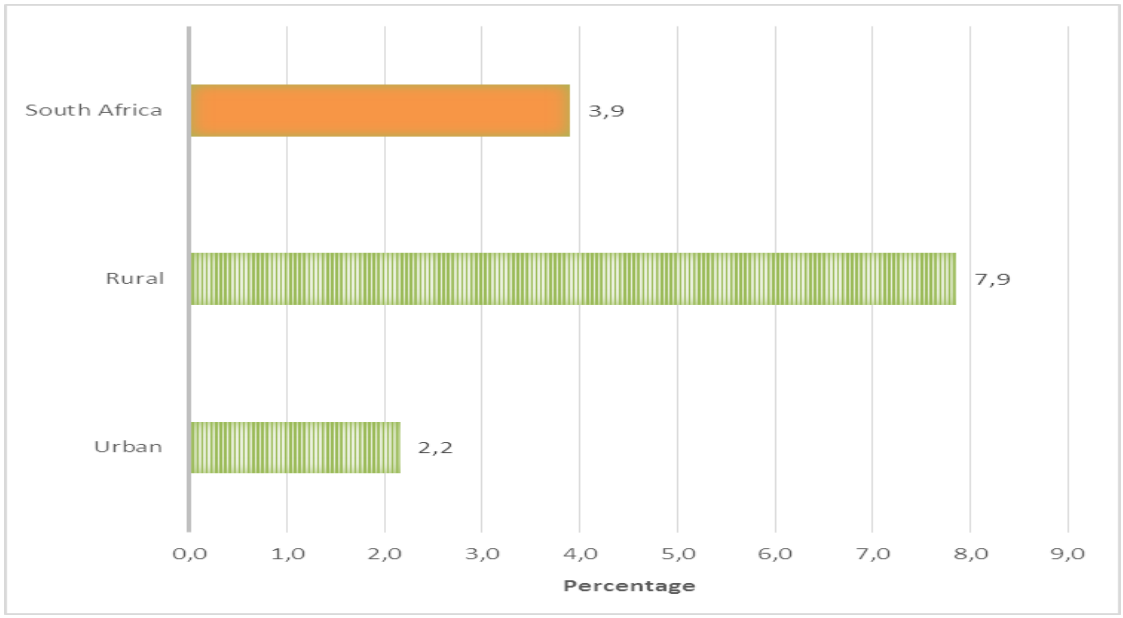


Figure 7.32 shows that eight per cent of rural households practise open defecation as compared to 2,2% of urban households .

