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From science to action - climate risk analyses to support adaptation policies and planning at a local level in northern Ghana

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Agricultural production is highly weather-dependent in sub-Saharan Africa. Under climate change the risk of yield losses increases even further, posing a threat to farmers' income and livelihood. Despite the availability of a wide range of adaptation strategies for the agricultural sector, information on their suitability at the local scale is limited.

In this session, we would like to discuss an example of a climate risk analysis that supports decision makers on a local scale in northern Ghana in adaptation planning. Using latest past and projected climate data as well as biophysical crop models, the study at first quantified climate impacts on agriculture. Secondly, the suitability of different adaptation strategies was assessed under socio-economic and biophysical aspects using mixed methods including interviews, literature, a cost-benefit analysis and agricultural modelling. Differential vulnerabilities of farmers based on their identities were taken into account. Relevant stakeholders from Ghanaian local and national governmental institutions, civil society, academia, the private sector, practitioners and development partners were engaged throughout the study process in three workshops, selected the adaptation strategies and were consulted in various interviews.

Results show the dominant negative impacts of climate change on main staple crop yields in northern Ghana with differences according to region, crop and management possibilities of the farmer. The four analysed adaptation strategies (using improved seeds, cashew plantations alley cropped with legumes, Farmer Managed Natural Regeneration and Irrigation) can all increase agricultural production and income while having differential positive co-benefits and negative side-effects. Unequal access to power, assets and land leads to differing opportunities in the uptake of suitable measures. Detailed recommendations for an implementation of the adaptation strategies ensuring an increased adaptive capacity of whole communities were developed and discussed with stakeholders. The information was prepared in policy briefs and short films.