



ALTER is a 3 year research project based in Ethiopia and Uganda which aims to demonstrate that there are real and lasting benefits for wide scale poverty alleviation, particularly for the rural poor, by tackling soil degradation at a range of scales, from field to landscape, using opportunities within existing agricultural areas as well as severely degraded land.

Soil degradation is often the result of poor land use management practices that damage the soil, leading to previously nutrient rich soils becoming deficient in carbon and other minerals, thereby making them unproductive and unusable.

Solutions to soil degradation are not simple and require a much better understanding of how people benefit from soils, what they stand to gain if they can improve the condition of the soils that they manage, what they would need to do to accomplish this and what barriers they face. Information is also needed about the likely success of different management options to improve soils, and the goods and services that sustainable soil management can deliver.

### **Wetlands in Uganda**

Wetlands contain large amounts of carbon locked up in underpinning organic soils, and cover 13% of Uganda's total land area (30,105 km<sup>2</sup>). During the 1990's 7.3% (2,200 km<sup>2</sup>) of Ugandan wetlands were lost- a figure that has probably increased substantially as Uganda's population has since more than doubled. Draining these soils creates a large source of CO<sub>2</sub> emissions, estimated to be some 30 M t CO<sub>2</sub> per year- the largest emissions from drained organic soils of all African countries.

The degradation of wetlands:

- reduces soil nutrient retention, leading to increased pollution of water bodies, especially in Lake Victoria & Albert where fishing underpins the local economy.
- reduces the availability of water during droughts and increases vulnerability to flooding during rainy seasons.
- reduces access to wetland goods and services (e.g. material for thatching and fishing) that underpin rural livelihoods, thereby increasing the likelihood of poverty.

### **Research in Uganda**

The aim of the ALTER project in Uganda is to improve the management of wetland organic soils to contribute to poverty alleviation. The research will focus on both the biophysical and socio-economic aspects of wetland conversion. The project will investigate the impacts of land use management regimes and land use change upon wetland ecosystems, specifically soil organic carbon.

Field based research into current wetland soil organic stocks, and the influences that land use change and management has on them, will be undertaken at a number of sites. Social surveying will also be conducted to understand links between rural livelihoods and wetlands, and the decisions faced by stakeholders involved in land use management. Remote sensing and other geospatial data will be collected to develop models for predicting wetland ecosystem loss under business-as-usual and climate change scenarios, as well as analysing future policy impacts.

ALTER will evaluate the value of wetlands for poor communities by identifying the trade-offs and drivers of wetland land use change. The project will use novel approaches that combine spatial analyses of biophysical and socio-economic conditions to identify the changes to wetlands ecosystems expected from current and alternative governance and land management regimes. Guidelines for different interventions to restore, maintain and improve wetland organic soils will be developed. The multi-site study will provide information that can be applied at a local level to support community-managed projects for poverty alleviation. At a national level, new data and planning tools developed by ALTER can be used to design national action strategies to improve and facilitate investment in wetland soil organic carbon.

### **Project Partners**

ALTER is an international consortium between the Carbon Foundation of East Africa (Uganda), The James Hutton Institute (UK), University of Aberdeen (UK), Hawassa University (Ethiopia), the Ethiopian Government's Southern Agricultural Research Institute and the International Water Management Institute (Ethiopia). The team brings together natural scientists, social scientists and economists to work together with rural communities and other local decision-makers and facilitators, to improve the capacity to predict how human-environment linked systems respond to incentives and other changes.

### **Carbon Foundation of East Africa**

The Carbon Foundation of East Africa (CAFEA) is the managing research partner for ALTER in Uganda. Research will be undertaken by locally employed researchers as well as visiting research scientists. CAFEA is working with local partners to establish a dynamic network of stakeholders and practitioners who have an interest in the sustainable management of Uganda's wetlands.

### **Further information**

For more information on the ALTER project in Uganda please contact:

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*See [www.espa.ac.uk](http://www.espa.ac.uk) for more details.*