



**Jaramogi Oginga Odinga**  
University of Science and Technology



**Belgium**  
partner in development

# Project 1

## Strengthening Natural Resource Management

### Team Leaders:

1. Prof. Dennis O. Ochuodho - JOOUST
2. Prof. Steven Bouillon- KU LEUVEN



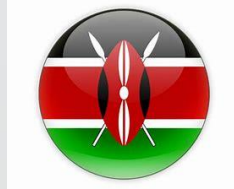
### Partners



**KU LEUVEN**



# Project Team Members



- ❖ **Prof. Dennis O. Ochuodho (Team Leader)**
- ❖ Prof. Julius Manyala (Aquatic Ecology),
- ❖ Prof. Regina Nyunja (Biodiversity)
- ❖ Prof. Maurice Nyadawa (Hydrology)
- ❖ Prof. Bernard Muok (Climatology)
- ❖ Dr. Lornna Okotto (N-Resource Management)
- ❖ Dr. Angeline Ochung (Water Chemistry)
- ❖ Dr. Samuel Nyangueso (Remote Sensing)
- ❖ Dr. Pheobe Sikuku (Plant Physiology)
- ❖ Dr. Collins Mwesesa (Entomology)
- ❖ Dr. Benson Onyango (Soil Microbiology)
- ❖ Dr. Eric Okuku (Fish Ecology)
- ❖ Dr. William Okello (Aquatic Ecology)
- ❖ Dr. Phoebe S



- ❖ **Prof. Steven Bouillon - Team Leader**
- ❖ Dr. Alberto Borges– (U-LIEGE)
- ❖ Prof. Ivan Janssens –(University of Antwerp)
- ❖ Prof. Ann van Griensven (VUB)
- ❖ Dr. Gretchen Gettel –(UNESCO-IHE, Delft)

