Name:	Richard	Osaliya	PhD in Dryland Resource Management
(PhD)			
- Teres	~	G	Title of thesis: Impact of land use/cover and climate change on
		2/1	surface water resources in semi-arid Lokok and Lokere catchments,



Problem investigated and why

Uganda

In the semi-arid Lokok and Lokere Catchments, Uganda, little is known about the contribution of land use/cover (LULC) and climate

on the stream behavior which has been highly fluctuating, with prolonged hydrological drought. Assessing their contribution to the catchments' water balance is important in developing strategies for building the resilience of the ecosystem and community to climate variability and change.

Key findings

Evapotranspiration (ET) in the Lokok and Lokere catchments make over 97% of the hydrological budget. Under future climate scenarios in which temperature and rainfall are projected to increase, compared to 1980-2009 period, the percentage increase in water yield would range from 79.5 percent in 2010-2039 (RCP 8.5) to 204.7 percent in 2040-2069 (RCP 4.5). However, an increase in water yield would be low under change in LULC alone, ranging from 5.7 to 18.4 percent under 2030 business as usual (BAU) and 2050 pro-farming scenarios, where small scale farming increased. Water yield is expected to be relatively higher under combined future scenario of LULC and climate change. It would range from 193.7 percent under the 2050 pro-livestock LULC to 223.2 percent under the 2050 pro-farming LULC, each combined with 2040-2069 (RCP 8.5) climate.

Take home message

Climate change has a far more reaching impact on water availability in the catchments than LULC change. Given that mobile herding is more adaptive to climate variability, policies and strategies that improve both crop and livestock production could be more beneficial to the population.

Selected pictures of interest from the study



Most interesting part about your PhD study program

The PhD Dryland Resource Management brings students to the intersection of nature and society, practicularly the intricate relationship between ecosystems and pastoral livelihoods. It debunks the notion that pastoralists are selfdestructive and that drylands are unproductive, by revealing the immense potential of drylands and its people. The interdisciplinary coursework modules, bring together students of diverse brackgrounds and the teaching approach that allows debates is thrilling and enriching.