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"Biophysical and Socio-economic Frame Conditions for the Sustainable Management of Natural Resources"

## Sustainability of Renewable Resources in Developing Countries

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## Abstract

The production of renewable resources is one of the main tasks of agriculture since time immemorial. Renewable resources are defined as agricultural products, which are not used for food and feed purposes (non-food use). Renewable resources can be divided in two subgroups, those which usage is for energy purposes and others that are used for material purposes. Stimulated by debates over climate protection and security of energy supply the production of renewable resources has increased in recent years.

The increase of production has led to a controversial discussion about sustainability aspects in production and the impact for developing countries. Some people argue that the increasing demand for renewable resources can be a possibility for people in rural areas, in order to get new marketing opportunities and to achieve higher incomes. In contrast to this opinion there are more critical voices, which mentioned a lot of risks for people in developing countries. Main points of criticism in this context are the utilisation rivalry with the food production (food vs. fuel) as well as social and ecological sustainability aspects. The loss of biodiversity due to monoproduction, bad CO<sub>2</sub> balances arising from change in land use, land conflicts (illegal land seizure, land grabbing), the squeezing out of smallholder production systems or bad working conditions on energy crop plantations are some of often mentioned problems in context of renewable resource cultivation.

The presentation deals with general facts and figures about renewable resources in order to explain the importance of renewable resources in global context. Further the 3 dimensions of sustainability in renewable resource production and resulting problems will be presented and solutions for a possible production of renewable resources under the compliance with sustainability criteria will be demonstrated.

Rural population could only benefit from new income possibilities in case that economic, social and ecological sustainability are guaranteed. Therefore the focus of development cooperation has to be: the establishment of sustainability criteria and certification systems, the development of biomass strategies with focus on food security and the support for construction of value chains with the integration of smallholders (e.g. outgrower schemes, contract farming).

**Keywords:** Bioenergy, biofuels, certification systems, food vs. fuel, land conflicts, renewable primary products, sustainability