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| Water doesn’t come from a tap, not even a dam. | 1. Abstract   The availability of freshwater is one of the major limiting factors to South Africa’s development. We are a water-scarce country with rainfall distributed unevenly in our landscape, inconveniently away from the centers of mining and industry, and tied to seasonal cycles that drive us repeatedly from feast to famine, between floods and droughts.  Adapted from http://awsassets.wwf.org.za/downloads/wwf\_sa\_watersource\_area10\_lo.pdf |

CONTENTS

INTRODUCTION

Our ingenuity as a nation has focused on overcoming these limitations – bringing water to where we need it, storing it for when we need it, and enabling us to build our economy. The 1930s and then the 1970s and 80s saw a massive investment in dams and inter-basin transfer schemes to meet the needs of our growing economy.

A massive and expensive network of engineered infrastructure supplies the drier parts of the country. Gauteng, North West province and Limpopo, and major urban centres such as Durban, Port Elizabeth and Cape Town are supplied via dams, transfers and pumping schemes.

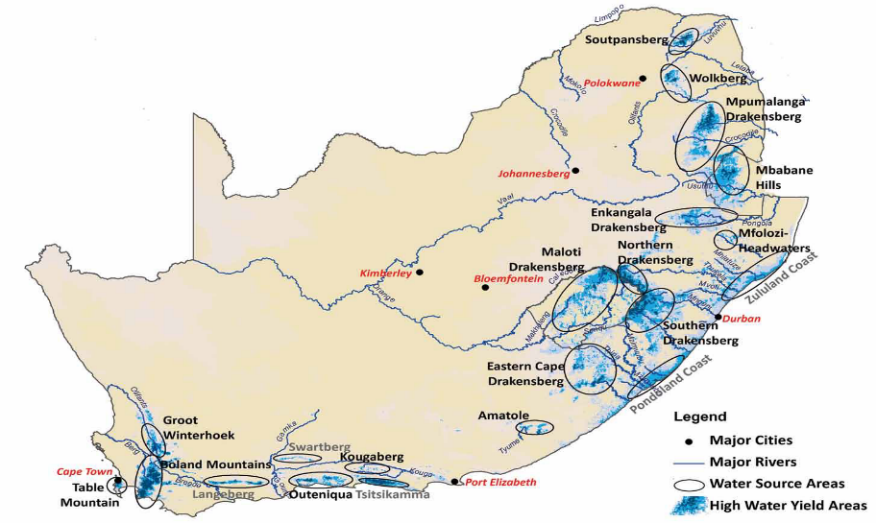
The cost to upgrade and maintain this engineered infrastructure is estimated at R680 billion over the next decade.

However, water doesn’t just come from a dam, a pipe or a tap. Our modern water cycle is comprised of both engineered infrastructure and ecological infrastructure. The built (engineered) part of our water system is dependent on the healthy functioning of the natural (ecological) part of the system.

The last century has seen a focus on the engineered system, the part that we can design and control. Our water security in this century will depend on our ability to plan our development in a way that is compatible with ecological infrastructure and limits the impacts that diminish nature’s ability to provide us with water.

We need to acknowledge the limitations of our natural water resources and prioritise their use and protection if we are to grow a sustainable economy that meets the needs and aspirations of all South Africans.

SOUTH AFRICA'S WATER SOURCE AREAS



Map 1

Rainfall in South Africa is very uneven and seasonal. This means that some parts of South Africa’s landscape are more critical in providing us with water. Our water law accepts that some areas need more protection than others. So if we want to protect the vital organs of our living water landscape, where should we focus our efforts?

WWF South Africa conducted research with the Council for Scientific and Industrial Research (CSIR) to assess where most of our water comes from. By modelling information about rainfall and river run-off, the research revealed that only 8% of our land area produces 50% of our surface run-off. We wanted to know where these areas occur, what are the threats to water security in these areas and how can we protect them for future generations.

Water source areas (WSAs) provide a disproportionate amount of run-off to the rest of the catchment. South Africa’s water source areas are generally found in the highest parts of the landscape that receive the most rainfall. Downstream users and ecosystems are dependent on the healthy functioning of these areas to sustain good quality water supplies.

