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Wetlands in East Africa: Reconciling Future Use with Environmental Protection

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Abstract

Food production in many areas in East Africa shows stagnating or declining trends, with demographic growth, land degradation and climate variability being the main culprits. Wetlands, on the other hand, have year-round water availability and generally high resource base quality and present potential production hotspots. They cover 20 Mio ha in the four target countries (Kenya, Rwanda, Tanzania and Uganda) with only a small proportion currently being used. We surmise that these wetlands may become the food basket of the region. However, an increased food production from wetlands will only be achieved sustainably if intensified land use can be reconciled with the conservation of biodiversity and the maintenance of ecosystem services. Since September 2013, a German – African consortium assesses wetlands’ contribution to food security and the sustainability of current and future uses.

We have classified major wetlands by developing a wetland typology. In and around four representative target wetlands, we have catalogued the prevailing biodiversity and defined indicators of change. Changes in resource base quality attributes are being assessed along climatic and social gradient. The spatial-temporal dynamics of matter fluxes and their underlying processes are studied, and the economics of various ecosystem services are being quantified. Technical options for enhancing production, their ecological trade-offs as well as their social-cultural implications are compared along hydrological gradients at two super test sites. Models and various assessment tools are being developed and employed for cross-disciplinary and cross-scale integration. In this context, also the positive (food security and nutritional diversity) as well as the negative (water-borne diseases) human health implications are considered, and we develop regional projections under different global change scenarios.

The integration of actors from development and policy into the research process and a strong component of capacity building by training ensure the application of the findings both within the region studied and beyond.

Keywords: Floodplain, Kenya, modelling, Tanzania, Uganda