Figure 7.33: Households practising open defecation by metropolitan area, 2015

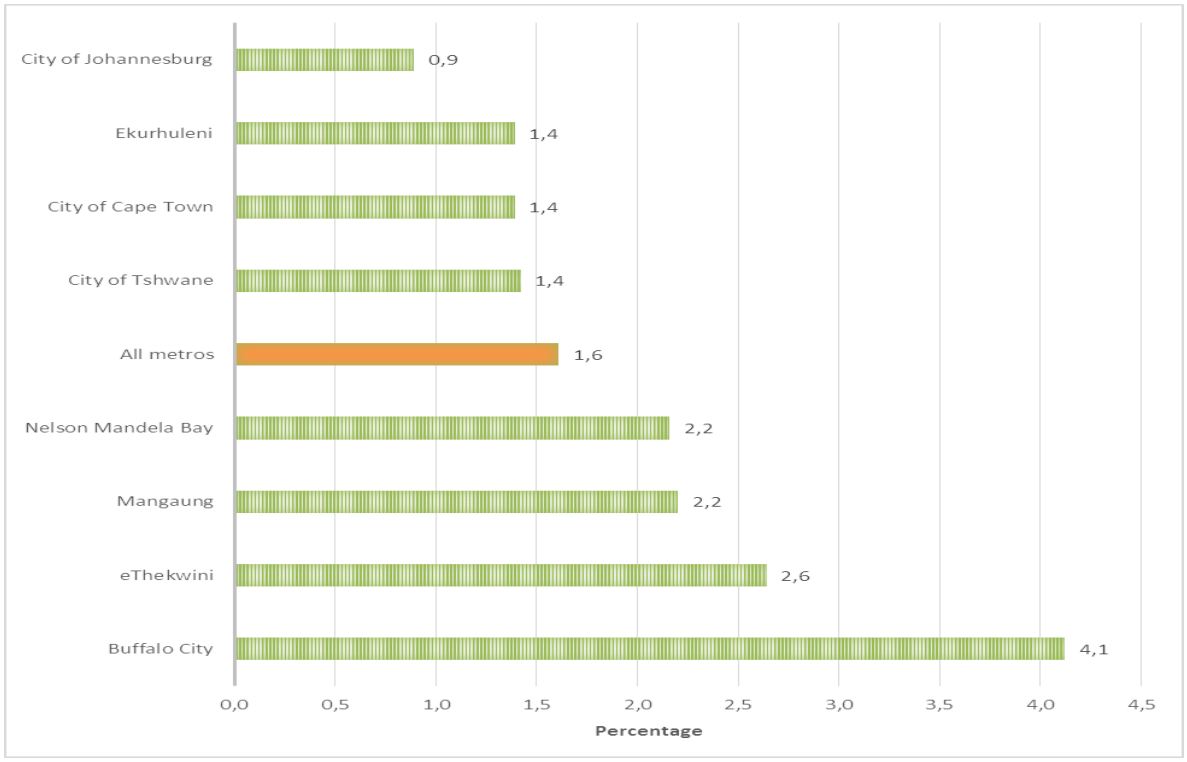
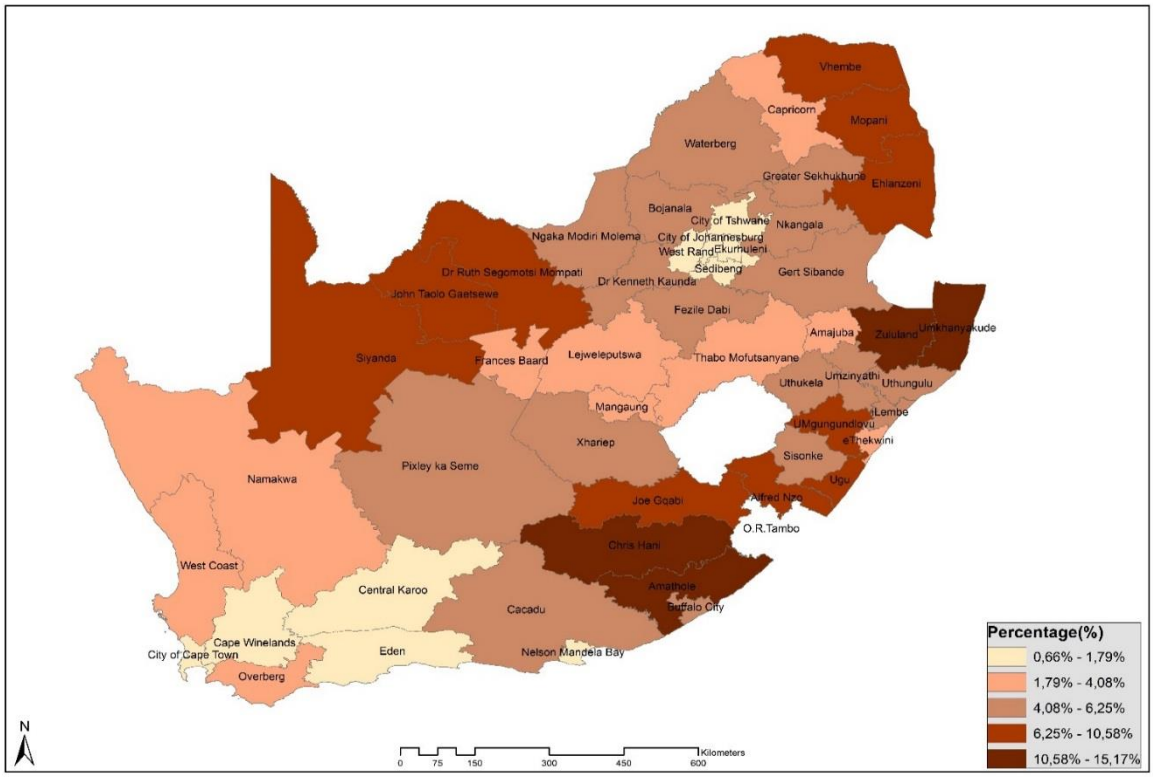


