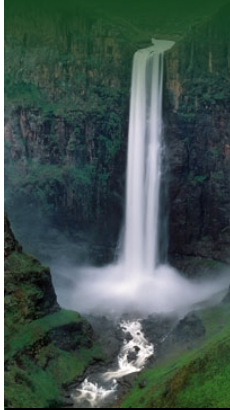


Orange-Senqu River Awareness Kit

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BASIN](#)[PEOPLE AND
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The River Basin

- Introduction
- ▶ Geography
- ▶ Climate and Weather
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- ▶ **Water Quality**
- Principles of Water Quality
- Biological Water Quality Parameters
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- ▶ **Acidity, Heavy Metals and Radionuclides**
- The Legacy of Gold Mining
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Acidity, Heavy Metals and Radionuclides

Mining is, and has been for over 145 years, one of the most significant driving forces for economic growth and social change in the southern African region. Like the neighbouring Limpopo River basin, mining operations are a dominant component of the industrial activities of the Orange-Senqu basin. Minerals like gold, diamonds, platinum and manganese, as well as rich coal deposits, helped South Africa to become the richest and most economically developed country on the continent. Namibia also benefits hugely from alluvial diamond mining along its south-west coast, the source of which is the Orange-Senqu River. Furthermore, a large part of Botswana's economy (70% of export earnings, 30% of GDP and 50% of government revenue) is also generated from diamond mining (AFDD,OED,2011).

While mining creates enormous wealth for the mining companies and thousands of jobs for the population of the region, it also has varied and significant impacts on the environment, most importantly water quality. These impacts include contaminants such as metals, including copper, zinc, silver and lead (DWA 2004b), but possibly the most profound impacts, particularly at the present time, are those associated with Acid Mine Drainage (AMD), associated mostly with the gold mining industry.

Acid mine drainage is considered by many as probably the biggest water challenge in the Orange-Senqu River basin and the neighbouring basins. It is also considered one of the biggest challenges South Africa as a nation faces. Another major side effect of mining is the presence of radioactive materials in mine waste. The issues described briefly above are presented in the following sections:

- [The legacy of gold mining](#)
- [Coal mining and water](#)
- [Searching for solutions](#)
- [Heavy metals from industrial sources](#)
- [Radio-nuclides](#)

For a discussion of the water demands associated with mines in the basin see the section on [Mining and Industry](#) in [Resource Management Section](#).

[Next: The Legacy of Gold Mining](#)



Basin Map

Explore the sub-basins of the Orange-Senqu River

[enter](#)

Video Tour

Tour video scenes along the Orange-Senqu River related to the River Basin

[enter](#)

Geography Maps

Investigate land cover and terrestrial ecoregions in the basin

[enter](#)

Water Cycle

Examine how the hydrologic cycle moves water through and around the earth

[enter](#)

Food Web

Explore the interactions of living organisms in aquatic environments

[enter](#)