

BIOCHAR SYSTEMS FOR AFRICA

International Workshop

Tuesday 1st March - Wednesday 2nd March 2016

Board Room

World Agroforestry Centre, UN avenue, Gigiri 00100

Nairobi – Kenya

Unofficial meeting notes taken for the SIANI African Biochar Expert Group by Cecilia Sundberg.

Tuesday

Creating Synergies in Supporting Science, Innovation and Development

Prof. Alessandro Peressotti, University of Udine – Italy

Alessandro Peressotti opened by welcoming everybody, and emphasized the need for a biochar platform in Africa.

Biochar for Sustainable Soils (B4SS): objectives and key approaches

Dr. Ruy Anaya De La Rosa, STARFISH Initiatives – Australia

Ruy Anaya de la Rosa presented the Biochar for Sustainable Soils project. It is a project working in 6 countries worldwide, including Ethiopia and Kenya in Africa. The project aims at trying out and developing formulations for efficient biochar use in various parts of the world. See more below.

International Biochar Initiative (IBI): an international network in a changing environment

Prof. Johannes Lehmann, Cornell University - USA

Johannes Lehmann described the resources available from the IBI, of which some is available openly and all to IBI members. IBI works mainly with communication, and has materials available such as white papers, guidelines, and a biochar certification system.

ABC and the SIANI African biochar expert group

Prof. Cecilia Sundberg, Royal Institute of Technology (KTH) – Sweden

Cecilia Sundberg presented the ABC and the SIANI expert group, its vision, mission, purpose and activities. She also mentioned the smallholder farmer biochar system in Kenya that is being investigated in her research project.

B4SS project in Kenya

Dr. Edmundo Barrios, International Center for Research in Agroforestry (ICRAF), Nairobi - Kenya

Edmundo Barrios presented the approach used in the Kenyan project within B4SS. They will investigate biochar use in watersheds, including analysis of its effects on water quality in these watersheds. He stressed their approach to participatory field trials, as one example of research not just for, but in development. The methodology for participatory soil quality research can be found here:

Biochar research for improving crop yield and reversing soil degradation on small-holder farms in Western Kenya

Prof. Nancy Karanja, University of Nairobi

Nancy Karanja presented results from her research projects, including use of biochar as an inoculum for rhizobia.

Biochar in conservation farming in Zambia: effects on soil physics and implementation challenges

Dr. Vegard Martinsen, Norwegian University of Life Sciences - Norway

Vegard Martinsen presented experiences from several years of biochar research in rural Zambia. They have done research on biochar in combination with conservation tillage. They have seen good yield increase in maize when using biochar on sandy soil. However, for biochar to be a functional part of the farm system, there is a need for biomass supply and biochar production technology, which has proven challenging. They have introduced pigeon pea production, which provides biomass. They have found that the kon-tiki technology is a viable and relative clean alternative to earth-mound kilns for biochar production.

A successful case study of socioeconomic development driven by a Biochar System in Ghana

Mrs. Veronica Agodoa Kitti, ASA Initiative, Ghana

Veronica Agodoa Kitti presented experiences from biochar development in Ghana, where biochar is being produced, bagged and sold, in a business that has developed through the Biochar Plus project.

How can AUC facilitate the implementation of smallholder and/or large scale Biochar Systems in Africa?

Mr. Anthony Okara

Mr Anthony Okara described how biochar can be incorporated into The AU's Agenda 2063 for a prosperous African continent. There are opportunities for biochar to be included into policies on energy, agriculture, maternal and child health, and skills development. Moreover, an African bioenergy policy framework draft has been published.

Biochar Plus outcomes: feasibility Study in Zimbabwe

Dr. Chipso Shonhiwa, University of Bindura - Zimbabwe

Dr. Chipso Shonhiwa reported results from a pre-feasibility study in Zimbabwe, performed within the Biochar Plus project. She described the shortage of electricity in the country, and the ongoing bioelectricity projects, which provide an opportunity for co-production of biochar and electricity. Bioelectricity production should be sited where there is biomass residues available, i.e. adjacent to sawmills. A pre-feasibility study with a tentative business plan for such a plant was presented.

(The presentations were followed by Introduction and discussion about the African Biochar Partnership (ABP), which are not included here.)

Wednesday

Contribution of the B4SS project to Kenyan environment

Dr. Ruy Anaya De La Rosa, STARFISH Initiatives - Australia

Ruy described the B4SS Kenyan project. It builds on previous research by ICRAF, Nairobi University and Cornell University in Kenya. J. Lehmann is also involved in the Kenyan part of the project. Attention is paid to a participatory approach involving farmers in development of the protocols for field experiments, as described by Edmundo Barrios yesterday. The project is planning to develop a B4SS good practice guide for how to produce and use biochar in different environments.

Biochar Systems implementation methods:

a. How to develop sustainable Biochar Systems: biomass availability as key factor

b. The role of research and training in building capacities

Prof. Alessandro Peressotti, University of Udine

Alessandro Peressotti described the Biochar Plus system. He started by describing the traditional practices of applying biochar to soils in Sierra Leone, the so called African Dark Earths. This practice is found only in biomass-rich landscapes in West Africa. He then described the ELSA gasifier stove and the biochar system that has been developed in the Biochar Plus project, with a focus on the value chain of biochar production.

Environmental and agronomic benefits of biochar systems: Kenya case studies

Prof. J. Lehmann, Cornell University (US)

Johannes Lehmann talked about his projects that he has had in Kenya together with Nancy Karanja, Edmundo Barrios and others. Starting from the soil degradation in Africa and the African Dark Earths as inspiration for a modern biochar system, he described the need to take into account biomass sourcing, production technologies and soil application. He then continued by describing results from various recent and ongoing research projects.

How Kenya could benefit from the existing biochar framework and opportunities: round table with policy makers

Mary Njenga demonstrated the biochar-producing gasifier cookstove used in her project. She explained the concept of research in development, where rural women are trying the cookstove and evaluating it from their practice, while the researchers analyse emissions and fuel use efficiency and biochar yield, among other aspects of the stove.

Nancy Karanja raised the issue of biochar being a potential to urban waste, which is largely organic. That could be a great opportunity for youth employment and for returning of organics to soils.

(Further discussions are not included here.)