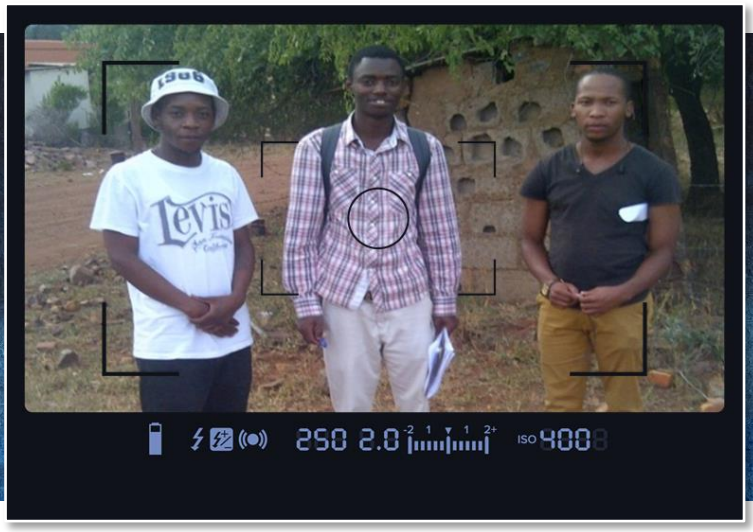
STUDENT FEATURE

Ian Gofamodimo Magwaneng

Application of Geospatial Science for the Assessment of Crop yields under the Molapo Farming scheme: The Case of Okavango Western Plains



Ian is enrolled in a Master in Geospatial Science at the Department of Environmental Science of the University of Botswana. His thesis title is "Application of Geospatial Science for the Assessment of Crop yields under the Molapo Farming scheme: The Case of Okavango Western Plains".

What contribution Ian wants to make with his study?

Wetlands are important ecosystems, particularly to the rural communities, as they provide a variety of natural resources such as water, fertile soils, firewood and veldt products, which support communities' livelihood.

In the Okavango delta, one of the rare near pristine natural ecosystem left in Botswana, farmers practice Molapo crop farming as an important source of livelihood. Assessment and monitoring of crop yields is therefore essential to evaluate the extent of food security in the area, as well as improving our understanding of the role of agriculture on people's livelihood in the Okavango delta.

Geospatial science can help to map crop types, yields and other biophysical parameters, especially with the availability of free high resolution remotely sensed data such as Sentinel products provided by the Copernicus programme.

Within the framework of the Wetland Monitoring and Assessment Service for Transboundary Basins in Southern Africa (WeMAST) initiative, this study seeks to use geospatial science to assess crop types and yields under the Molapo farming scheme in the Okavango delta. Crop yields will be assessed based on seasonal fluctuations of the delta, which is the main source of water for the farmers.

The study focuses on the western plains of the Okavango delta particularly on the villages of Sepopa, Seronga and Gumare (*Figure 1*). The study will make use of Landsat 8 (for long term assessment) as well as Copernicus satellite data Sentinel-2 products (for high resolution assessment and monitoring of crop types and yields).

When complete, the study will provide new insights into the role of earth observation in the monitoring and assessment of crop yields in more complex and dynamic ecosystems such as the

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Okavango delta, in particular where accessibility to some areas is almost impossible to allow for traditional ways of crop monitoring.

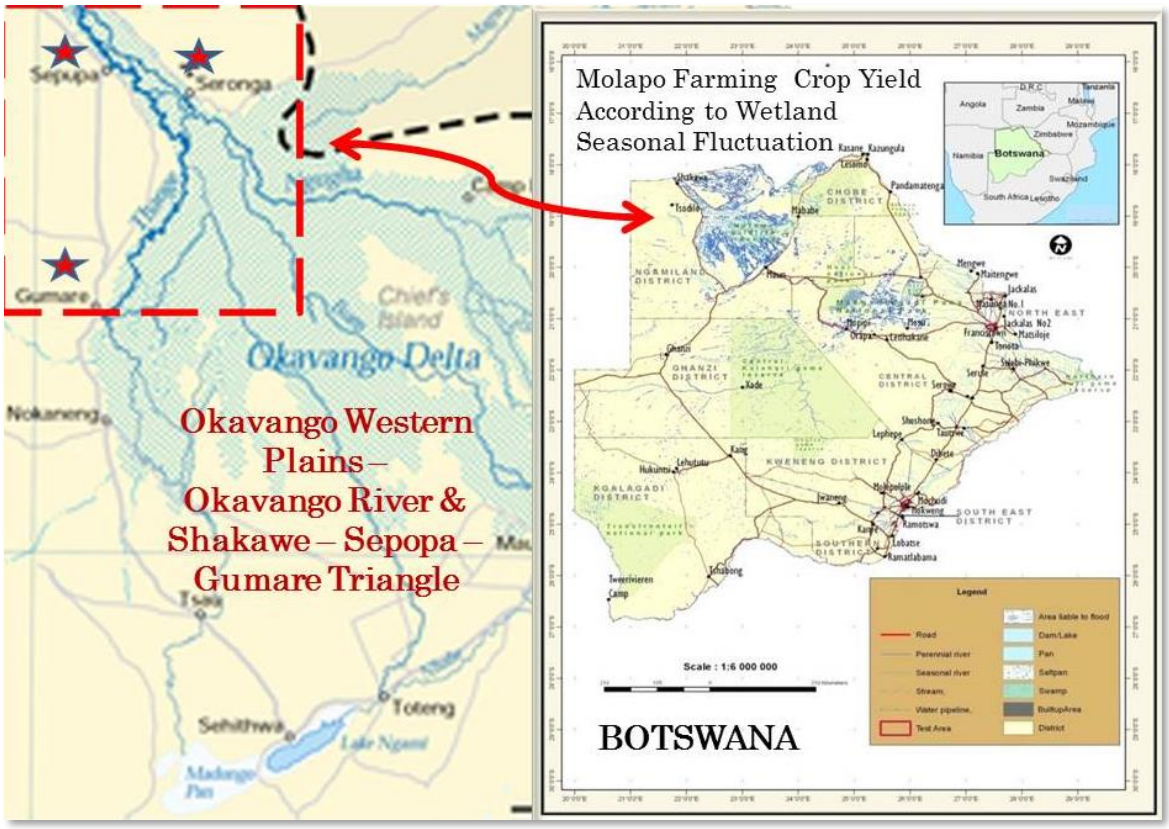

Figure 1: Map of the Study area showing the villages of Sepopa, Seronga and Gumare