

Ecological infrastructure Case study 7

Working together to co-manage water catchments means everyone can benefit from greater water yields and protection from flood risk.

A flower in the heart of Eden

EDEN DISTRICT MUNICIPALITY, WESTERN CAPE

Working together in water catchments, municipalities, farmers and the private sector can build a shared response to managing communal water supply. This can help them to better manage the negative impacts of climate change on the water resources they all depend on.



CASE
STUDY 7

CASE
STUDY 8

CASE
STUDY 9

CASE
STUDY 10



That tangy, bitter undertone of a delicious beer comes from the gossamer petals of the female hops flower. It seems apt, then, that the only source of hops in South Africa is in a place known rather whimsically as Eden, near George on the Southern Cape coast.

The moody extremes of the climate here are anything but Eden-like, though. This district is sandwiched awkwardly between two distinctive climatic ‘envelopes’: summer rainfall to the east, and winter rainfall to the west. Furthermore, its weather patterns tend to swing naturally between unpredictable extremes like flooding in some years, and severe drought in others.

Now, rising global temperatures are expected to ratchet up the best and the worst of these weather extremes. In fact, the record-breaking drought and floods experienced here in the past decade are expected to become the ‘new normal’.

‘Eden falls in a transition zone between the country’s two main climatic regimes,’ explains WWF-SA’s biodiversity unit head, Deon Nel.



Aware of the threat to their sole domestic source of hops, the mega-brewer SABMiller teamed up with the South African chapter of the Worldwide Fund for Nature (WWF-SA) and the Council for Scientific and Industrial Research (CSIR) to look at what is happening across the critical water catchments for the district.

‘Eden falls in a transition zone between the country’s two main climatic regimes,’ explains WWF-SA’s biodiversity unit head, Deon Nel, ‘to the west, there’s the winter rainfall region, to the east, summer rainfall.’

Climate modelling suggests the Western Cape region will become hotter and drier in coming decades. Meanwhile, areas to the east will become hotter and wetter. But the changes in both climate zones will press in on the Eden area.

‘The hops growers of Eden are getting buffeted by what already appears to be increasing temperatures and more extreme weather events. If it’s not flooding here, it’s wracked by drought,’ says Nel.

And yet, in spite of this forewarning, some important research shows that the way in which municipalities, private land owners, and big corporates work together to manage the landscapes in which water catchments occur here will have a far greater impact on water-related risks than climate change.





When WWF-SA did an analysis of the multinational brewer's domestic water footprint – 85% goes to crop production (hops, barley and maize) – they identified three key risks for hops growers: temperature increases will impact water availability in the area, invasive alien plants will continue siphoning huge amounts of water out of the catchments, and growing competition from urban water users in the nearby Oudtshoorn Municipality will mean the already stretched water reserves will have to be divvied up even further.

According to WWF-SA's Better Production for a Living Planet report, these findings indicate that managing river banks and surrounding grasslands which feed water into rivers, is critical for protecting water resources in the Eden district.

Importantly, this kind of landscape management involves actions that can be decided on and implemented today, and are within the control of land managers, even as the spectre of climate change looms.

This presents an opportunity for municipalities, land owners and corporates like SABMiller to collaborate with one another to clear invasive alien species along the river banks and surrounding grasslands, since this will release more water back into the river.

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They can work together towards good agricultural practices, too. This can prevent the drying out of wetlands, overgrazing or over-ploughing that can drive erosion and sediment washing into rivers, all of which undermine the quality of river water.

Healthy catchments also buffer against flooding during heavy rain events.

According to WWF-SA, this means the large water users like SABMiller, local municipalities, and farmers should plan how to 'manage and rehabilitate the water catchments for the region, be it through clearing invasive alien plants or monitoring groundwater and on-farm water-use practices'.

'Sustaining the complex ecological system in the Eden area delivers environmental resilience but it also boosts socio-economic resilience by helping job creating agribusinesses to respond to risks posed by climatic and other environmental change,' says WWF-SA's report.

The cost of disasters

The past decade has wrought havoc on municipal coffers across the Eden district, requiring that the national government help the municipality financially as it dealt with weather-related environmental shocks.

A three-year drought came to a head in the George region late in 2009, resulting in it being declared a disaster area. It received R166.6 million in relief funding to help farmers feed their livestock.

Meanwhile, flood damage from just over eight storm events across the province, from 2003 to 2008, cost municipalities a total of R513 million in damage, 'with almost R360 million (70%) incurred in the Eden district alone', according to the 2010 Risk and Development Annual Review for the Western Cape, produced by Stellenbosch University's Research Alliance for Disaster and Risk Reduction (RADAR).

The benefits to river replenishment, when invasive alien plants are cleared from catchments and when wetlands and grasslands surrounding rivers are restored, show what an easy gain ecosystem restoration is.



In its Integrated Development Plan in 2010/2011, the Eden district municipality calls for a number of engineering solutions to help buffer the community against the risk of water shortages in future: reverting to borehole use, tapping into rainwater, and implementing urban water efficiency measures. It also has desalination as a last resort in times of severe droughts. But this is a costly and energy-intensive process.

The benefits to river replenishment, when invasive alien plants are cleared from catchments and when wetlands and grasslands surrounding rivers are restored, show what an easy gain ecosystem restoration is. A relatively small investment in correct land use management and alien clearing can result in massive returns in water yields.

This can help municipalities buffer against the impact of droughts, and might even delay the need for costly engineered solutions to water shortages, such as building desalination plants. Similar interventions can prevent erosion and flooding and restore water quality.

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STUDY 9

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