Figure 7.33 points out that households in Buffalo City (4,1%), eThekwini (2,6%), Mangaung (2,2%) and Nelson Mandela Bay (2,2%) practise open defecation and these percentages were more that metro average of 1,6%.

Map 7.4: Households practising open defecation by district council, CS 2016



Source: Community Survey 2016

Households in Amathole (15,2%), Chris Hani (14,9%), Zululand (14,7%), Umkhanyakude (13,5%) and John Taolo Gaetsewe (10,6%) practised open defecation, as indicated in Map 7.4.

8. Relationship between causes of death and key water and sanitation indicators at DC level

The importance of access to good water and sanitation facilities for positive health outcomes has been highlighted throughout the report. Even though Statistics South Africa does not collect comprehensive health data, there is an opportunity to compare outcomes of different data sets, such as for example the causes of death data and data sets that provide some insight into the water and sanitation situation in a specific geographical area.

The table below explores the correlation between key water and sanitation indicators and deaths due to diarrhoeal related underlying causes at District Council level (DC). Even though it was not possible to obtain causes of death data and key indicator data for water and sanitation at District Council level for the same year, one may assume that similar dynamics would be at work when considering the relationship between deaths at District Council level expressed as a percentage of the total population in the district council for that year and the percentage of households within a district council who had access to or not to specific water and sanitation related services.

The analysis indicate that there is a statistically significant, but weak positive correlation between the percentage of households experiencing municipal water interruptions and the practise of open defecation with the percentage of diarrhoeal related deaths. These correlations are statistically significant at a 94% confidence level.

A statistically significant and negative moderate correlation was also found between the use of improved toilet facilities and diarrhoeal related deaths. Thus districts with higher percentages of households with improved toilets, are statistically significantly less likely to have high percentages of deaths caused by diarrhoea.

Please note that correlation is not causation and that there may be other variables that also played a role in the specific outcomes found with this analysis. It should be further noted that in order to validate the comparability of the 2014 causes of death with the CS 2016, this analysis should be repeated once the 2016 causes of death data becomes available.

Table 8.1: Pearson Correlation coefficients of the relationship between diarrhoea related deaths and key water and sanitation indicators

Indicator	% of deaths due to Diarrhoea and gastroenteritis of presumed infectious origin (A09)		% of deaths due to gastrointestinal disorders (A01-A09)	
	Pearson correlation coefficients	Statistical significance P-Value	Pearson correlation coefficients	Statistical significance P-Value
Access to improved drinking water	-0,03816	0,7883	-0,03882	0,7847
Access to ground water	0,0228	0,8725	0,02353	0,8685
Households living more than 500 metres away from water source	0,08036	0,5712	0,0814	0,5662
Municipal water interruptions	0,44829	**0,0009**	0,44951	**0,0008**
Improved sanitation facilities	-0,48848	**0,0002**	-0,49055	**0,0002**
Bucket toilet facility	-0,1865	0,1856	-0,18765	0,1828
Open defecation toilet	0,346	**0,012**	0,34845	**0,0114**

P values in bold are statistically significant at a 99% confidence level

Sources: Causes of death 2014 and Community Survey 2016 summarised per DC

9. Summary and conclusion

Water and sanitation are essential to the health and well-being of human beings, and are necessary elements for economic development. Water is the source of life; the most precious and important of all natural resources, without which the human species cannot survive. The human right to water entitles everyone to sufficient, safe, physically accessible and affordable water for personal and domestic uses. Infectious diarrhoea and other serious waterborne illnesses are leading causes of infant mortality and malnutrition. Their impact extends beyond health to the economic realm in the form of lost workdays and school absenteeism.

