ALUCCSA — Adaptation of Land Use to Climate Change in Sub-Saharan Africa

Outline of A Collaborative Research Project on Climate Change Adaptation in Sub-Saharan Africa

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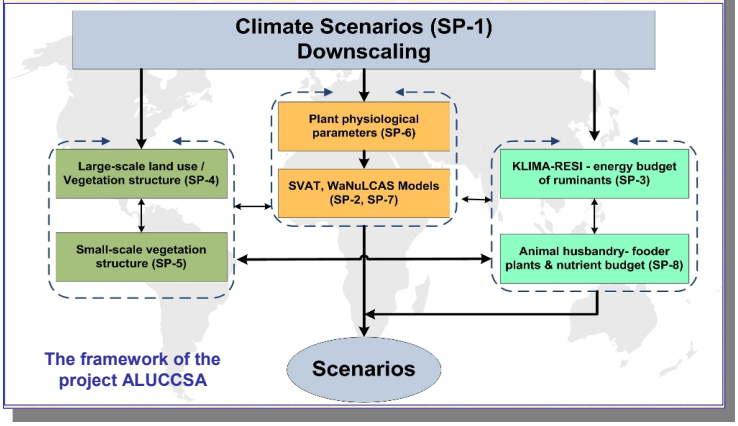
BACKGROUND & OBJECTIVES

Expected climate change might have significant consequences for Sub-Saharan countries (IPCC, 2007). Today approximately 50% of the African population depends on dry-land use on various forms of vegetation cover.

Climate plays a crucial role for land use management, thus climate scenarios for the coming decades on a local scale could decisively help to alleviate these problems by — i) helping individual farmers in adapting their cultivars to maintain productivity and income; ii) upholding the functionality of agroforestry systems in the region; and iii) giving the right directions of the overall planning in the socio-economic development of project countries.

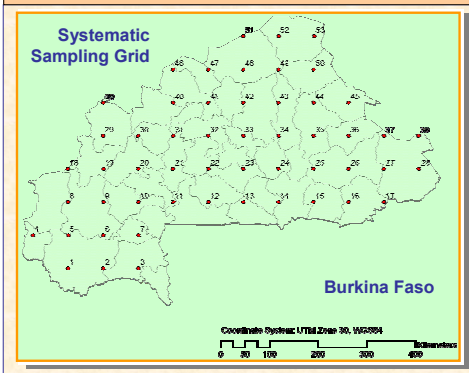
The main objective of ALUCCSA is to develop ready-to-use scenarios and recommendations for agroforestry and silvopastoral ecosystems on highly-resolved spatial scale for two recommended climate projections (A1B, B1) in regions of Sub-Saharan Africa.

Current forms of agriculture and live-stock husbandry practices will be evaluated in the specific regions and confronted with future climate scenario conditions. The integrating expert views will flow into a profound support tool for adaptation of agricultural practices to climate change. The tool will provide the information and practical recommendations for stakeholders for possible scenarios of land-use development.



The framework of the project ALUCCSA

METHODS



The structuring of the entire project into eight subprojects (SP 1-8) follows straightforward reasoning keeping modeling and measurement components as key categories. The systematic sampling grid will be employed to collect the data that are used to feed the scenario model.

METHODS Contd..

Modeling:

SP1- Climate Local Model will be used to downscale climate scenarios (A1B, B1) provided by (GCM).

SP2- Soil-Vegetation-Atmosphere-Transfer(SVAT)-models (WaNuLCAS) to quantify climate-vegetation interaction.

SP3- Energy balance model for ruminants in their outdoor environment will be developed.

SP7- 3-D-radiative transfer model will be used to quantify radiation field in different land use systems.

Observations and Measurement

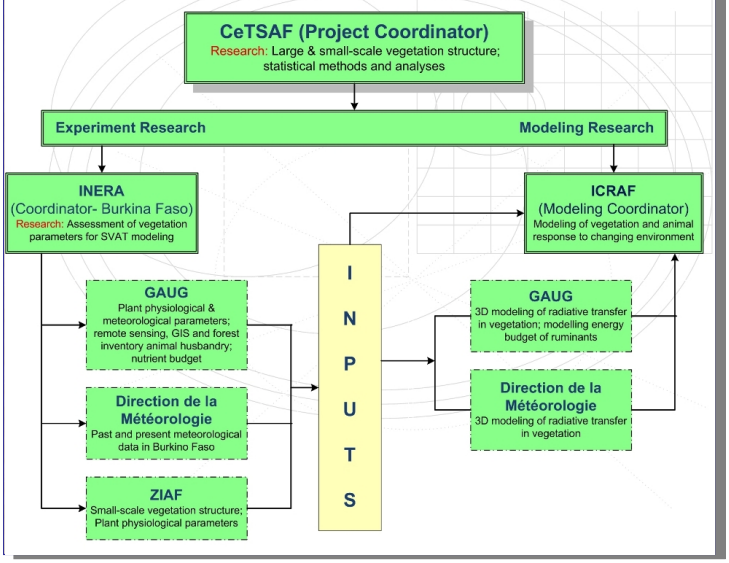
SP4- Large-scale present and past distribution of vegetation structure will be determined by means of remote-sensing and ground based measurements.

SP5- Small-scale structures of vegetation at site level will be estimated by means of ground based measurements.

SP6- The capacity of the plant to cope with different environments will be estimated by measured and modeled physiological parameters of woody and crop plants.

SP8- Characterization of the present livestock husbandry systems in the study areas, use of fodder plants and nutrient budgets

COLLABORATING INSTITUTIONS



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