

COMPETE Workshop on ‘Improved Energy Crop and Agroforestry Systems for Sustainable Development in Africa’

by Dr. Rainer Janssen and Dominik Rutz, WIP – Renewable Energies, Germany (rainer.janssen@wip-munich.de, dominik.rutz@wip-munich.de)

The COMPETE international workshop on ‘Improved Energy Crop and Agroforestry Systems for Sustainable Development in Africa’ took place in Mauritius on 22 June 2007 in the framework of the ICSU 'International Field Workshop on Renewable Energy for Sustainable Development in Africa' (18-21 June 2007).



Participants of the COMPETE Workshop in Mauritius

The main objective of this workshop was to evaluate opportunities of improved land use (energy crops, improved agroforestry systems) for the sustainable production of modern bioenergy services in the African context. Special emphasis was given to mechanisms ensuring the economic, social and environmental sustainability of future bioenergy production and use, as well as the development of innovative financing tools and practical, targeted and efficient policies.

The workshop was opened with an Inauguration Address by Dr. Jairaj Ramkissoon, Director General, Food and Agriculture Research Council (FARC) of Mauritius, and Welcome Addresses by Dr. Jean Claude Autrey, Director, Mauritius Sugar Industry Research Institute (MSIRI), and Dr. Rainer Janssen, COMPETE Coordinator.

In the first thematic session on improved land use for energy crop cultivation Dr. Helen Watson, University of KwaZulu-Natal, South Africa, presented results from the Cane Resources Network for Southern Africa on the potential of bio-energy from sugarcane to support sustainable development and improve global competitiveness in southern Africa. It was shown that substantial suitable land is available especially in Malawi, Mozambique and Zambia, and that land availability is unlikely to be a limiting factor in harnessing sugarcane's bio-energy potential to create rural livelihoods and alleviate poverty, reduce dependence on imported energy sources, and offer new development pathways in the region.

Prof. Francis Yamba, CEEEZ, Zambia, presented encouraging results from the experiences of cultivation field test for different sweet sorghum varieties in Zambia. It was concluded that in order to achieve high yields, sweet sorghum should be grown under rain-fed and supplementary irrigation with single or double cropping schemes. Nevertheless, further research work is urgently needed to improve crop and soil management, develop agronomic packages for sustainable production, and improve bio-based pest and diseases control.

Prof. Donald Kgathi, University of Botswana, gave an overview of the status-quo of *Jatropha* cultivation in the southern African countries Botswana, Namibia, South Africa, Zambia, Zimbabwe and Malawi. There is an increasing interest in the development of *Jatropha* biofuels in southern Africa, but it was found that projects for the production of *Jatropha* biodiesel are only financially viable if carbon credits can be generated. Therefore, energy and climate change benefits gained need further life cycle investigation. Finally, in order to ensure sustainable production of biofuels as well as socio-economic and environmental benefits, conflicts over land-use have to be avoided and *Jatropha* shall be cultivated on degraded land while fertile land is reserved for food production.

Within session 2 on sustainability and policy frameworks, Dr. Rocio Diaz-Chavez, Centre for Environmental Policy, Imperial College London, United Kingdom, presented an overview on current sustainability assurance standards and certification schemes for biofuels. The rising demand on biofuels mainly in Europe and the United States has increased concerns about their sustainability of production. Several initiatives, based mainly in Europe, are developing standard schemes as a means of ensuring the sustainability of environmental and social criteria for both producers and users. Thereby, it is of crucial importance for the development of a sustainable biofuels sector in Africa that African stakeholders participate in the global sustainability discussions and guiding principles on sustainable biofuels development are developed on national and regional governmental levels.

Michael Madjera, Federation of Evangelical Churches in Central Germany, and Stanford Mwakasonda, Energy Research Centre, University of Cape Town, South Africa, addressed the important issue of the necessity of suitable legal frameworks and government guidelines and strategies for the sustainable production of energy crops in Africa. A common aspect in strategies is the critical importance for countries to have in place measures that address, not

only economic benefits, but also concerns on both social and environmental issues. Because of the nature of the farming systems in Africa, the need for appropriate strategies/policies for sustainable energy crop systems in Africa, cognizant of national circumstances, becomes even more important for the region. Successful strategies need to support sustainable energy, environment, forestry, water and land use/agriculture at the same time. Specialisation in crops should be promoted in which countries have competitive advantage though favourable energy yields and sustainable production pathways. Furthermore, strategies have to be developed in consistency with existing policies and legislation on water resources, land use, forestry and agriculture.

Finally, session 3 of the COMPETE workshop focussed on South-South cooperation and international trade. Dr. Ju Hui, Chinese Academy of Agricultural Sciences presented the status-quo of biofuel and biomass development in China. In the field of biofuels China had started an ambitious bio-ethanol programme in the year 2000 with the set-up of several bio-ethanol production facilities with a total production capacity of about 1 million tons per year. The main resource for bio-ethanol production until today is stale grain (e.g. corn, wheat) which is a very limited resource not sufficient to satisfy the strong demand for biofuels all over the country. As in the recent years China's corn price was steeply rising, the Chinese Government stopped approval of new production facilities to convert corn into ethanol, and China will focus on bioenergy technologies based on non-grain materials such as sweet sorghum, sugarcane, cassava and crop straws.

Current biofuel initiatives in India were presented by P.P. Bhojvaid, The Energy and Resources Institute (TERI). In 2003, the Committee on Biofuels set up by the Government of India recommended to focus biofuel development in India on ethanol from sugarcane (molasses) for blending with gasoline, and on biodiesel from *Jatropha curcas* for blending with fossil diesel. In the field of *Jatropha* cultivation India has gained considerable experience during the last years. Results include a detailed mapping of the country and the identification of suitable regions for *Jatropha* cultivation with respect to soil, climate and physiographic parameters.

In the framework of the COMPETE project it is foreseen that African partners will take advantage of the biofuels expertise from India, specifically in the field of *Jatropha* cultivation. Within the project activities on South-South cooperation, the COMPETE partners Winrock International India and TERI will organise a seminar and field trip to India in early February 2008.

The proceedings of this international workshop are available at the COMPETE project website www.compete-bioafrica.net.

The COMPETE project is co-funded by the European Commission in the 6th Framework Programme – Specific Measures in Support of International Cooperation (INCO-CT-2006-032448).