Access to adequate sanitation is fundamental to personal dignity and security, social and psychological well-being, public health, poverty reduction, gender equality, economic development and environmental sustainability. This guide has outlined key legislation, policy, strategy and case law related to basic sanitation in South Africa, as well as the roles and responsibilities of different spheres of government.

Access to improved water sources

In line with the official indicators for the MDGs, an improved drinking water source is defined as one that by nature of its construction or through active intervention, is protected from outside contamination, in particular from contamination with faecal matter. Using the MDGs methodology, Western Cape (99,4%), Free State (99,3%), Northern Cape (99,1%) and Gauteng (98,6%) reported almost universal access to improved drinking water sources. Nationally, 92,5% of households had access to improved drinking water sources. Households living in formal dwellings in Eastern Cape (85,7%) reported the least percentages to access improved drinking water sources whilst Limpopo was observed to be the province with the largest percentage point increase of formal households with

access to improved drinking water sources (11 percentage points between 2002 and 2015). Universal access to improved drinking water sources in households living in RDP dwellings was reported in Northern Cape (100%), Free State (100%), Western Cape (99,8%) and Gauteng (99,6%). Eastern Cape showed a substantial improvement compared to all other provinces, as the percentage of black African households who had access to an improved water source increased from 55% to 78,7% between 2002 and 2015.

Access to improved drinking water sources was greater in households living in Mangaung (100%), whilst households in Buffalo City, eThekwini and the City of Tshwane had the lowest access to improved drinking water sources. Access to improved drinking water sources was greater in households in the wealthiest income quintile. The odds of households in Eastern Cape (3,227), KwaZulu-Natal (2,713), Gauteng (2,748), North West (1,317), Mpumalanga (1,567) and Limpopo (1,400) to access unimproved drinking water sources were greater than the odds of households in Western Cape. However, the difference was insignificant for the latter three provinces. The provincial data show fluctuations as far as urban and rural dwellings were concerned, with fewer variations and most odds being insignificant. The odds of households in rural and non-metro dwellings, and households living in traditional and informal dwellings were respectively 2,664, 3,549, 2,495 and 1,594 times more than the odds of households in urban and metro dwellings and households living in formal dwellings to access unimproved drinking water sources.

Distance to water source

Nationally, 15% of households lived more than 500 metres away from the water source. Provincial, gender and racial disparities exist as households in KwaZulu-Natal (28,2%) were most likely to reside more than 500 metres away from the water source, followed by households in Limpopo (16,3%). Female-headed households and black African-headed households consistently lived more than 500 metres away from the water source between 2008 and 2015 as compared to male-headed households and households headed by coloureds, Indians/Asians and whites. Households in Umkhanyakude (38,5%), Zululand (35,6 %) and O.R. Tambo (34,6%) reported that more than a third of their households resided more than 500 metres away from the drinking water source. Since 2008, when the question on distance was changed from minutes to metres, one-fifth of households in rural areas lived more than 500 metres away from the drinking water source.

Municipal water supplier, quality and payment

Nationally, the percentage of households with access to municipal water increased from 84% to 86% between 2009 and 2015. Gauteng (97,6%), Western Cape (94,6%) and Free State (93,1%) recorded the highest percentages of households with access to municipal water in 2015, while the provinces with the lowest percentages were Limpopo (67,7%), Eastern Cape (71,5%) and North West (75,3%). Nearly 80% of households in Nelson Mandela Bay and the City of Cape Town had access to piped water in the dwelling/house. The provinces with the lowest percentage of households who reported paying for municipal water were Limpopo (20,3%) and Mpumalanga (30,2%). The percentage of households who rated the quality of water as good between 2010 and 2015 has declined in all provinces except Gauteng and Western Cape. The largest percentage points increase of households who rated the quality of municipal water as good was recorded in Gauteng (5,3 percentage points), whilst the largest decline was observed in North West (14,6 percentage points).