South Africa’s WSAs can be grouped into 21 areas, listed in table 1. The dominant land cover is natural vegetation cover (63%), often because slope and altitude have prevented more intense development. Fifteen per cent of the area is cultivated and 13% is under plantation. Three per cent is degraded land, mainly in the Eastern Cape.

Less than 1% of water source areas are currently mined; however, 70% of the areas in Mpumalanga are under either a prospecting or mining license and this is cause for particular concern. The overlap of coal deposits and water source areas is also less than 1% of all WSAs, but it is significant in the Enkangala Drakensberg and the Mfolozi headwaters.

Only 16% of the WSAs are formally protected as nature reserves or parks. The highest protection is found in the Western Cape with the Kougaberg, Swartberg and Grootwinterhoek areas having more than 70% formal protection. Water source areas in the Eastern Cape and Maloti Drakensberg, the Enkangala Drakensberg, the Mfolozi headwaters and the Soutpansberg have very low or no protection.

South Africa’s WSAs can be further divided into those of local importance and those of national importance. Five WSAs are of local importance, but have limited downstream dependents and impact. These are mainly on the coast in the Western Cape and KZN.

The 16 nationally important WSAs form the headwaters of major river systems which supply significant downstream areas and/or the economy, including inter-basin transfers. These are South Africa’s strategic WSAs. Disrupting water supply from these 16 strategic WSAs would effectively turn off the taps to our economy and seriously impact our food and water security.

**Water Source Area Table**

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| **Water Source Area** | **Main Rivers** | **Threats** |
| Grootwinterhoek | Olifants River; Klein Berg; Doring | land degradation; climate change; alien invasive vegetation; fires |
| Table Mountain\* | Hout; Diep | climate change; alien invasive vegetation; fires |
| Boland  Mountains\* | Berg; Breede; Riviersonderend | large-scale plantations; land degradation; climate change; alien invasive vegetation; fires |
| Langeberg | Doring; Duiwenhoks; Naroo; Gouritz; Breede | climate change; alien invasive vegetation; fires |
| Swartberg | Gamka; Sand; Dorps; Gouritz; Olifants | climate change; alien invasive vegetation; fires |
| Outeniqua\* | Groot Brak; Olifants | large-scale plantations; alien invasive vegetation; fires |
| Kougaberg\* | Kouga; Baviaanskloof; Olifants; Gamtoos; Gouritz | climate change; alien invasive vegetation; fires |
| Tsitsikamma | Groot Storms; Klip; Tsitsikamma | large-scale plantations; land degradation; alien invasive vegetation |
| Amatole\* | Great Kei; Keiskamma; Great Fish; Tyume; Amatele | land degradation; fires; alien invasive vegetation |
| Eastern Cape  Drakensberg\* | Mzimvubu; Orange; Bokspruit; Thina; Klein Mooi; Mthatha | land degradation; fires; climate change |
| Pondoland  Coast | Mzimvubu; Mngazi; Mntafufu; Msikaba | large-scale cultivation and plantations; coal mining; land degradation |
| Maloti Drakensberg\* | Caledon; Orange; Senqu | large-scale cultivation; land degradation |
| Northern  Drakensberg\* | Senqu; Caledon; Thukela; Orange; Vaal | coal mining; land degradation |
| Southern  Drakensberg\* | uMngeni; Mooi; Thugela; Mkomasi; uMzimkulu | large-scale plantations; land degradation |
| Mfolozi  Headwaters\* | Lenjane; Black Mfolozi; Pongola | large-scale plantations and cultivation; coal mining; land degradation |
| Zululand Coast | Mvoti; Thukela; Mhlatuze | large-scale cultivation; coal mining; land degradation |
| Enkangala  Drakensberg\* | Pongola; Bivane; Assegaai; Vaal; Thukela; Wilge | coal mining; large-scale plantations; land degradation |
| Mbabane Hills\* | Usutu; Lusushwana; Mpuluzi; Inkomati; Pongola | large-scale plantations; land degradation |
| Mpumalanga  Drakensberg\* | Elands; Sabie; Crocodile; Olifants | large-scale plantations; coal mining; land degradation |
| Wolkberg\* | Middle Letaba; Ngwabitsi; Oliphants | large-scale plantations; land degradation; climate change |
| Soutpansberg\* | Luvuvhu; Little Letaba; Mutale; Mutamba; Nzhelele | large-scale plantations and cultivation; land degradation |

Table

WESTERN CAPE WATER SOURCE AREAS

The high rainfall Boland and Grootwinterhoek mountains are the engines of the water cycle in the Western Cape. These headwater areas supply the Breede, Berg, Olifants and Doring rivers that drive the agricultural and urban economies of the province. The Mother City owes its location to the freshwater flowing from Table Mountain's streams and springs.

