

# Case Study South Africa Groundwater Management

From Earthwise

[Jump to navigation](#) [Jump to search](#)

[Africa Groundwater Atlas](#) >> [Additional resources](#) >> [Case studies](#) >> Case study: An example of groundwater management from South Africa

Please cite page as: Africa Groundwater Atlas. 2019. Case study: An example of groundwater management from South Africa. British Geological Survey. Accessed [date you accessed the information]. *Weblink*.

This page is still being developed. Please check back soon for updates

See also the [Hydrogeology of South Africa](#) page.

□

## Contents

- [1 An example of groundwater management from South Africa](#)
  - [1.1 Groundwater Pollution](#)
  - [1.2 Groundwater Depletion](#)
  - [1.3 Institutional response](#)
  - [1.4 Defining basic principles for groundwater resource management](#)
  - [1.5 A tiered implementation strategy](#)
  - [1.6 Sources](#)

## An example of groundwater management from South Africa

This case study describes a groundwater management strategy used in South Africa in the 2000s to tackle two groundwater problems: groundwater pollution and groundwater depletion.

### Groundwater Pollution

Two particular types of groundwater pollution were identified in South Africa in the early 2000s as needing urgent management:

- Acid mine drainage. An example of this in Gauteng Province is given by the [case study on acid mine drainage in South Africa](#).
- Agricultural pollution. Particular problems were contamination of groundwater by nitrate, potassium, ortho-phosphate and faecal microbes; and increases in salinity caused by irrigation return flows. Pesticides used in agriculture and infiltrating into groundwater were also a problem.

## Groundwater Depletion

It was recognised that there was increasing and unsustainable groundwater abstraction in response to three main drivers:

- To meet increased demand for drinking water that was driven by growing urbanisation
- To meet growing demand for irrigation
- Encouraged by increasingly cheap abstraction technologies and other facilitating factors such as electrification of rural areas

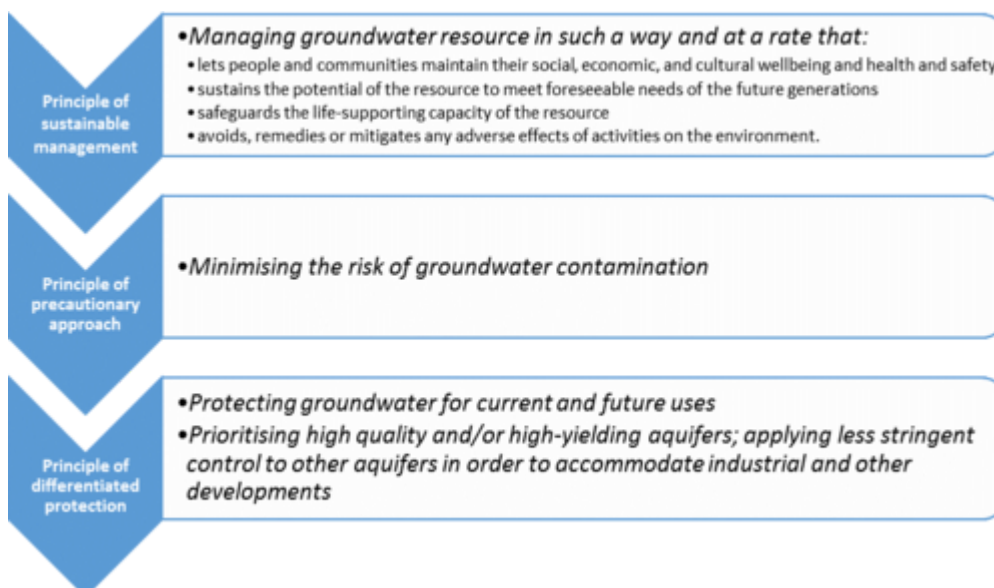
## Institutional response

The institutional response from the South African government, specifically the Department of Water Affairs and Forestry (DWAF), was based on the National Water Act (1998), which defines groundwater as a common, public resource. Under this Act:

- National government is the custodian of the nation's water resources, including groundwater.
- All water uses, excluding reserves for basic human use and for ecological health, are subjected to an allocation system promoting equitable and sustainable development.
- The riparian system of allocation, in which right to use water is tied to ownership of land along rivers, was effectively abolished.
- Water use allocations are not permanent but are given for a reasonable period (maximum 40 years).
- Existing water users have to apply to register their water use within a set period.
- To promote efficient water use, there is a policy to charge users for the full financial costs of providing access to water, including infrastructure development and catchment management activities.

