

**Extension Phase of Senior Fellowship for Dr. Jeninah Karungi-Tumutegyeize:  
"Productivity and biological diversity in the coffee-banana system in the Mt. Elgon  
Region of Uganda - status and role of soil carbon stocks and nutrient balances in  
existing land management systems"**

Initiative: Wissen für morgen – Kooperative Forschungsvorhaben im subsaharischen Afrika (beendet)

Ausschreibung: Postdoctoral Fellowships "Resources, their Dynamics and Sustainability - Capacity-  
Development in Comparative and Integrated Approaches"

Bewilligung: 26.06.2018

Laufzeit: 2 Jahre

In phase 1 of the VW Africa initiative postdoctoral research, socio economic, biophysical and ecological drivers of particular aspects of biological diversity and productivity in the coffee-banana system of the Mt. Elgon region (MER) were established. A two-year extension to cement and build on findings from research of the previous period is envisaged. This is for a more in-depth assessment of the elevation-cropping system-microclimate-soil nexus. This is to finalise identification of problematic land use systems and flows where recommendations for corrective land-use strategies can be developed and disseminated. Particular to this study will be the determination of nutrient balances and carbon stocks in the coffee cropping systems in the MER, a gap of the previous phase. As such, the objectives of the extension will be to: 1) facilitate the two PhD students on the fellowship to complete research theses/publications and build career networks 2) To determine the partial nutrient balances and soil carbon stocks in prevailing cropping systems as nested into the altitude gradients in the MER, 3) To establish the role of soil organic carbon stocks on biomass and density of soil macrofauna in the different cropping systems at the different altitude gradients in the MER, and 4) Pilot stakeholder networks to enhance abundance and effectiveness of beneficial terrestrial and soil macrofauna in coffee-banana systems. The research hypotheses being tested are that: 1) Coffee fields that are regularly tilled to include seasonal crops have reduced soil carbon stocks, negative nutrient balances, and the lowest levels of soil macrofauna biomass and density, 2) Inclusion of shade trees and sustained usage of organic manures in such systems may restore the soil C and nutrients to appreciable levels and promote macrofauna abundance.

**Projektbeteiligte**

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#### **Open Access-Publikationen**

**Parasitism of *Hypothenemus hampei* (Coleoptera: Scolytidae) in different farming systems and altitudes of Mount Elgon, Uganda**

**Can Occurrence and Distribution of Ground Beetles (Carabidae) Be Influenced by the Coffee Farming System in the Mount Elgon Region of Uganda?**

**Efficiency and possibilities for Arabica coffee-banana management systems switching in the Mt. Elgon landscape of Uganda**

**Host- plant and insect- pest compensations, and microclimate as drivers for intensity of *Toxoptera aurantii* (Hemiptera: Aphididae) in Arabica coffee-banana farming system of Mount Elgon region, Uganda**