# GROOTWINTERHOEK

Interesting facts:

* The Grootwinterhoek and Cederberg mountains are a critical water source area and a biodiversity hotspot, and 70% of this area is protected.
* The free-flowing Doring River flows from here. It is the longest (200 km) free-flowing river in the Western Cape.
* Some of the country’s greatest San rock art is found here, as is the beautiful Cape mountain leopard. The rivers here are home to a variety of freshwater fish in South Africa.

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| Province: Western Cape |
| Level of protection: 72% |
| Main rivers: Olifants; Klein; Berg; Doring  Interbasin Transfer Systems: Olifants to Breede  Dams: Misverstand; Clanwilliam; Voelvlei; Buishoek  Ramsar Site(s): Langebaan and Verlorenvlei downstream  Protected areas: Grootwinterhoek Wilderness Area; Cederberg Wilderness Area  Threats: land degradation; climate change; alien invasive vegetation; fires |

# BOLAND MOUNTAINS

Interesting facts:

* The Breede River is the largest river in the Western Cape and is a key resource for many economic activities in the region.
* The Boland Mountains are the main water source area for the City of Cape Town and surrounds.
* This area is also South Africa’s frog hotspot with the most frog species, including mossy, marsh and the micro frog, which is only 1 cm long.

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| --- |
| Province: Western Cape |
| Level of protection: 58% |
| Main rivers: Berg; Breede, Riviersonderend  Interbasin Transfer Systems: Riviersonderend to Berg Basin; Olifants to Breede  Dams: Bot River Vlei; Elandskloof; Wemmershoek; Stettynskloof; Kogelberg; Fortuin; Jonkershoek; Berg River Dam; Theewaterskloof; Steenbras; Voelvlei  Ramsar Site(s): None  Protected areas: Jonkershoek Nature Reserve, Hottentots Holland Nature Reserve  Threats: large-scale plantations; land degradation; climate change, alien invasive vegetation; fires |

EASTERN CAPE WATER SOURCE AREAS

Bordering Lesotho, one of the great ‘water factories’ of southern Africa, the Eastern Cape contains many of our wild and free-flowing rivers. The source areas in the Amatole mountains and the edge of the Drakensberg supply important rivers such as the Mzimvubu, the Great Kei and the Great Fish, and the coastal Pondoland source area is part of a humid, coastal biodiversity hotspot.

Image

# TSITSIKAMMA

Did you know?

* Tsitsikamma is a Khoi word meaning “place of abundant water”.
* Half the rivers have no natural fish species but dozens of ancient insect species.
* This area is an important tourist attraction and also home to Africa’s oldest marine protected area – the Tsitsikamma MPA.

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| Province: Western Cape/Eastern Cape |
| Level of protection: 41% |
| Main rivers: Groot Storms; Kilp; Tsitsikamma  Interbasin Transfer Systems: Sundays to Swartkops Basin  Dams: Krom River  Ramsar Site(s): None  Protected areas: Garden Route National Park, Formosa Provincial Nature Reserve  Threats: large-scale plantation; land degradation; alien invasive vegetation |

MPUMALANGA WATER SOURCE AREAS

The source areas here snake around the escarpment and through Swaziland supplying the Pongola, Thukela and Olifants rivers. These rivers are critical to the industrial heart of our economy, and yet still are threatened by massive expansion by massive expansion of coal mining in this province.

Image

# MPUMALANGA DRAKENSBERG

Interesting facts:

* This headwater supplies freshwater to the Olifants catchment which is already impacted by acid mine drainage.
* Approximately 6000 old mines in South Africa have been abandoned and some now leak AMD into nearby rivers. Coal and gold mines cause AMD.
* Coal is a double whammy: it pollutes water at the mine and causes climate change with the release of carbon.