Instability of water supply

Instability of water is measured as the percentage of households who received water from a municipality but who, over the 12 months before the survey, reported interruptions that lasted more than 2 days or who have experienced water interruptions for more than 15 days in total. The proportion of households who reported interruptions over the 12 months before the survey increased from 23,1% in 2009 to 25,4% in 2015, with a slight decline to 22,8% in 2011. The highest increase in the percentage of households with access to municipal water and who experienced water interruptions in the past twelve months were noted in Northern Cape (32,3 percentage points), North West (31,6

percentage points) and Mpumalanga (24,3 percentage points), whilst decreases were observed in Western Cape (2,4 percentage points) and Gauteng (3,2 percentage points).

The majority of households who reported water interruptions said that general maintenance was the main reason for the interruptions. However, a smaller percentage of households in Mpumalanga (54,3%) and Limpopo (69,9%) attributed water interruptions to general maintenance, since more than a third (38,6%) of households in the former province and more than a quarter (28,3%) of households in the latter province attributed interruptions to the fact that water is only delivered at fixed times.

The study found a statistically significant and moderate positive correlation between the number of interruptions and diarrhoea as an underlying cause of death at district council level.

Household perceptions of drinking water

Nationally, the perception of households who are drinking water before any treatment has improved since 2002. The highest improvement was noted for households who reported that the water was free from bad smells with 3,2 percentage points. Poor quality water is defined as when households perceive their drinking water as unsafe, unclear, not tasting good, having a bad smell and their having to treat it before use. For the first four years (2006–2009), Mpumalanga and Eastern Cape consistently reported higher figures for access to poor quality water. Between 2010 and 2011, Free State and Mpumalanga recorded high figures for access to poor quality water whilst in 2012, the higher percentages of Northern Cape superseded those of Free State. When comparing households with access to improved and unimproved water sources by poor quality water, the latter performed poorly. However, strides have been made since 2006 when 16,6% of households with access to unimproved drinking water sources accessed poor quality water. The percentage of households with access to poor quality water in rural areas has decreased from 4,8% in 2006 to 2,3% in 2015. Households living in traditional areas were the most unprivileged in terms of access to drinkable water. However, this scenario has since improved, as access to poor quality water declined from 8,2% in 2006 to 3,4% in 2015.

Water pollution

Water pollution has consistently been predominant in Eastern Cape, KwaZulu-Natal and Free State. Less than 10% of househods in the wealthiest quintile experienced water pollution. However, this number more than doubled for households in income quintile 1. Three-tenths of households living in traditional areas experienced water pollution as compared to 28% and 13% of households in informal and formal areas, respectively.

Access to improved sanitation

An improved sanitation facility is defined as one that hygienically separates human excreta from human contact. To allow for international comparability of estimates, the Joint Monitoring Programme (JMP) classifies flush or pour-flush connected to piped sewer system or septic tank, pit latrine ventilated or improved pit latrine (VIP) or pit latrine with slab composting toilet.

Between 2002 and 2015, the highest increase in the percentage of households with access to improved sanitation was observed in Eastern Cape. There is universal access to improved sanitation for households living in formal dwellings in Western Cape (99%) and Gauteng (98%). The lowest percentage of formal households with access to improved sanitation was reported in Limpopo (55%), Mpumalanga (68%) and North West (76%). Urban households in the two wealthiest provinces (Gauteng and Western Cape) had greater access to improved sanitation facilities than those living in the other seven provinces. Coloured-headed households had extensive access to improved sanitation facilities in 2015. Even though households headed by coloureds and Indians/Asians had almost universal access to improved sanitation, households headed by whites had an even greater access than these two population groups. Nationally, the percentage of female-headed households with access to improved sanitation facilities

increased from 53,2% in 2002 to 78,5% in 2015. Similarly, the percentage of male-headed households with access to improved sanitation increased from 68,5% in 2002 to 80,9% in 2015. Households in the wealthiest income quintile had greater access to improved sanitation facilities than households in the poorest income quintile. The metros with the highest percentage of households with access to improved sanitation facilities were the City of Johannesburg (96,9%), Nelson Mandela Bay (94,6%) and the City of Cape Town (91,8%).The metros with the lowest percentage of households with access to improved sanitation facilities were the City of Tshwane (82%) and eThekwini (83,5%).

