

WATER RESOURCE MANAGEMENT

Breede River environment plan taking shape

The Western Cape Department of Environmental Affairs and Development Planning (DEA&DP), mandated to achieve environmental sustainability in the Breede River Catchment, has embarked on a visionary new Environmental Resources Protection Plan (ERPP) to achieve it. Article by Leanne Seeliger, Annabel Horn and Wilna Kloppers.



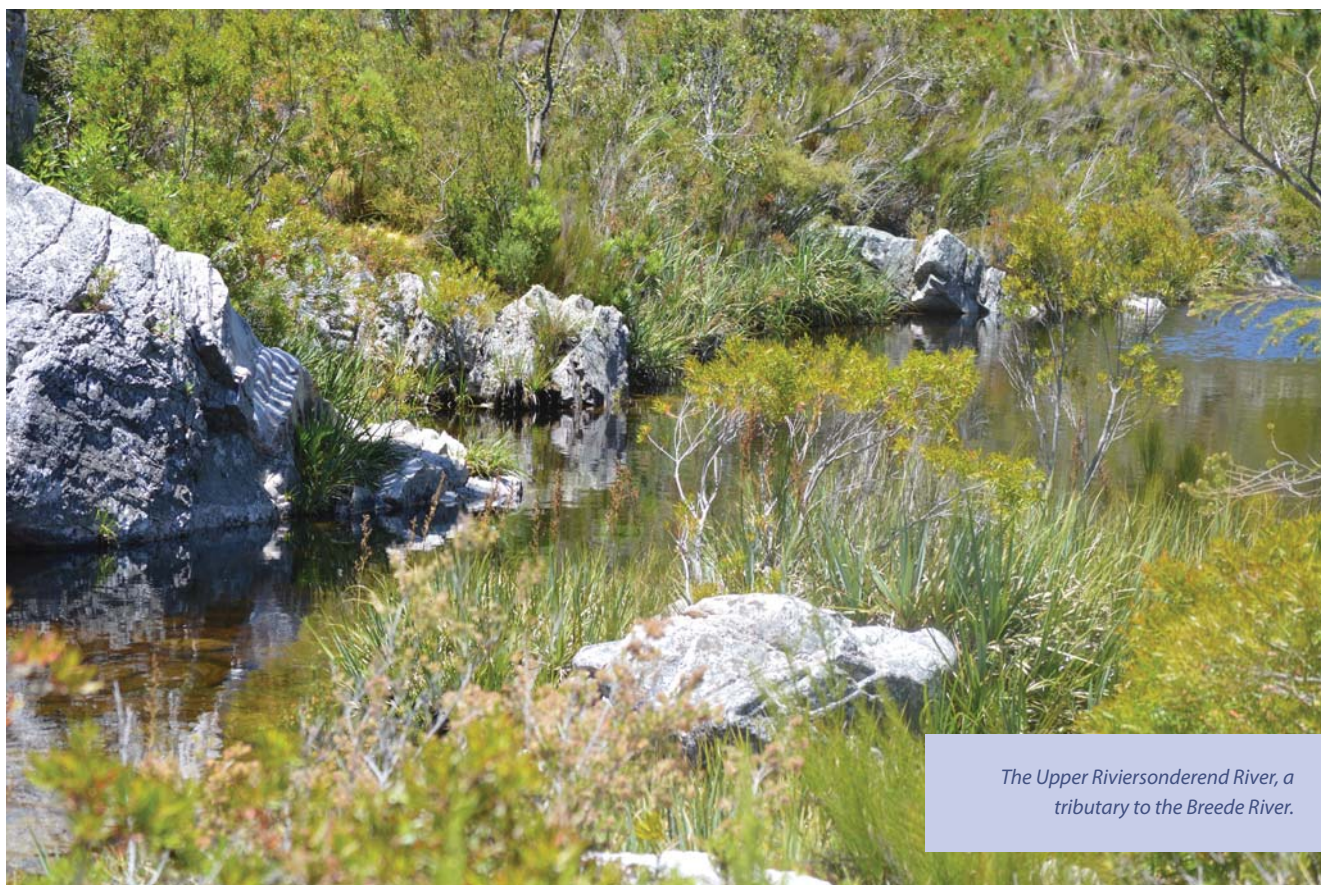
Jason Mingos

The aim of this plan is to protect the ecological integrity of the 322 km-long Breede River that drains the catchment of 12 625 km² and drives the agricultural and tourism sectors of the province.

“The inspiration for our plan follows growing threats to the Breede River Catchment over time,” says Zayed Brown, project manager. “One major, growing challenge has been the increase in invasive species that have been reducing water yield significantly. Experts calculate that as much as 30% of the water resource could be lost over 20 years.”

Frequent fires in alien vegetation have contributed to soil erosion and subsequent sedimentation in rivers. It has been calculated that as much as 60 tons of soil per hectare is lost when fires burn in alien vegetation.

Water quality in the catchment continues to be under threat. The main contributors are nutrient enrichment from wastewater treatment work discharges, return flows from agricultural land enriched with fertilisers and stormwater flows from the informal housing sector.



The Upper Riviersonderend River, a tributary to the Breede River.

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The 10-point strategy of the ERPP is visionary in that it calls for a collaborative approach to water governance in the catchment to address these challenges. It focuses on creating a partnership between the Department of Water and Sanitation, water user associations, the Breede Gouritz Catchment Management Agency (BGCMA), the Western Cape government, municipalities, universities and non-governmental organisations.

The rationale is that the complexity and the enormity of the problems affecting the catchment means that a single government cannot address all the issues at hand effectively. It will require the co-operation of many departments, as well as the leveraging of funding and resources from outside of government.

