

Managing Rivers for Life

Dr Joan Jaganyi currently works as a research fellow in water resources management at the Centre for Environment and Development, School of Environmental Sciences, University of Natal, Pietermaritzburg.

She has an impressive string of degrees and qualifications. Dr Jaganyi has a BSc (Hons) in Zoology and Biochemistry from the University of Nairobi, Kenya, and in 1990 obtained an MSc in Applied Entomology from the University of London's Imperial College of Science, Medicine and Technology. In 1998 she completed a PhD in Entomology in the field of Conservation Biology at the University of Natal. In 1999, Dr Jaganyi attended further training in conservation planning at the University of Illinois, Chicago, in the US.

Dr Jaganyi's career in water research began when she started working at the Institute of Natural Resources (INR) in 2000 on a National Research Foundation (NRF) funded project. The project aimed to inform researchers, water managers and stakeholders about the water quality and quantity requirements to sustain the natural environments of rivers that flow through the Kruger National Park. Through this project, Dr Jaganyi was able to see more clearly the importance of the link between the pure biological sciences and the social sciences. Finding solutions to minimise these impacts therefore implies an understanding and appreciation of the interface between humans and nature.

Dr Jaganyi's current research in integrated water research man-

agement aims at developing socio-economic tools to enhance implementation of the National Water Protection Policy. In simple terms she has to consider the best way to use water for basic needs, agriculture and industry, while balancing the conservation of water. She is looking specifically

at tools for integrating socio-economic values in reserve determination (the Reserve is the volume of water to be left in the river for the environment), with emphasis on environmental flows to support basic livelihoods. The key research question is: How can prediction of a changing river be converted into prediction of social impact? In other words, water resource management is not only about managing water, but about managing people as well, who use the river systems as water resources.

Working as an entomologist, Dr Jaganyi sat behind a microscope. With water resource management, she is now working with people, and realises that biology is important in the normal functioning of a river. The use and conservation of water in a river needs to be carefully balanced. Dr Jaganyi has applied her knowledge of biology to real-life issues. Through her study of entomology, she has come to understand how the little animals and insects in water respond to environmental disasters. The reserve water is a necessary volume of water for the continued biodiversity of animal



and plant life in the river ecosystem. If these little creatures, and the related plant life, die, then the entire ecosystem and the community that depends on the water suffer.

To promote the management of the natural resources of the floodplain wetland ecosystem, Dr Jaganyi is developing a multidisciplinary research programme around integrated modelling of the floodplain wetland ecosystem, to simulate the evolution of the ecosystem in relation to different scenarios and their impact on traditional farming systems. She enjoys the field work, and has benefited from moving away from pure academic work. She is helping communities put water user associations in place, and makes them aware of the need for small plants to grow along the rivers, rather than planting their crops too close to the river.

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