



ReACCT – Resilient agro-landscapes to climate change in Tanzania

Leibniz-Centre for Agricultural Landscape Research (ZALF) e.V.

Country/Region:	Tanzania
International Agricultural Research Center participation:	World Agroforestry Center ICRAF
Leading scientists:	Dr. Karen Tscherning, Dr. Johannes Dietz, Dr. Uwe Boehm
Duration:	May 2008 – April 2011

Initial situation

The rationale for this project reflects the concern that future climate change will further exacerbate current climatic risks. Conceptually, this is an “overlay” of future climate change onto the present vulnerability. The project follows an approach to adaptation planning, which is based on scenarios of possible futures and concepts of robust decision making and social learning. It will work from the perspective of a nested multifunctional landscape to take the complexity of agro-landscapes and their inhabitants into account.

Approach of the project

The research is conducted in selected sites of the Morogoro Region (Eastern Arc) of Eastern Tanzania where significant climate change is expected to occur and where different altitudes and a gradient in rainfall regimes allow for the comparison of contrasting sites.

The project aims at assessing the regional impacts of climate change on agriculture and environment and at identifying adaptation strategies in small-scale agriculture and other land use sectors (e.g. hydrology).

The project is built on three major analytical thrusts:

1. Improving the understanding of climate variability in the region and their impacts on current land use systems and respective environmental, social and economic pressures.
2. Assessing smallholder constraints and opportunities with regard to potential climate change impacts on agriculture and ecosystem services.
3. Identification of a range of suitable tree species and good practices for improving the overall adaptive capacity of rural households through sustainability impact assessment.



ReACCT seeks to make model outputs from different disciplines (climate, hydrology and crop-soil) meaningful for local decision makers by mirroring them with farmers’ perceptions and needs.

Major results achieved

ReACCT activities increased the Tanzanian-German research network in the area of climate change research. Exchange of researchers was supported between ZALF, PIK, TMA and SUA and fostered mutual learning in terms of approaches, models and methods.

Historical vegetation maps and descriptions of Tanzania have been identified and are currently being evaluated to create a local database of occurring tree species. It is expected that many of the preferred tree species will be featured among the more than 200 tree and shrub species selected as useful to farming and pastoral communities of Tanzania hence information on management and potential use of these species will be readily available.

Experimental sites for agro-ecosystem modeling have been established and fully equipped. Data for different commodities and varieties are collected in collaboration with the Tanzanian Ministry of Agriculture (two research stations). An additional research site in collaboration with SUA provides data on different hydrological settings and the tree-crop interaction.

For the hydrological modelling, the Ngerengere catchment (2,780 km²) in the Upper Ruvu Basin was selected as a study area and data is assessed from existing and additionally installed monitoring devices. Participatory scenarios are currently being developed with small-holder farmers in eight selected villages of the Morogoro region.



For updates on progress please check on www.reacctanzania.com.

Expected impact

ReACCT follows the main hypothesis that specific adaptation strategies are most promising when developed by combining data-driven model results and stakeholder-based scenarios of potential future 'agro-landscapes'. This holistic landscape-scale approach leads to the identification of sets of good practices which will directly be validated among the stakeholders in order to strengthen their adaptive capacity within the rural communities.

Collaborating institutions: Potsdam Institute for Climate Impact Research (PIK), Germany; Sokoine University of Agriculture (SUA), Wami Ruvu Basin Water Office (WRBWO), Tanzania Meteorological Agency (TMA) University of Dar es Salaam, Ministry of Agriculture and Food Security Tanzania, Tanzania

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