

## RESEARCH IN PROGRESS

# Sustainable management of inland wetland ecosystems in southern Africa: inventory and land cover

### Description:

For many years the need to avert water shortages has resulted in farmers in southern Africa turning to wetlands for crop production and livestock grazing. This study analyses the mix of agricultural water use strategies in wetland sites in eight countries in southern Africa, and the trade-offs among them as a tool to guide planning for wetland use and conservation. Funded by the *International Water Management Institute (IWMI)* & the *Challenge Program for Water and Food* this research runs from 2008-09. Prof Max Finlayson (ILWS) is working with Dr Mutsa Masiyandima, Dr Matthew McCartney and Dr Lisa-Maria Rebelo (IWMI) on the \$46,290 project.

### Objectives:

Investigate wetlands in the Limpopo basin and compile information on the extent and use of wetlands, as a contribution towards better decision making to ensure the sustainable development of wetlands – taking into account the livelihood needs of local people.

Map of Limpopo Basin, Southern Africa  
Source: [www.iss.co.za](http://www.iss.co.za)



### Methods:

A multi-spatial and multi-temporal dataset consisting of optical and radar remote sensing images, aerial photos, and field data were used to provide baseline information on the distribution of water and vegetation within the wetlands. Field surveys were conducted to record the vegetation species, hydrology and landuse.

### Findings to date:

The results highlight the crucial role that wetlands play in the provision of basic needs required for household survival, and that the nature of household dependence varies significantly from place to place and as socio-economic status changes. They also provide largely qualitative indicators that increasing wetland utilization is having negative environmental impacts. Consequently, incentives to manage wetland resources will differ markedly from one location to another and across socio-economic groups within the same community. This complexity highlights the need for critical analysis of the social and economic factors that underpin the dynamics of wetland resource use in the development of sustainable management plans.



### Policy implications & anticipated outcomes

The provision of information for making decisions about land and water use and sharing resources in the Limpopo basin resulting in sustainable use of wetland resources for food production, improved livelihoods, and environmental security. Knowledge will be applied through other projects such as a Global Environment Facility project on Sustainable Management of Inland Wetlands in Southern Africa.

### Publications:

- Rebelo, L-M, **Finlayson CM** & Nagabhatla N. 2009. Remote sensing and GIS for wetland inventory, mapping and change analysis. *Journal of Environmental Management* 90, 2144-2153.
- Rebelo L-M, McCartney MP & **Finlayson CM** 2009. Wetlands of Sub-Saharan Africa: distribution and contribution of agriculture to livelihoods. *Wetlands Ecology and Management* (in press).

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