The study found a statistically significant and moderate negative correlation between access to improved sanitation and diarrhoea as an underlying cause of death at district council level.

Distance to outside-yard toilet facility

During 2009, 88% households resided less than 200 metres away from the outside-yard toilet facility, whereas in 2015, this percentage increased to 94%. During the reference period, North West (11,5%) was the only province with the largest percentage of households who resided more than 500 metres away from the outside-yard toilet facility, followed by KwaZulu-Natal (5,3%).

Sharing of toilet facility

Urban households (30%) were more likely to share toilet facilities than rural households (16%). More than two-thirds (68%) of households living in informal dwellings shared toilet facilities as compared to nearly a fifth (19%) of households living in formal dwellings and 12% of households living in traditional dwellings. More than a third (35,1%) of households headed by black African males, nearly a quarter (23,2%) of households headed by female black Africans and 8% of households headed by coloureds, Indians/Asians and whites shared a toilet facility.

Bucket toilet system

Western Cape (4%) recorded the highest percentage of households using the bucket toilet system, followed by Free State (2,7%) and Northern Cape (2,4%). Even though nationally only 1,2% of households reported using the bucket toilet system, there is still a large proportion of households living in informal dwellings (6,8%) who reported using the bucket toilet system. For households living in traditional and formal dwellings, there was an insignificant difference in the percentage of households who reported using the bucket toilet system (0,1% and 0,3%, respectively). Both CS 2016 and GHS 2015 data indicate that households who lived in Buffalo City, eThekwini and City of Tshwane recorded the lowest percentages to use the bucket toilet system.

Practice of open defecation

Nationally, 4% of households still practise open defecation. The percentages were even higher for traditional households (12,1%) and informal households (10,3%). Households in Buffalo City were more likely to practise open defecation than households in other metros. A statistically significant correlation was found between open defecation and diarrhoeal diseases as underlying causes of deaths at District Council level.

