Site: Kruger National Park is situated in lowlands across the flow direction of five major rivers. Four of the five rivers have ceased to flow at various times due to unsustainable upstream water use in the last three decades. Pollution has also been a major problem, mainly coming from nutrient enrichment from agricultural return flows, sediment and mining-related activities. Failure of sewage treatment plants has also become more common.

This interrupted water flow and pollution had various negative consequences in plants and animals, for instance killing riparian trees such as sycamore fig and Natal Mahogany trees as well as fish species such as tiger fish and yellowfish. Numbers and types of a variety of aquatic wildlife have been changing.

During drier times, special arrangements like water transfers and trucking of water had to be made to meet basic needs of some rural communities living along rivers near the park, when they could no longer, as in the past, access water directly from rivers.

Project: In an attempt to solve the water crisis, a large river-related programme started in 1990, focussing mainly on forestry and irrigation.

This led to forestry companies voluntarily taking out exotic trees in a buffer zone directly along river courses whereby flows were increased; irrigators restricted their abstractions during drought periods, hence keeping the Sabie river flowing. Mines along the Olifants River went to

trouble to reduce effluent discharges. Water allocation was thus being seen as a social process of negotiating with stakeholders in the light of their different needs, rather than trying to impose technical solutions in isolation.

Partly as a result of the project, and aided by South Africa's changing political situation, the country's progressive National Water Act of 1998 entrenched a basic right to guarantee proper river functioning by ensuring flows. This means that human water use from each of the river basins starts to come closer to being satisfactorily ensured within sustainable levels.

Benefits: Detrimental effects of water shortages and pollution on animals, plants and natural features in the park have to an extent been controlled. No major unnatural fish kills have occurred in recent years. Species which disappeared from main rivers which had dried up, have re-colonised from pools and more persistent tributaries.

Surrounding human communities living along rivers have also benefited from those improvements in flows and water quality. More water is now available for rural communities.

As a consequence of the Water Act, emergent farmers along the Komati River in the Crocodile river catchment, once discriminated against under the apartheid system, now have official water allocations. Tourists are pleased that rivers in better condition are facilitating their game and landscape viewing.

Fully operationalizing the implementation of these initiatives will take many years.

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