

New WWF Nedbank Green Trust water project brings KNP, smallholder farmers together

Reuben Leyane's 25-hectare farm is on the Sabie River, 1,5km from the Kruger National Park (KNP) fence and 12,5km from the town of Hazyview. The smallholder farmer has farmed here since 1991, selling vegetables to local hawkers in Hazyview and to the government school feeding scheme.



Image source: www.nedbank.co.za

"It was just bush back then and the local chief said he wanted to allocate land along the river to those of his subjects who wanted to farm. I took the opportunity because I am from a farming family. My mom, grandmom and great-grandmom all farmed. It was subsistence farming, but they knew how to farm, and they taught me. So I was brought up by farming ladies," says Leyane.

He explains the smallholder farmers battle to farm here because it is so hot. He uses both flood and drip irrigation, and at this stage he has not been able to farm all his land because drip irrigation is expensive and he pays for it from his pocket.

"Farming is not an easy life, but I do survive from it and I am very happy to be a farmer," he adds. "It is outdoor work that I can do for my whole life. If you separated me from farming, you would be killing me."

Leyane is the chairperson of the Sabie River Farmers Irrigation Scheme. Together with three other farmer irrigation schemes – the Goromani, Hoxane and Saringwa – they comprise a group of approximately 160 smallholder vegetable farmers whose farms, ranging in size from five to 50 hectares, are situated along 40km of the KNP fenceline and the Sabie River.

Three-year water project

They are participating through a forum known as the Khomanani-Varimi in a new, three-year WWF Nedbank Green Trust water project that is bringing together KNP and the smallholder farmers, both of whom are situated in the lower reaches of the Sabie River catchment, downstream from one of South Africa's strategic water source areas, the Mpumalanga-Drakensberg Strategic Water Source Area.

"South Africa's handful of strategic water source areas are arguably our most important natural national assets; they are the crown jewels of our freshwater resources and they are absolutely critical for South Africa's water security and water supply," says conservation ecologist Samir Randera-Rees, programme manager of WWF-SA's Water Source Areas Programme.

The management of South Africa's ecological reserve flows, as well as public irrigation schemes, is essential in the country's integrated freshwater and catchment management.

"It's important for the smallholder farmers and KNP to speak with one voice to ensure best practice for the Sabie River and to inspire better and fairer water allocation and management of the Sabie River, from the upper catchment all the way downstream," says Eddie Riddell, the water resources manager for KNP who holds a doctoral degree and has postdoctoral experience in environmental hydrology and water governance. He is based at KNP and is heading the WWF Nedbank Green Trust Project.

Increasing and competing demands

All efforts to manage the water quality and quantity or streamflow sustainably and equitably have to start at the top of the catchment and address issues such as the reduction of streamflow in the upper Sabie catchment as a result of significant amounts of water being used by agroforestry, alien invasive plants and commercial farming. These increasing and competing demands may in the future, as a result of a changing climate, significantly reduce the water available to the lower-catchment farmers, the KNP ecosystem, and crossborder flow to Mozambique.

The smallholder farmers are reliant on the flow from the Sabie River's upstream catchment area, as is KNP. Dialogue between users in the upper and lower catchments is often non-existent, particularly between different sectors.

"The smallholder farmers need to have a seat at the table at the catchment management meetings and to have their say about how to increase resilience throughout the catchment, particularly in the face of persistent drought conditions and climate change," says Riddell. "The establishment of a vocal, active water user association across these four irrigation schemes would give them the power to negotiate equitable water rights and water access."

Water is one of KNP's central management pillars, as it plays a key role in maintaining the ecological 'reserve' and health of several rivers in the lowveld landscape and greater KNP ecosystem. The KNP and associated ecotourism is a significant source of employment and local economic development. "It is all part of what some term the 'Kruger economy'. This includes the integrated land-use zone around KNP," Riddell explains.

Regarding the reserve, the National Water Act, 36 of 1998, stipulates that humans and rivers both have a right to water. By law a certain amount of water must be left in rivers to maintain their health and function – this is the ecological reserve.

High level of biodiversity

The Sabie River deserves special focus, as it has retained a high level of biodiversity due to the system being relatively intact compared with other systems in the area, such as the Olifants and Crocodile Rivers, which are far more polluted and

ecologically at risk as a result of industry, agriculture and over abstraction of water.

Riddell explains: "The more pristine the river, on a scale of A to E, with A being the most pristine, the higher the percentage of water that must be left in the river. The Sabie is classified as an 'AB' river, in other words it is close to pristine and, by law, the river has a right to approximately 30% of water at all times. The Olifants and Crocodile Rivers are class C rivers, and these rivers have a right to 15% to 20% of water at all times."

Sound water management by industry, farmers, towns and communities is all part of maintaining the ecological reserve. The smallholder irrigation scheme farmers along the Sabie River are certainly not overusing their water allocation; quite the contrary, but neither are they using it effectively or optimally. Waterwise irrigation systems, such as drip irrigation, are costly, therefore many farmers flood irrigate their land. This is time, labour and energy-intensive and they can only achieve so much.

Working with the farmers on the ground is the project manager for the WWF Nedbank Green Trust project, Mbali Mashele, from the Kruger to Canyons Biosphere (K2C), which bridges 2.5 million hectares of conservation land (protected areas, catchments and privately and community-owned land) between Limpopo and Mpumalanga. K2C is managing the project for the WWF Nedbank Green Trust.

She is assisted by two field staffers who do the interviews with the farmers in Swati and Tsonga, and work with the farmers on new climate-smart farming innovations and technologies, with support from organisations such as the [Virtual Irrigation Academy](#), which is developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) – Australia's national science research agency – in partnership with the University of Pretoria.

Virtual Irrigation Academy

The Virtual Irrigation Academy assists smallholder farmers with simple and effective soil, water and nutrient management tools to optimise their irrigation approach to avoid under- or over-irrigating. An example is the Chameleon soil water sensor system. The Chameleon has three sensors inserted into the soil, and an above-ground portable reader that visually shows farmers whether the soil is wet and nutrients may be leached (blue light); getting dry and yield may be reduced (red light); or adequately moist (green light).

"The aim is to work with the farmers to increase their water-smart practices and produce larger vegetable crops to increase their income," says Riddell. "Through the WWF water stewardship programme the project is also looking at attracting private sector investment, such as from the supermarket chains, to expand the farmers' markets. This programme will help the farmers to strengthen their market supply links and achieve waterwise certification, which helps them progress from local-only markets to expanded markets such as high-end supermarket chains.

"Once the smallholder farmers experience increased profitability around innovative, well-managed water and soil initiatives, the strategy employed in the Sabie River catchment can be extended to the many other communities and smallholder farmer irrigation schemes bordering South Africa's national and provincial parks."

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