Annexure 1: District council data, Community Survey 2016

District council	Access to improved drinking water source	Access to ground water	Households living more than 500 metres away from the drinking water source	Municipal water interruptions	Improved sanitation facilities	Bucket toilet facility	Open defecation
Alfred Nzo	53,7	46,1	27,4	31,4	72,1	0,5	8,2
Amajuba	97,9	1,7	7,9	10,3	72,3	0,9	3,6
Amathole	85,9	13,7	25,0	19,4	58,7	0,6	15,2
Bojanala	97,6	0,3	10,0	28,0	56,1	0,7	4,8
Buffalo City	99,7	0,2	8,0	5,6	86,8	1,2	4,6
Cacadu	98,2	0,9	6,6	7,6	83,9	5,4	5,5
Cape Winelands	99,3	0,5	11,7	1,9	96,0	1,4	1,6
Capricorn	98,2	0,5	10,7	27,6	53,1	0,9	4,0
Central Karoo	97,5	0,3	16,6	0,8	97,3	0,7	1,7
Chris Hani	88,8	10,5	18,7	19,1	62,9	1,5	14,9
City of Cape Town	99,9	0,0	1,7	4,9	92,8	4,5	1,1
City of Johannesburg	99,9	0,0	1,8	3,4	93,6	3,0	0,7
City of Tshwane	99,5	0,2	5,0	4,5	81,3	1,4	0,9
Dr Kenneth Kaunda	99,1	0,1	6,1	6,6	91,3	0,8	4,9
Dr Ruth Segomotsi Mompati	99,4	0,2	13,0	14,1	79,1	0,5	7,1
Eden	98,8	0,6	9,9	12,9	94,6	1,6	1,8
Ehlanzeni	95,6	3,2	20,1	17,7	42,6	0,8	7,1
Ekurhuleni	99,7	0,0	3,7	3,0	86,7	3,8	1,8
eThekwini	99,7	0,1	6,7	8,1	77,3	2,2	2,8
Fezile Dabi	99,7	0,1	4,9	10,0	84,1	5,3	4,4
Frances Baard	99,4	0,3	7,4	8,7	86,2	4,0	3,7
Gert Sibande	96,1	3,3	13,0	7,5	80,8	0,7	6,1
Greater Sekhukhune	85,3	12,2	19,8	41,3	30,5	0,7	6,3
iLembe	85,2	14,2	20,7	21,1	45,1	1,4	5,0
Joe Gqabi	82,0	17,8	18,0	28,9	63,6	1,3	8,0
John Taolo Gaetsewe	98,2	0,8	10,9	17,5	57,5	1,7	10,6
Lejweleputswa	98,8	0,1	3,9	5,5	85,0	3,7	4,1
Mangaung	99,8	0,0	1,1	2,6	78,9	3,0	3,4
Mopani	91,9	5,6	23,4	30,4	60,3	1,2	7,8
Namakwa	98,9	0,4	28,5	3,8	88,2	2,9	3,7
Nelson Mandela Bay	99,5	0,1	7,1	3,9	93,3	4,7	1,4
Ngaka Modiri Molema	98,4	0,3	10,1	27,6	53,2	0,4	6,1
Nkangala	98,1	0,5	7,0	15,0	64,8	1,1	5,0
O.R. Tambo	51,1	48,7	34,6	29,6	61,3	1,4	8,9
Overberg	98,6	0,3	6,9	3,6	95,5	1,1	3,1
Pixley ka Seme	98,6	1,2	9,5	5,0	84,4	5,1	5,8
Sedibeng	99,9	0,0	2,2	2,5	92,1	1,3	1,5
Sisonke	76,7	23,1	21,7	31,3	49,2	2,1	4,9
Siyanda	96,7	1,5	4,9	5,4	78,3	7,6	9,5
Thabo Mofutsanyane	98,6	0,9	6,2	49,4	68,0	4,8	2,8
Ugu	92,6	7,2	15,6	14,1	59,9	3,2	9,4
UMgungundlovu	95,8	3,7	8,8	8,6	66,8	0,6	7,1
Umkhanyakude	78,4	20,2	38,5	46,2	47,0	1,0	13,5
Umzinyathi	81,8	17,5	27,1	31,6	64,6	2,5	5,6
Uthukela	90,9	8,9	13,0	25,2	59,3	1,8	6,2
Uthungulu	93,9	5,9	19,4	18,4	57,1	0,8	4,7
Vhembe	93,8	4,9	22,6	33,9	51,3	0,1	8,0
Waterberg	97,2	0,6	9,9	19,0	64,1	0,4	4,7
West Coast	98,7	0,4	6,4	2,2	92,6	4,5	2,6
West Rand	99,6	0,1	1,4	5,1	87,8	3,5	1,6
Xhariep	99,6	0,0	2,3	11,0	89,0	1,9	4,4
Zululand	75,1	23,9	35,6	28,1	48,8	1,7	13,7

Annexure 2: Underlying causes of deaths by District Council (Causes of deaths, 2014)

