

Participatory modeling for Livelihood Security and Ecological Integrity in a Ugandan Wetland- Agricultural System

Ellen Kayendeke,
Makerere University, Uganda
24th August 2022

Background



Wetlands are experiencing high degradation

- Declining soil fertility/yield
- Erratic rainfall patterns

Research Objectives

- Generating information about the causal links and feedback mechanisms between wetland management and livelihood activities
- Creating an improved and **shared** understanding of the wetland-agricultural system structure among the stakeholders

Approach



Survey

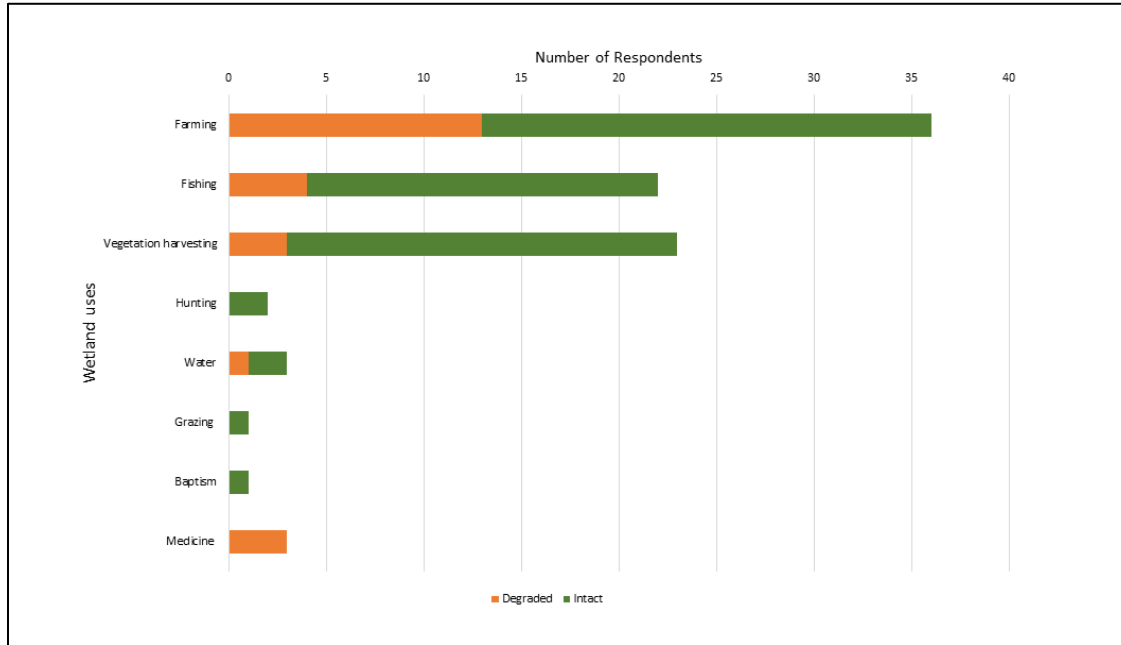


Building causal loop diagrams



Identifying important
feedback loops

Food and economic security is the main driver of wetland encroachment



1. Farming: 40%
2. Vegetation harvesting: 25%
3. Fishing 24%

Unclear land tenure: 67%
Low yields: 14%
Moist soils: 12%
Fertile soils: 7%

The main feedback is the impact of long-term wetland drainage on soil fertility

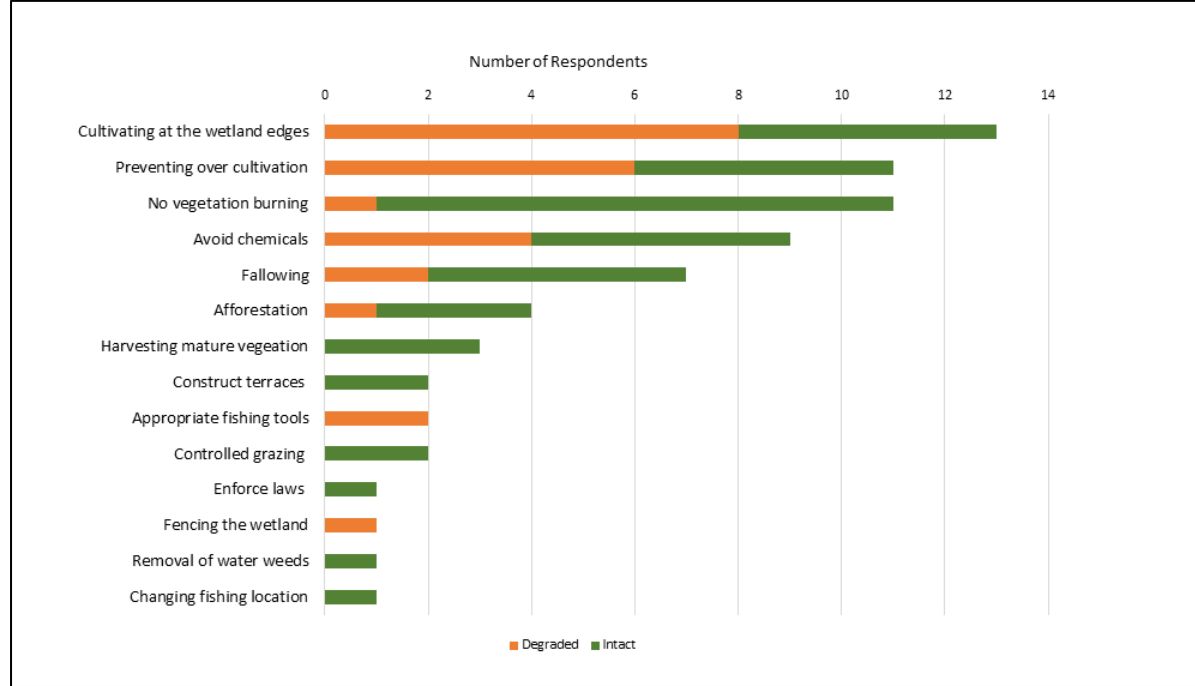
Short term

- reduction in wetland flora and fauna
- Impacts hunters, harvesters, fishermen
- Reduced ability to supplement food needs

Long term

- reduction in fertility/moisture
- Declining yield

Recommendations for sustainable use



Conclusions



- Wetland users are aware of the impacts of wetland degradation on ecosystem services, but they continue to encroach on wetlands
- Food and economic security are the main drivers of degradation
- Wetland degradation impacts long-term agricultural productivity, which then perpetuates a cycle of food insecurity and poverty
- Recommendation: Efforts to regulate wetland use and educate stakeholders on wise use of wetlands should be complimented with support of alternative livelihoods

Acknowledgments

Alliance for African
Partnership (AAP)

Mentors:
Prof. Laura Schmitt
Olabisi,
Prof. Frank Kansiime

Staff at Department of
Community
Sustainability, MSU

Colleagues at the
Department of
Environmental
Management, Makerere
University

Research Assistants
Research participants