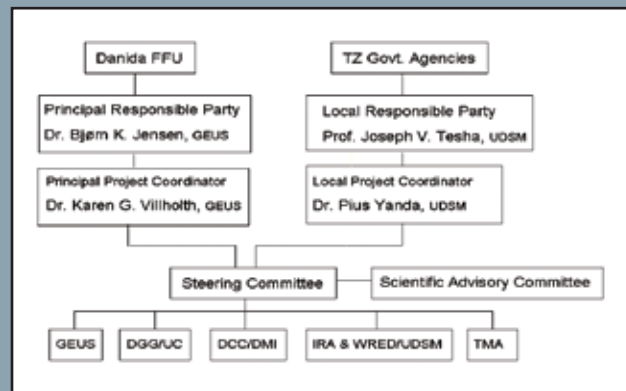


Background

Climate change is one of the major threats to development on a global scale. Unpredictable extreme events and longer term climatic change trends and increased variability may off-set important gains in the fight against poverty and food insecurity in many countries unless timely and properly targeted mitigation and adaptation strategies are implemented. The poorest people of these countries are foreseen to suffer disproportionately if adequate measures, in terms of livelihood adaptation strategies, structural interventions, and appropriate institutional and policy changes, are not put in place. This project addresses the impacts of climate change on water resources and agriculture in Tanzania. Livelihoods based on farming and other land uses are central to the majority of the rural populations of this country and especially agriculture is susceptible to climate change as even relatively small changes in water availability and temporal as well as spatial distribution of water can make the difference between success and failure of seasonal crops. Tanzania has national strategies or commitments to fight the impacts of climate change. For example, among the priority areas in the National Action Plan on Climate Change and the National Adaptation Plan of Action (NAPA), are capacity building and projects internalizing climate change aspects. Additionally, the National Strategy for Growth and Reduction of Poverty (NSGRP) does explicitly recognize the significance of current climatic impacts on the poor, although the potential links between climatic factors and performance of key sectors such as agriculture are generally not discussed.

Figure 1: Organogram of CLIVET



Climate Change and Capacity Building

Tanzania has been selected as study country for this project as it is predicted to be significantly influenced by climate change, and because the proposed project supports ongoing Danida's activities in Sector Programmes of agriculture and environment. The project will support a large and effective learning and capacity building environment through the development of a North-South network of researchers. This project is funded by DANIDA and runs from September 2009 to December 2014. There will be an increased research capacity and competences of institutions in Tanzania for analysing and devising appropriate adaptation strategies in the agricultural sector related to changes in land use and water availability as a result of predicted likely climate changes. A total of Three Ph.D.'s and a similar number of M.Sc.'s will be produced by the project.

Objectives of CLIVET Project

The overall objective of the project is to contribute to the development of capabilities of Tanzania to encounter the impacts of climate change and develop best strategies to adapt to these changes, particularly as they relate to water resources and the use of water within the agricultural sector. Specifically:

- Support the building of individual and institutional capacity to do research within climate change, the prediction of climate changes at various scales, and the related impacts on the hydrology and water resources for agriculture of selected regions in Tanzania
- Support the building of individual and institutional capacity to do research within potential adaptation strategies related to water use in the agricultural sector and to analyze existing and potential new adaptation strategies.
- To inform national and development assistance policy dialogue on appropriate climate change adaptation strategies in water management within the agricultural sector
- To build climate change research alliances between North-South partners and support international research collaboration to address issues of climate change in agriculture.

Strategy for Implementation

The project is divided into three work packages:

Work package 1:

Predicting and assessing climate change in selected river basins in Tanzania (in short: Climate)

Work package 2:

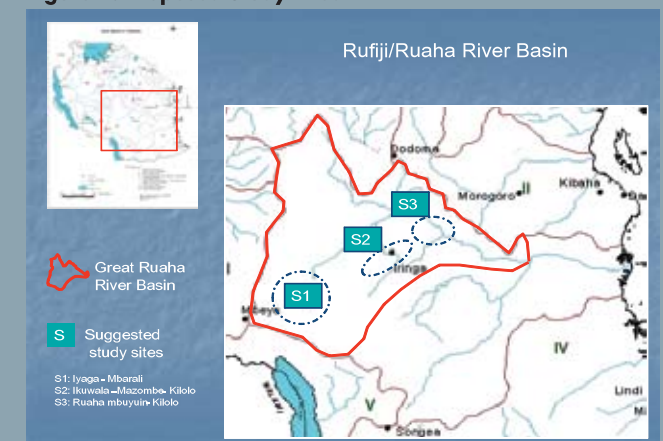
Predicting and analysing impacts of climate change and adaptation measures on hydrology and water resources within agriculture in Rufiji river basin in Tanzania (in short: Water resources)

Work package 3:

Analysing climate change impacts and devising adaptation options in the agricultural sector in Tanzania (In short: Adaptation)

These work packages are linked logically and partly sequentially, as work package 1 (WP1) gives central inputs to WP2, and WP2 similarly feeds important information into WP3. However, given the cross-disciplinary nature of the project, information and input also feed from WP3 to WP1 and WP2. The interaction between WP's will be an iterative process to ensure coherence and integration.

Figure 2: Proposed Study Area



Anticipated Outputs

- Increased research capacity and competences of institutions in Tanzania for predicting climatic changes and assessing impacts of climate change on water resources for agriculture at various scales
- Increased research capacity and competences of institutions in Tanzania for analysing and devising appropriate adaptation strategies in the agricultural sector related to changes in land use and water availability as a result of predicted likely climate changes
- Three Ph.D.'s and a similar number of M.Sc.'s
- An international network of researchers working on inter-disciplinary aspects of climate change impacts and adaptation in water resources management and agriculture
- A set of state-of-the-art regional climate change predictions for selected large representative and important river basins in Tanzania (Rufiji River Basin)
- Hydrological and agronomic models, applied and tested on the selected river basin, to predict likely changes on water resources and crop production as a consequence of climate change and potential adaptation measures
- Socio-economic analysis of various adaptation measures and improved knowledge and understanding of adaptation, specifically related to climate change, among stakeholders
- Context-specific and geographically focused recommendations on best adaptation strategies within water resources and land use management and agricultural production
- Publications, including project website, policy briefs, awareness material to local stakeholders, international scientific publications

The Project Partners

The partner institutions of the project are the following:

In Denmark:

- Geological Survey of Denmark and Greenland (GEUS)
- Department of Geography and Geology (DGG), University of Copenhagen (UC)
- Danish Climate Centre (DCC), Danish Meteorological Institute (DMI)

In Tanzania:

- Institute of Resources Assessment (IRA), University of Dar es Salaam (UDSM)
- Water Resources Engineering Department (WRED), University of Dar es Salaam (UDSM)
- Tanzania Meteorological Agency (TMA)

Principal Responsible Party
Dr. Karen G. Villholth (GEUS)
 Denmark
kgv@geus.dk

Local Responsible Party
Prof. Pius Z. Yanda (IRA/UDSM)
 Tanzania
yanda@ira.udsm.ac.tz



**Impacts of
 climate change on
 water resources and
 agriculture - and
 adaptation strategies
 in Tanzania
 (CLIVET)**