



Universität Hamburg

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Announcement of an oral presentation

Title: **Soils and climate controlling land use options in communal areas of the Okavango basin**

Speaker: Dr. Alexander Groengroeft
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Abstract: Analysis of soil properties in four areas of the Okavango basin (Seronga/Botswana, Mashare/Namibia, Cajundo/Angola, Cusseque/Angola) and actual yields of the subsistence farmers indicates, that the current land use is controlled by a) irregular rainfall in the growing season, b) the low amounts of nutrients in the soils at most positions and c) the lack of fertilization in the traditional land use technique. As a consequence, actual yields are rather low. Under these conditions, permanent cropping reduces the nutrient availability even more. However, farmers have to adapt their management to the natural conditions.

In the talk an analysis of the current situation is given and ways to improve yields by for instance conservation agriculture proposed.

Introduction to the project:

The interdisciplinary research project "**The Future Okavango**" (TFO) is dedicated to support a sustainable land use and resource management in the Okavango Basin of the countries Angola, Botswana and Namibia with scientific knowledge. The region under investigation, a system of woodland savannas, floodplains and extended wetlands is of crucial global importance for biological diversity. Simultaneously it is threatened by rapid transformation through climate change, population growth and anthropogenic over-utilization of natural resources. Such threats can amplify land- and water conflicts. There is a high need for high-quality scientific contributions to optimize land use and resource management. The Okavango basin can be perceived as a model region to achieve these goals. An improved understanding of the interlinkages of human action, ecosystem function and -services, and influences of climate is highly necessary. This understanding will help to evaluate and valorize

existing ecosystem services and land uses within a socio-economic context and to discover potentials for improved land management. With an innovative and trans-disciplinary approach TFO aims at supporting the already well-established communication between science and decision makers leading to the participatory implementation of research results.

Within this overarching goal of TFO, the **soil scientists** focus on the analysis and assessment of the soil related ecosystem functions, their interaction with land use management and their vulnerability to the predicted climate change. The research will investigate how to stabilise key ecosystem services and thus sustain human livelihood. Within the region, current soil degradation is predominantly associated to overgrazing, unsustainable cropping techniques and human induced fires. In cooperation with partners from Angola, Botswana and Namibia the subproject concentrates on

- Soil water availability and groundwater recharge
- Influence of land use management and climate change on soil carbon pools and sequestration
- Nutrient dynamics
- Agronomic benchmark sites

Introduction to the speaker;

Alexander Groengroeft is biologist by training and holds a permanent position as a senior scientist and lecturer at the soil science institute of the University of Hamburg, Germany. His first scientific contact to the ecology of southern Africa was by a travel in 1992, since 2000 he is engaged in soil related studies in Namibia, South Africa, Botswana and Angola within the projects BIOTA, TFO and SASSCAL. Focus of the working group of Hamburg is the interaction of soils with soil organisms (microorganisms, lichens, soil crusts, termites), with plants (e. g. bush encroachment, agriculture) and with the ground water (soil water balances).