This collaborative partnership is to be supported by a water monitoring programme facilitated by ERPP that will enable the continuous evaluation of all Breede River catchment interventions and their impact on water quantity and quality. This programme adds to the water quality analysis of the BGCMA and municipalities in the area.

Water quality in the Breede River catchment is of serious concern, because it decreases downstream where there is intensive farming. Geological influences like the salt from the shales in the area and problems with urban stormwater drainage are other contributing factors.

The aim of the monitoring programme is to measure chemical parameters, selected metals within the sediment, pesticides, E-coli and to start biomonitoring at sites along the Breede River.

Several of the wastewater treatment plants in the Breede River catchment are already in need of urgent attention, because of, among other reasons, overloading in terms of design capacity with population increases in towns. It is common sense that this imposes a risk for downstream water users, including agricultural users.

There are a number of human settlement projects at an early stage of development in the catchment. The plan promotes the development and implementation of stormwater master plans and stormwater management plans for all the municipalities, including aspects of water quality as well as potential harvesting of storm water as a water resource. Municipalities will be consulted to identify strategic areas for sustainable bioremediation solutions to address the impacts of informal settlements on water quality.

The plan further calls for the agricultural sector in the Breede River catchment to look at methods by which water can be used more efficiently, while still maintaining production yield.



The Breede River serves as the backbone of the region's wine agriculture.

The plan aims to support international best management practice guidelines for agriculture in the Breede River catchment. These initiatives include water-use efficient technology and techniques, maintaining riparian buffer zones, and conservation agriculture.

The invasion of alien species is severely impacting on the ecological sustainability of the Breede River catchment with about 70% of riparian areas in the Breede River catchment in a transformed state. The plan identifies supporting existing riparian rehabilitation activities and implementing rehabilitation activities for priority wetlands within the Breede River catchment. The promotion of stewardship management plans and agreements with landowners is another priority.

Mountain catchments within the Breede River catchment are protected under the Mountain Catchment Act of 1970, and developments are limited to ensure quality water production by preventing soil erosion and protecting natural vegetation. The importance of the protection and proper management of these areas has been recognised by the National Water Resource Strategy II, promulgated by the Department of Water and Sanitation. Water source areas have been recognised as important where 8% of the land provides for 50% of the water.

The National Water Act of 1998 protects the water courses, while the National Environmental Management Act (NEMA) of 2008 protects the water resource if an activity triggers an Environmental Impact Assessment (EIA). Under the auspices of NEMA there is the Protected Areas Act of 2003, saying that if

an area is declared as a protected area, then changes may not be made without authorisation. Land use is also protected by zoning, in that the land use can't be changed from open space without being rezoned, according to municipal bylaws and also by the national Spatial Planning Land Use Management Act (SPLUMA) Act of 2013.

“The economic focus stresses the importance of the agricultural sector, recognising the cost of pollution with regards to the potential loss of market”

There is an obligation to set fire breaks around these natural areas in the catchments, under the National Veld and Forest Fire Act of 1998. Then specifically the Biodiversity Act of 2004 states that permits are needed for the removal of threatened or protected species, such as *Podocarpus elongatus*, commonly known as the Breede River Yellowwood.

In order to ensure the effective protection of the catchment areas, the plan will identify the priority rivers for alien fish eradication in liaison with Cape Nature and encourage universities to research the interaction between indigenous and alien species.

A focus on fire management is another priority. Fires in fynbos do not lead to erosion and sedimentation, but when it takes

place in alien vegetation it can lead to excessive erosion and sedimentation impacts on rivers. Fire protection associations aim to reduce the impact of human interference in fire regimes and lobby for funding to remove alien flammable vegetation from priority areas.

The ERPP lays a strong emphasis on researching the economic drivers that govern future water use. While big towns like Worcester, Ceres and Robertson accommodate more than half of all people in the catchment, small towns like Greyton and Prince Alfred Hamlet have most recently experienced the highest growth. This calls for a spatial analysis of future development in relation to its impact on water resources in the catchment.

The economic focus stresses the importance of the agricultural sector, recognising the cost of pollution with regards to the potential loss of market, if polluted run-off from farmlands are not effectively managed. In support of this, it emphasises the danger of not upgrading informal settlements and allowing polluted effluent from these areas to continue to contaminate rivers downstream.

“The ERPP promotes ongoing payment for ecosystem services with the maintenance of natural infrastructure and ecosystems. Linked to this is the management of alien vegetation and fire regimes. It is considered that it is appropriate that the users of water should pay not only for the water used, but should also contribute to the maintenance of the natural infrastructure, such as the catchments, which maintains the provision of water,” says

Jeanne Gouws from Cape Nature.

A study of the Theewaterskloof Dam and other parts of the Breede River catchment is another priority. The plan calls for the measurement of water flows through hydrological modelling, as well as the value of the maintenance of these related ecosystem services to be investigated.

The tourism sector is highlighted as a key role-player in the Breede River Catchment that is directly reliant on the continued ecological integrity of the Breede River. The river serves as the backbone of the region's wine agriculture and the unique biodiversity that attracts visitors. The plan aims to use tourism promotion platforms to raise awareness of the ecological state of the Breede River and the river's importance to attract visitors to the area. It will link the tourism sector to conservation and protection initiatives.

A broad lack of awareness of environmental best practice across different sectors of society in the Breede River catchment is noted as a concern. A communication plan will therefore be developed that calls for community awareness engagements to be conducted in collaboration with ERPP partners. The main objective of the communication plan will be to restore the water quality to a level where its value for ecosystem services is recognised, and in doing so to promote growth and development and sustainable use of water for all the intended purposes.



The Kluitjieskraal Nursery, at Wolseley, provides indigenous plants to replace invasive alien invitation.