



Tropentag, September 16-18, 2015, Berlin, Germany

“Management of land use systems for enhanced food security:
conflicts, controversies and resolutions”

BiomassWeb: Improving Food Security in Africa through Increased System Productivity of Biomass-Based Value Webs

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Abstract

With the shift of governments towards a bioeconomy, global demand for food, feed, fuel and fiber crops has increased pressure on the agricultural sector and food production worldwide. Concepts to increase food security while attending growing demands for non-food biomass are still in their infant stages. BiomassWeb develops concepts to increase food security in sub-Saharan Africa by focusing on innovations in the agricultural sector and in biomass-based value webs.

BiomassWeb addresses all pillars of food security: 1) food availability through enhanced productivity; 2) food access through income generation from non-food biomass production, processing and trading; 3) use of food through increased nutritional quality; and 4) food stability through more efficient land-use systems. System complexity is captured by the methodological framework of biomass-based value webs, i.e., interlinked value chains in which food and non-food biomass are produced, processed and traded.

The 5-year BiomassWeb research programme comprises 22 work packages organised into 7 research clusters. Research activities identify potential productivity and efficiency gains in the biomass sector through an increased integration of all value web components and the utilisation of currently wasted biomass. For strategic points within the value webs, the project identifies modular innovation opportunities in production and processing technologies and institutional and governance structures. The project output consists of scientific knowledge generation and capacity development regarding: (1) Specific recommendations for crops, especially for cassava, maize, banana/plantain/enset and bamboo, and countries (Ethiopia, Ghana, Nigeria); (2) a framework of methods and tools to address future biomass challenges and a group of regional biomass resource experts trained in applying and expanding the tools; and (3) a pan-African network (Biomass Net) of biomass experts and actors in sub-Saharan Africa's biomass sector as a stakeholder platform for biomass-related discussions and activities for the next decades. Stakeholder engagement and interaction ensure the adoptability and dissemination of project results and contribute to preparing the African bioeconomy for the rising biomass demand.

BiomassWeb builds on a network of German and African universities, research institutions, and international agricultural research organisations, in particular the Forum for Agricultural Research in Africa (FARA) with strong expertise of transforming research into action.

Keywords: Bio-economy, biomass-based value-web, food - non-food competition, system productivity