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| Province: Mpumalanga |
| Level of protection: 9% |
| Main rivers: Elands; Sabie; Crocodile; Olifants  Interbasin Transfer Systems: Usutu to Olifants Basin; Komati to Olifants Basin  Dams: Kwena; Da Gama; Vygeboom; Witklip; Klipkopjes; Blyderivierspoort; Inyaka; Ohrigstad; Buffelskloof; Klaserie  Ramsar Site(s): Verloren Vallei Nature Reserve  Protected areas: Kruger National Park downstream  Threats: large-scale plantations; coal mining; land degradation |

LIMPOPO WATER SOURCE AREAS

The strategic water source areas on the high Soutpansberg and Wolksberg have always held the local people in awe as they provide water to this dry province. Rivers, such as the Luvuvhu, Letaba and Oliphants start here and support communities, tourism in the Kruger National Park and then flow into the mighty Limpopo river basin and on into Mozambique.

Image

# WOLKBERG

Interesting facts:

* The Letaba River flows through Kruger National Park, a key tourist attraction, and into Mozambique. It is home to hippos, crocodiles and other freshwater life.
* The east-west flowing rivers of the low-veld were part of ancient migration routes for herds of elephants, buffalo and wildebeest across southern Africa.
* The Letaba and Olifants rivers eventually flow into the Limpopo, the second longest river in South Africa.

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| Province: Limpopo |
| Level of protection: 22% |
| Main rivers: Middle Letaba; Ngwabitsi; Olifants  Interbasin Transfer Systems: Letaba to Sand; Olifants to Sand Basin  Dams: Tzaneen; Ebenezer; Magoebaskloof, Cramer; Middle Letaba; Phalaborwa Barrage  Ramsar Site(s): None  Protected areas: Wolkberg (Serals) Wilderness Area; Legalameetse Nature Reserve; Bewaarkloof Nature Reserve; Wolkberg Caves Nature Reserve  Threats: large-scale plantations; land degradation; climate change |

PROTECTING SOUTH AFRICA'S WATER SOURCE AREAS

Three quarters of South Africans can turn on a tap and receive good quality drinking water. Because our needs for water are met, we tend to not think about where our water has come from and the journey it has taken to reach us.

Most Cape Town residents don’t realise that their water is a blend of Table Mountain springs, Boland Mountain Rivers and water from the Breede valley. Similarly, most residents in Gauteng are not aware that they receive water that has been pumped uphill from the catchments in Mpumalanga Drakensberg, the Enkangala Drakensberg and Lesotho.

South Africa’s earliest inhabitants have always recognised the value of water. Our oldest Khoi-San names for many settlements reflect the importance of water: Camissa – place of sweet waters (Cape Town); Gariep – great water, Tsitsikamma – place of abundant waters. But now our water comes from source areas that are often far away; we are disconnected from the natural sources by kilometres of pipes and distribution networks. Most of us do not know whether our local vleis and streams are healthy. It’s important that we reconnect with our sources of our water and ensure that they are adequately protected. We need to stand up for our right to a healthy environment and the rights of the next generation to inherit a country with intact water source areas.

Many levels of competent government are required to ensure the strategic policies and planning, effective implementation of protective measures and coordinated regulation of water-users. This includes the National Planning Commission, the Department of Water Affairs and impacting departments such as Agriculture, Forestry, Fisheries; Rural Development and Land Reform, Mineral Resources as well as the Environmental Affairs Department.

The private sector is also starting to play a more active role through water stewardship and investing in ecological infrastructure and catchment restoration. WWF South Africa enables corporates, farmers and other water users to cooperate with one another to invest in their source areas and reduce water risk. Several other NGOs, such as the Wildlife and Environment Society of South Africa (WESSA) and the Centre for Environmental Rights (CER) are also actively bringing people together and building local capacity to care for our water resources.

There is plenty of scope to be an active water citizen in South Africa and to do your part to protect our water source areas, rivers, and wetlands. Find out where your water comes from and begin your own journey of water.

# TABLE OF FIGURES

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SOUTH AFRICA'S WATER BY NUMBERS

