

# JOHN YUMBYA MUTUA

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## RESEARCH INTERESTS

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My research focuses on the analysis and interpretation of spatiotemporal impacts of climate change, effective vulnerability assessment and adaptation planning for resilient crop and livestock production systems. I am intrigued by the application of geospatial technology for improved decision support and the scaling of proven concepts into decision support tools for farmers.

## EDUCATION

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**Master of Climate Change Adaptation** December 2020 (Expected)  
**University of Nairobi** Nairobi, Kenya  
Mapping Potential Heat Stress Risk for Dairy Cattle under Current and Future Projected Climatic Conditions in Uganda

**B.A., Geography** 2009  
**Moi University** Eldoret, Kenya  
A Decision Support System for Flood Hazard preparedness for Nzoia River Basin, Kenya

## PEER-REVIEWED PUBLICATIONS

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Rahimi J, **Mutua J**, Notenbaert A, Dieng D and Butterbach-Bahl K (2020). **Will Dairy Cattle Production in West Africa be Challenged by Heat Stress in the Future?** (Accepted in Climate Change Journal).

**Mutua J**, Marshall K, Paul B and Notenbaert A (2020). **A methodology for mapping current and future heat stress risk in pigs** (Accepted in International Journal of Animal Biosciences).

Nijbroek, R., Piikki, K., Söderström, M., Kempen, B., Turner, K., Hengari, S., and **Mutua, J.** (2018). **Soil Organic Carbon Baselines for Land Degradation Neutrality: Map Accuracy and Cost Tradeoffs with Respect to Complexity in Otjozondjupa, Namibia.** *Sustainability* , 10(5), 1610.

Hamerlynck, O., Zeine, S. M., **Mutua, J.**, Mukhwana, L., and Yéna, M. (2016). **Reflooding the Faguibine floodplain system, northern Mali: potential benefits and challenges.** *African Journal of Aquatic Science* , 41(1), 109-117.

**Yumbya, J.**, Vaate, M. B. De, Kiambi, D., Kebebew, F., and Rao, K. 2014. **Geographic Information Systems for assessment of climate change effects on teff in Ethiopia.** *African Crop Science Journal* , 22, 847 - 858

## RESEARCH AND CONSULTING

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**International Centre for Tropical Agriculture**, Nairobi, Kenya April 2015-Present  
*Geospatial Analyst*  
My work involves creating reproducible workflows for analyzing complex spatial data, with appropriate analytical methods, informed by my unique combination of skills, experience, and understanding of research themes - climate change, food security and agriculture.

**African Biodiversity Conservation and Innovations Centre**, Nairobi, Kenya October 2010-March 2015  
*GIS Analyst*  
Designed and implemented models for mapping commodity suitability in East Africa and implemented training and capacity building programs on remote sensing and GIS.

**International Centre for Tropical Agriculture, Cali, Colombia**

February 2012-June 2012

*Visiting Scientist*

Contributed to the development of algorithms for mapping and identifying priority wild relatives of rice for conservation.

**Institute of Research for Development, Tombouctou, Mali**

April 2010-September 2010

*GIS/Remote Sensing Consultant*

Spectral analysis of Multispectral Landsat 7 Enhanced Thematic Mapper Plus (ETM+) and aerial imagery; Created geospatial datasets for use in ecosystem services mapping projects in Kenya and Mali.

**Value Addition and Cottage Industry Development in Africa, Nairobi, Kenya**

January

2010-September 2010

*GIS Analyst*

Maintained the organization's enterprise geodatabase and ensured constant updating; Performed GIS data cleaning; Developed and implemented geostatistical modeling and analysis.

**Kenya Electricity Generating Company, Nairobi, Kenya**

September 2009-January 2010

*Intern*

Hydrological modeling and forecasting for hydroelectric power production; Maintained the organization's enterprise geodatabase and ensured constant updating.

**Department of Resource Survey and Remote Sensing, Nairobi, Kenya**

June 2009-August 2009

*Intern*

Designed and produced high-resolution well-designed map layouts; Maintained the organization's enterprise geodatabase and ensured constant updating.