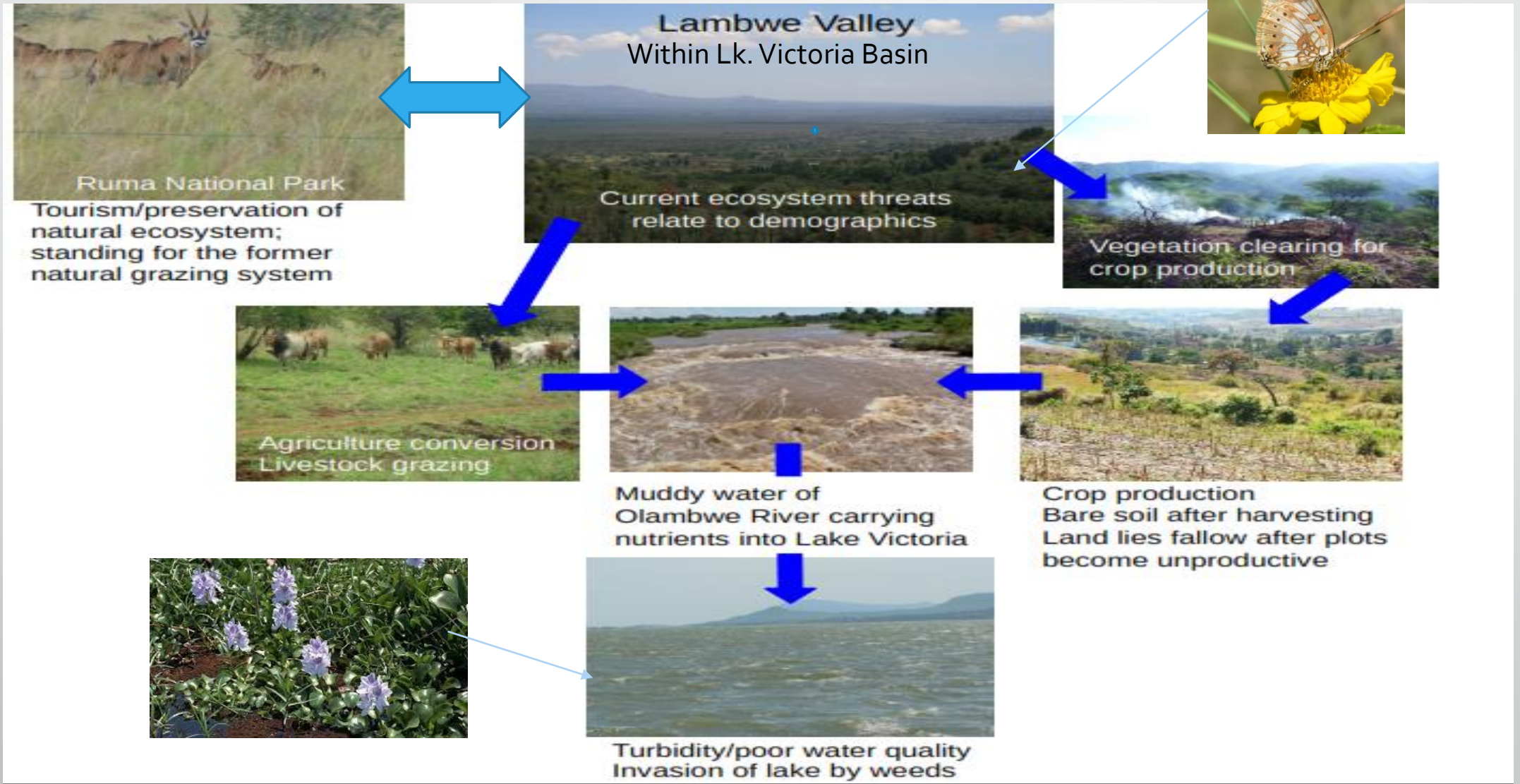


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# Understanding the local context



# The Project's medium-term (5 year) objectives

- Characterize land cover changes, land uses and climate within the Lake Victoria Basin (LVB) in Kenya;
- Quantify landscape processes, identify linkages and feedback loops and develop integrated data base for sustainable management;
- Enhance data integration and prediction through modelling.

## Long-Term (10 years) Project Objectives

- ❖ Build competencies for environmental monitoring and natural resource management.
- ❖ Strengthen JOOUST's capacity as a reservoir of knowledge and a pinnacle for capacity building in natural resource management.



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## SP1: Catchment-scale water, sediment, carbon and nutrient fluxes

### Preliminary ideas:

- Combination of new data acquisition, existing data compilation (field, remote sensing), and modelling work.
- Quantify and understand water, sediment, carbon & nutrient fluxes in relation to land use and land use changes.
- Links possible with other project components – e.g. sensor technology, modelling techniques
- Strong links to the 2 other topics in project 1 – catchment continuum (land-rivers-wetlands-lake).



## SP2: Eddy covariance - CO<sub>2</sub>, water, and CH<sub>4</sub> exchange in papyrus wetlands:

### Preliminary ideas:

- Ambitious aim to set up eddy covariance system in papyrus wetlands (+/- the first), highly important system in terms of C sequestration & CH<sub>4</sub> emissions.
- Links possible with other project components – e.g. sensor technology, data processing, meteorological data.
- possibilities for studies on drivers of GHG exchange (water levels, nutrient inputs, wetland conversion, ...)
- Strong links to the 2 other topics in project 1 – catchment continuum (land-rivers-wetlands-lake).



## SP3: Lake Victoria water quality and ecology

### Preliminary ideas:

- strong eutrophication, anthropogenic impact is locally high. Long-term data series are lacking.
- impact of land-use change on aquatic ecology and biogeochemistry: productivity, metabolic balance, greenhouse gas exchange.
- possibilities to stimulate regional network of studies on L. Victoria (NaFIRRI, TaFIRRI, ..), ACARE network (African Center for Aquatic Research and Education; <https://www.agl-acare.org/>). JOOUST is currently reviewing a draft MOU for collaboration with ACARE in research, capacity building and exchange programmes
- Links possible with other project components – e.g. sensor technology, remote sensing.



# Expertise/ Stakeholders needed for the successful Implementation

## Expertise already present in the project team

- Quantification of ecosystem processes,
- Water quality analysis,
- Vegetation sampling/biodiversity,
- Hydrology,
- Aquatic ecology/Fish biology
- Soil microbial community assessment,
- Entomology
- modelling
- Social Ecology

## Expertise sought for at level of the Flemish HEIs

- Soil Scientist,
- Modelling
- Vegetation mapping
- Technologist (Electronics),
- Data Management/Statistician,
- Socio-economist
- Nitrogen gas analysis expert
- Ecosystem Services expert
- Remote sensing expert





# Interested in this project?

Contact:-

Local Project Team  
Leader:-

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**THANK  
YOU**



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