

Understand Water Resource Management on Farm and Community Level using a Systems Approach

Project Background and Approach

Water availability in Nakuru County highly varies over time and space. Decreasing predictability of precipitation and increasing events of extreme weather challenge especially low external input farmers who are less able to access and/or invest in mitigation measures such as irrigation. The CollAqua project aims at co-developing inclusive technical and social innovations for sustainable water resource management in such farming systems and their communities through the application of transdisciplinary research methods. Transdisciplinary research recognises that complex, context-dependent and uncertain problematic situations need to be managed collaboratively by scientists, the concerned practitioners and other societal actors. It puts the research partners on par, values actors' local knowledge and orientates itself towards actors' needs and aims. The Master Thesis will take up at this point:

Focus Area

Food and Farming systems depend on human management and as such depend on the actors' values, aims, and understanding of how the system works. Hence, change in such systems can only happen if the actors change their actions due to changing values, aims or understanding. In order to develop solutions that take the different aims and perspectives of the various actors involved in farm and community water management into consideration, these perspectives need to be revealed, communicated, integrated and synthesized. The proposed Master Thesis aims to develop such system knowledge.

Proposed Research Questions to be addressed:

- Identify the different actors and institutions that have an influence on farm and community level water management
- Describe the routine and problem-solving water management practices at small-scale farmer household and community level
- Identify the constraints and disturbances occurring to water management as well as the information influencing farmers water management decisions

These research questions will mainly be answered through the application of qualitative research methods as they are more appropriate to develop a profound systems understanding, to capture and understand actors' knowledge, reasoning, perspective and experience. Methods include participatory observation through e.g. farm visits, focus groups discussions structured by tools such as seasonal calendar or Venn diagram, and additional individual semi-structured interviews. The data will be analysed through an Activity & Knowledge analysis (see Restrepo, M. J., Lelea, M. A., & Kaufmann, B. (2016). Second-Order Cybernetic Analysis to Re-construct Farmers' Rationale When Regulating Milk Production. *Systemic Practice and Action Research*, 29(5), 449–468. <https://doi.org/10.1007/s11213-016-9371-x>.)

Complementary, quantitative data might be collected based on farmers' expressed interest in such results. This ensures that the research process remains relevant to them, which forms the basis for the joint learning and collective action process.

Time Frames and Study Area

The full **research proposal** shall be **developed between November 2019 and April 2020** with presentations at the Department and Faculty scheduled for May and June 2020.

Data shall be subsequently **collected over a three month period between July to September 2020** in pre-selected research sites **in Nakuru County, Kenya**. This shall be done in close collaboration with the other MSc student, the PhD student and, if needed, field assistant(s).

Prerequisites

- Willingness to actively and in partnership collaborate with people involved in water management in rural smallholder communities
- Willingness and time for frequent on-site visits
- Strong interest (at best experience) in application of social science methodologies associated with a transdisciplinary action research approach.

Funding

Costs for fieldwork including transportation to and from data collection site, supplies such as facilitation materials, field translation services (if needed) and transcription can be covered by the project. The project can unfortunately not offer a personal scholarship for the MSc student.

Application Process

Please send your application (CV, transcript of records, motivation letter) to Eva Hilt (e.hilt@ditls.org) or ask for further information.