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"Bridging the gap between increasing knowledge and decreasing resources"

The Biomass-Based Value Web as a Novel Perspective on the Increasingly Complex African Agro-Food Sector

Detlef Virchow[1], Manfred Denich[1], Arnim Kuhn[2], Tina Beuchelt[1]

[1] *University of Bonn, Center for Development Research (ZEF), Germany*
[2] *University of Bonn, Institute for Food and Resource Economics, Germany*

Abstract

Undernourishment and micronutrient deficiency in Africa are still at high levels, while at the same time the international and domestic demand for non-food agricultural produce, like feed, energy and industrial raw materials, is continually increasing. The rising demand for more diverse biomass-based produce will transform traditional agriculture from a food-supplying to a biomass-supplying sector. Concepts are required which improve food security for the poor through increased food availability while supplying sufficient non-food, processed biomass to offer employment and income opportunities and hence improve the economic access to food. For these concepts analytic approaches are needed which are able to depict the increasingly complex ways of biomass from crop production to final consumption. Conventional value-chain approaches analysing single value chains are not sufficient anymore. We develop a biomass-based value web approach, in which the 'web perspective' is used as a multi-dimensional methodology to understand the interrelation between several value chains, to explore synergies and to identify inefficiencies in the entire biomass sector. This is instrumental to increase the sector's efficiency. The web perspective focuses on the numerous alternative uses of raw products, including recycling processes and the cascading effects during the processing phase of the biomass utilisation. A case study of a biomass-based value-web approach from Ethiopia is presented. The first step is to describe the material flows of all produced biomass from the various crops, the involved actors and interrelations from production to consumption in such a biomass-based value web. Furthermore, the information and financial flows will be described and analyzed. As a second step the local bottlenecks and opportunities of improving the system productivity and food security in the biomass-based value-web are discussed. Finally, an outlook is given of how the analytic approach of biomass-based value webs can improve the understanding and efficiency of an increasingly complex agricultural system as part of the emerging bio-economy in Africa.

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

Contact Address: Detlef Virchow, University of Bonn, Center for Development Research (ZEF), Walter-Flex-Str. 3, 53113 Bonn, Germany, e-mail: d.virchow@uni-bonn.de