## Defining basic principles for groundwater resource management

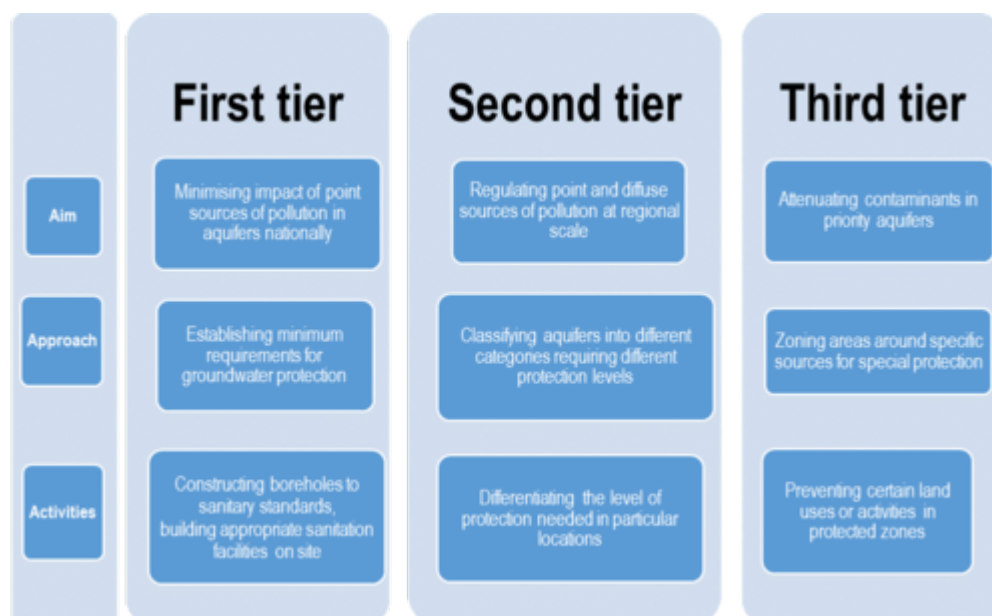
DWAF defined three basic principles for groundwater resource management:



Three basic principles for groundwater resource management defined by DWAF, South Africa

## A tiered implementation strategy

This approach taken by DWAF involved a three-tier strategy of implementation:



The three tier groundwater management implementation strategy taken by DWAF, South Africa

At regional level, the DWAF delegated responsibilities for groundwater management to statutory [Catchment Management Agencies](#), which in turn deal with smaller scale water user groups.

## Sources

Department of Water Affairs 1998. [Republic of South Africa National Water Act: Act No. 36 of 1998](#).

Department of Water Affairs and Forestry. 2000. [Policy and Strategy for Groundwater Quality Management in South Africa](#). Report Number W.1.0: First Edition 2000 by the Department of Water Affairs and Forestry (DWAF), Republic of South Africa.

Department of Water Affairs and Forestry. 1998. [Guide to the National Water Act](#). Report by the Department of Water Affairs and Forestry (DWAF), Republic of South Africa.

Tewari DD and Kushwaha RL. 2008. [Socio-economics of groundwater management in Limpopo, South Africa: poverty reduction potential and resource management challenges](#). Water International, 33(1), 69-85. doi: 10.1080/02508060801927630

Return to [Africa Groundwater Atlas](#) >> [Additional resources](#) >> [Case studies](#)

Retrieved from  
'[http://earthwise.bgs.ac.uk/index.php?title=Case\\_Study\\_South\\_Africa\\_Groundwater\\_Management&oldid=41429](http://earthwise.bgs.ac.uk/index.php?title=Case_Study_South_Africa_Groundwater_Management&oldid=41429)'

## Categories:

- [Case study](#)
- [Additional resources](#)
- [Africa Groundwater Atlas](#)

## Navigation menu

### Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

### Namespaces

- [Page](#)
- [Discussion](#)

### Variants

### Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

### More

### Search

### Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

## Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)

• This page was last modified on 2 July 2019, at 12:11.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)