District council	Number of deaths due to Diarrhoea and gastro-enteritis of presumed infectious origin (A09)	% of deaths due to Diarrhoea and gastro-enteritis of presumed infectious origin (A09)	Number of deaths due to gastro-intestinal disorders (A01-A09)	% of deaths due to gastro-intestinal disorders (A01-A09)	% of the population who died due to Diarrhoea and gastro-enteritis of presumed infectious origin (A09)*	% of the population who died due to gastro-intestinal disorders (A01-A09)*
Alfred Nzo	135	1,0	135	1,0	0,0	0,0
Amajuba	112	0,9	113	0,9	0,0	0,0
Amathole	307	2,4	307	2,4	0,0	0,0
Bojanala	444	3,4	444	3,4	0,0	0,0
Buffalo City	117	0,9	123	0,9	0,0	0,0
Cacadu	47	0,4	48	0,4	0,0	0,0
Cape Winelands	72	0,6	72	0,6	0,0	0,0
Capricorn	642	5,0	643	4,9	0,1	0,1
Central Karoo	9	0,1	9	0,1	0,0	0,0
Chris Hani	287	2,2	292	2,2	0,0	0,0
City of Cape Town	251	1,9	264	2,0	0,0	0,0
City of Johannesburg	454	3,5	465	3,6	0,0	0,0
City of Tshwane	535	4,1	543	4,2	0,0	0,0
Dr Kenneth Kaunda	238	1,8	241	1,9	0,0	0,0
Dr Ruth Segomotsi Mompati	325	2,5	325	2,5	0,1	0,1
Eden	58	0,4	58	0,4	0,0	0,0
Ehlanzeni	603	4,7	606	4,7	0,0	0,0
Ekurhuleni	583	4,5	584	4,5	0,0	0,0
eThekwini	360	2,8	363	2,8	0,0	0,0
Fezile Dabi	194	1,5	195	1,5	0,0	0,0
Frances Baard	97	0,8	97	0,7	0,0	0,0
Gert Sibande	506	3,9	507	3,9	0,0	0,0
Greater Sekhukhune	750	5,8	753	5,8	0,1	0,1
iLembe	201	1,6	202	1,6	0,0	0,0
Joe Gqabi	95	0,7	95	0,7	0,0	0,0
John Taolo Gaetsewe	164	1,3	164	1,3	0,1	0,1
Lejweleputswa	345	2,7	345	2,7	0,1	0,1

District council	Number of deaths due to Diarrhoea and gastro-enteritis of presumed infectious origin (A09)	% of deaths due to Diarrhoea and gastro-enteritis of presumed infectious origin (A09)	Number of deaths due to gastro-intestinal disorders (A01-A09)	% of deaths due to gastro-intestinal disorders (A01-A09)	% of the population who died due to Diarrhoea and gastro-enteritis of presumed infectious origin (A09)*	% of the population who died due to gastro-intestinal disorders (A01-A09)*
Mangaung	162	1,3	165	1,3	0,0	0,0
Mopani	505	3,9	508	3,9	0,016	0,016
Namakwa	17	0,1	17	0,1	0,021	0,021
Nelson Mandela Bay	109	0,8	111	0,9	0,032	0,032
Ngaka Modiri Molema	399	3,1	400	3,1	0,028	0,028
Nkangala	341	2,6	343	2,6	0,014	0,015
O.R. Tambo	394	3,1	398	3,1	0,010	0,010
Overberg	20	0,2	20	0,2	0,009	0,009
Pixley ka Seme	65	0,5	65	0,5	0,050	0,050
Sedibeng	335	2,6	336	2,6	0,012	0,012
Sisonke	174	1,3	174	1,3	0,036	0,037
Siyanda	75	0,6	75	0,6	0,006	0,007
Thabo Mofutsanyane	435	3,4	436	3,4	0,010	0,010
Ugu	217	1,7	220	1,7	0,017	0,017
UMgungundlovu	342	2,6	344	2,6	0,033	0,034
Umkhanyakude	128	1,0	130	1,0	0,069	0,069
Umzinyathi	197	1,5	198	1,5	0,010	0,010
Uthukela	434	3,4	435	3,3	0,036	0,036
Uthungulu	225	1,7	228	1,8	0,017	0,017
Vhembe	367	2,8	371	2,9	0,010	0,010
Waterberg	287	2,2	287	2,2	0,039	0,040
West Coast	30	0,2	30	0,2	0,026	0,026
West Rand	207	1,6	208	1,6	0,045	0,046
Xhariep	78	0,6	78	0,6	0,065	0,065
Zululand	285	2,2	287	2,2	0,031	0,031
Foreign	7	0,1	7	0,1	-	-
Unspecified location	605	4,7	607	4,7	-	-
Total	12910	100,0	13005	100,0	-	-

* The DM population estimates using the model 2016 was used as the divisor to calculate these percentages

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