

GBEP Working Group on Capacity Building for Sustainable Bioenergy (WGCB)

Activity Group 6 “Bioenergy and Water”

Event on “Bioenergy, water and SDG implementation: experiences and linkages”

World Water Week 2017
Stockholm, 31 August 2017



The event held at the World Water Week in Stockholm on 31 August 2017 was co-organised by GBEP, Chalmers University of Technology and IEA Bioenergy. It was intended to follow-up on the 2016 AG6 Report on ‘Examples of Positive Bioenergy and Water Relationships’ and included the dissemination and discussion of outcomes from this initiative, which aimed to collect examples of positive bioenergy and water linkages.

The event began with an overview of the GBEP Sustainability Indicators for Bioenergy (GSIs) and their linkages with the Sustainable Development Goals (SDGs). This built on a recent [workshop](#) (held in Bonn, Germany, 3-4 July 2017) that discussed how the GSIs and the SDGs may be mutually reinforcing. An introduction was given on the linkages between the targets and indicators of the two frameworks, and how the work will contribute to a Technical Paper currently being prepared for GBEP.

This presentation was followed by an overview of the work of Activity Group 6 and the collection of innovative examples of how bioenergy systems - in both the feedstock production and conversion phases - can produce positive impacts on the status of water. The examples documented so far cover a wide range of geographic locations, feedstocks, bioenergy pathways and practices. They come from 11 countries across six continents: Argentina, Australia, Brazil, China, Egypt, Germany, Italy, Mexico, Paraguay, South Africa and the United States of America. Each example includes qualitative and/or quantitative data on the positive impacts on water quality and availability, biomass/bioenergy production as well as any possible co-benefits observed.

Two further case studies were presented. The first was given by Dr. Ronald S. Zalesny Jr. (Northern Research Station, Phytotechnologies, Genetics, and Energy Crop Production Unit), who presented his research on positive water impacts from short rotation poplars for bioenergy and phytotechnologies. He presented the holistic approach taken by the research and emphasised the broad range of ecosystem

services that can be provided by these systems. He demonstrated how the selection of genotypes for specific traits can provide benefits in both water-rich and water-stressed sites, and how this can contribute to achieving the SDGs. Particularly poignant for the 2017 theme of the World Water Week on ‘Water and Waste: Reduce and Reuse’, Dr. Zalesny presented the potential of plantations of specifically selected varieties to be used for phytoremediation, such as the treatment of leachate from landfill sites.

Assoc. Prof. Ioannis Dimitriou (Swedish University of Agricultural Sciences (SLU), Department of Crop Production Ecology) introduced research on the use of willow plantations for both biomass production and ecosystem services. Examples included riparian buffer zones that reduce nutrient runoff into water bodies, and wastewater from wastewater treatment plants and landfill sites being used as irrigation for plantations. He concluded by demonstrating the importance of taking a landscape approach when locating and managing the biomass production, to effectively provide several ecosystem services. The use of mapping technologies can provide information for policy makers and planners on the preferred areas for bioenergy production.

Finally, Dr. Louise Karlberg (Stockholm Environment Institute) gave an overview of biomass and bioenergy in low-income countries, and the potential for meeting the SDGs. Dr. Karlberg presented two case studies from Ethiopia and Rwanda on biomass supply and demand. She demonstrated that demand for biomass substantially outstrips sustainable supply in these countries and that this creates a vicious cycle that is exacerbated by demographic pressures, unequal access to resources and poverty. Biomass represents a key component in the energy mix of these countries and there is therefore large potential to contribute positively to meeting several of the SDGs, if the systems receive proper attention, investments and management.

Further to the presentations, there was time for questions to the speakers and a lively discussion with broad ranging participation and topics. The various trade-offs between different ecosystem services were discussed and the need to take a holistic view was stressed. In terms of the use of short-rotation crops for phytoremediation, the issue of heavy metals was discussed and the use of legislation to ensure proper treatment. Commercial viability of these business models were also discussed, and the incorporation of bioremediation was shown to be a profitable but not necessary component, particularly where payments for ecosystem services are available. The vicious circle of unsustainable biomass use was discussed, together with potential avenues to ‘escape’ it. This is a highly context-dependent topic and depends on the ability to increase supply of biomass or other energy sources. The key policy issue is technology uptake to improve productivity and efficiency.

As a conclusion to the workshop, it was agreed that it would be beneficial to hold a webinar later in 2017 (in collaboration with IEA Bioenergy) to further disseminate the case studies presented and allow for further discussion.