**Kenya Meteorological Department, Nairobi, Kenya**

June 2008-August 2008

*Intern*

Designed and implemented a spatial model for mapping daily rainfall distribution in Kenya; Modeled rainfall-runoff modeling using Galway Flow Forecasting System.

## PROFESSIONAL TRAINING

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**Hands-on Global Soil Information Facilities**

May 2017

ISRIC - World Soil Information

*Wageningen, Netherlands*

**Automated Geospatial Watershed Assessment (AGWA) Tool**

March 2017

University of Arizona

*Tucson, USA*

**Advanced Soil and Water Assessment Tool (SWAT)**

February 2016

International Livestock Research Institute

*Addis Abbaba, Ethiopia*

**JICA-Net Training Program on Remote Sensing and GIS**

March 2010

Japan Society of Photogrammetry and Remote Sensing

*Nairobi, Kenya*

## SHORT COURSES AND WORKSHOPS LED

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**R for developing LDN indicators**

June 2017

Faculty of Agriculture and Natural Resources, University of Namibia,

*Windhoek, Namibia*

## CONFERENCE PRESENTATIONS

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**Targeting Tools version 1.0**

November 2019

AfricaGIS 2019

*Kigali, Rwanda*

The Sub-Saharan Africa Soil Data Manager (SSA-SDM)  
AfricaGIS 2019

November 2019  
Kigali, Rwanda

Bush encroachment mapping in Otjozondjupa region, Namibia  
FOSS4G 2018

August 2018  
Dar es salaam, Tanzania

## POSTER PRESENTATIONS

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Mapping the suitability of tropical forages - now and in the future -  
Tropentag

September 2018  
Ghent, Belgium

### CIAT Soil Carbon Sequestration Research

Soil Carbon Sequestration: Supporting NDCs and donor action    *ZEF Center for Development Research, University of Bonn*

November 2017

Development of a SOC Baseline: Experiences from Otjozondjupa, Namibia.  
Global Symposium on Soil Organic Carbon

March 2017  
Rome, Italy

Spatial Targeting of Agricultural Intensification Investments  
Linking Household Surveys with Spatial Data Workshop

March 2017  
Arusha, Tanzania

## SKILLS

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**Software**                      Expert: ArcGIS Suite, QGIS, ERDAS Imagine suite, ENVI, Google Earth Engine  
**Languages**                   Expert: R, L<sup>A</sup>T<sub>E</sub>X, HTML, Markdown, XLSForm, git  
   Intermediate: Python, MATLAB, JavaScript  
**Social Media**                Twitter: @JohnYumbya, 1,900+ tweets, 200+ followers  
   Blogs: maintainer, <https://ymutua.github.io>

### Open source contributions:

Technical Lead; GSDM <https://gsdm.online>  
Technical Lead; Targeting Tools <https://targetingtools.ciat.cgiar.org>  
Contributor; SurfaceTortoise <https://github.com/cran/SurfaceTortoise>  
Contributor; mapsRinteractive <https://github.com/cran/mapsRinteractive>  
Contributor; CLEANED-RX <https://github.com/CIAT/cleaned-rx>  
Many more projects hosted on GitHub, <https://github.com/ymutua>

## MEMBERSHIPS IN PROFESSIONAL SOCIETIES

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Geospatial Society of Kenya (GSK)	2017-present
Society for Conservation GIS (SCGIS)	2010-present

## REFEREES

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### Dr. Ravic P. Nijbroek

Scientist  
Alliance of Bioversity International and CIAT  
P.O. Box 823-00621 Nairobi, Kenya  
[r.nijbroek@cgiar.org](mailto:r.nijbroek@cgiar.org)

### Dr. Dionysious K. Kiambi

Dean, Graduate School  
Pan Africa Christian University  
P.O. Box 56875-00200, Nairobi, Kenya  
[d.kiambi@pacuniversity.ac.ke](mailto:d.kiambi@pacuniversity.ac.ke)

### William K. Kiplagat

Head, Geography Department  
Moi University  
P.O. Box 3900-30300, Eldoret, Kenya  
[williamkiplagat@yahoo.com](mailto:williamkiplagat@yahoo.com)