Bioenergy – The overlooked contributor to the 1.5°C climate objective

28th European Biomass Conference and Exhibition (EUBCE 2020)
9 July 2020 – 14.00-15.30 CEST

This side event was the opportunity to shed light on the role of bioenergy in the climate goals (including considering the recent IPCC report on Climate Change and Land) and share the experience of GBEP and other relevant international institutions regarding the joint effort towards sustainable development of bioenergy.

- **Bioenergy within the bioeconomy**
  Uwe R. Fritsche, IEA Bioenergy Tasks 40+45 and Scientific Director, IINAS

The Paris agreement has made all the energy sectors look for solutions in which each can help achieving the agreement's targets. Bioenergy is not the exception, in fact, plays a main role in achieving the targets, considering that it contributes 20 percent of global decarbonization, which is essential for the ambitious climate mitigation and adaptation targets. Increased use of bioenergy might be an opportunity to take advantage of its potential benefits. Just since 2015, delivery of primary and final energy from biomass have increased 2.5 and 1.5 times with a total of 140 EJ and 80 EJ respectively.

Latest research and studies state that it has also been an increase in global biomass potential during the last 10 years, as IEA bioenergy roadmap reports a total of 131-240 EJ potential while the latest IPCC report projects the scenario for bioenergy deployment in 2050 to be between 40-312 EJ.

Biorefineries have a key role in the sustainable bioeconomy across different sectors including food systems, supply of biomaterials and supply of bioenergy, and is meant to promote global food security, regional employment, sustainable agricultural production, reduction of food losses and improved ecosystems services.

- **The contribution of GBEP through the Sustainability Indicators of Bioenergy**
  Maria Michela Morese, Executive Secretary, Global Bioenergy Partnership (GBEP/FAO)

As global carbon emissions continue to grow, leaving only 9 percent of the carbon budget left, an accelerated decarbonization of the global economy is needed, however, the uses of coal and oil suggest things are going in the wrong trajectory. In order to achieve the climate goals, the global community needs to act to reverse the trend by giving more emphasis on renewables, including bioenergy, which presents excellent opportunities but not without challenges. Sustainability is key to take the best of opportunities.

The Global Bioenergy Partnership (GBEP) has developed the most widely recognized and agreed set of indicators for the assessment and monitoring of bioenergy sustainability. The indicators' main objectives are to strengthen the capacity of national institutions to assess bioenergy and use the results to inform bioenergy policy-making; they are suitable to be implemented in any type of bioenergy, and cover the three main pillars of sustainability, i.e. Environmental, Social and Economic. Furthermore, the indicators

are set to measure, notify and verify the achievement of the National Determined Contributions (NDCs) and the Sustainable Development Goals (SDGs).

Dr Morese shared the experience of the GBEP team on the implementation of the GBEP indicators in various countries, with specific reference to the sustainably performances relevant for climate objectives.

An **Interactive discussion on good examples of bioenergy as a contribution to the climate targets** followed, moderated by Uwe Fritsche.
Keynote speakers highlighted main messages from their experience, giving a wide range of concrete examples of how bioenergy could contribute achieving climate targets.

- **Application of the GBEP indicators for the sustainable bioenergy in Germany**
  Horst Fehrenbach, IFEU, Germany

As of 2020, the GBEP indicators have been applied twice in Germany, most recently in 2019. The latest assessment was done in order to monitor the impact of bioenergy production and use at national level, to deepen the lessons learned from the first application and to identify options to connect periodic GSI assessments with other reporting and data collecting schemes.

- **BiogasDoneRight and biomethane potential developments**
  Guido Bezzi, CIB, Italy

As the world's population keeps growing and is expected to reach 10 bn people by 2050, food demand will consequently increase. Therefore, a solution to feed the increasing population while keeping agriculture from expanding and reducing carbon emissions is needed. BiogasDoneRight is an initiative that promotes organic matter and soil conservation, efficient photosynthesis and soil use and a migration from NPK fertilizers to C-NPK, which is already being used for sequential cropping.

- **Good example on liquid biofuels for transportation – focus on emission reduction potentials**
  Prof Suani Coelho, USP, Brazil

As of 2018, 25 percent of the transport fuel mix in Brazil came from renewable bioenergy. Sugarcane, corn, wheat, sugar beet, cassava and lignocellulosic residues have played an important role on the reduction of GHG emissions compared to gasoline. Brazilian commitments at COP 21 involves RenovaBio, a policy that uses carbon credit for biofuels as an incentive to reduce carbon footprint by incorporating available and new technologies, which will encourage bioenergy producers to be more efficient and to incorporate technologies with less carbon footprint. COVID pandemic is already having consequences on the biofuels market, causing the demand and price to drop significantly. Storage capacity is between one of the main challenges mills are experiencing, however, special financing policies are already under discussion to face the crisis.

- **The role of Charcoal in Africa: social and economic aspects**
  Vincent Ziba, FAO Zambia

Zambia has been already experiencing climate-related risks, e.g. drought, floods and extreme temperate. About 70 percent of the country's population still depend on wood fuel for energy needs, being charcoal the most popular. As in most African countries, charcoal production is done illegally and unsustainably.

However, if well done, charcoal can contribute significantly to income generation and improved likelihoods of the rural forests. The Forest and Farm Facility (FFF) programme, in collaboration with the Forestry Department in Choma district of Zambia, is piloting sustainable charcoal production. Three months after training 50 percent of the groups had started following Participatory Guarantee Systems PGS guidelines and 30 percent started practicing sustainable forest management guidelines.

- **Sustainable wood energy as a contribution to the Forest Landscape Restoration**
  Tiziana Pirelli, GBEP/FAO and Cisco Aust, GIZ

Sustainable practices along the value chains represent opportunities for synergies between wood energy and Forest Landscape Restoration (FLR). This practice can be done by two different approaches. On one side though transition towards modern wood energy systems, which includes preservation of biodiversity, SFM practices, forest planning, added value to woody waste and residues, reduction of losses, enhancement of efficiency and promotion of forest and farm producer organisations (FFPOs). However, not only mitigation, but also adaptation should be considered, which implies the second approach highlighted, which is focused on supporting alternative, local and short bioenergy value chains, i.e. alternative biomass, improved feedstocks and alternative bioenergy value chains.
To ensure success of modern bioenergy projects, feasibility and long-term monitoring are key.

- **The contribution of biochar in terms of BECCS**
  Prof. David Chiaramonti, Polytechnic University of Turin, Italy

Climate change is already affecting soil, therefore it represents a thread for the agriculture sector. In the other hand, biochar represents a great potential for carbon storage and was proven to keep the carbon for long periods of time. IPCC has already addressed biochar on its latest guidelines, therefore providing a favorable scenario from the policy perspective for the development of biochar related projects. Although carbon removal from biochar is being implemented in multiple areas, improvement in coordination is needed to guarantee better outcomes.

Key messages from the event:

- Bioenergy contributes to 20 percent of global decarbonization.
- Biorefineries have a key role in the sustainable bioeconomy across multiple sectors.
- An urgent transition towards sustainable energy sources is needed considering only 9 percent of the carbon budget is left.
- The GBEP set of bioenergy indicators are a great tool to assess and monitor all type of bioenergy and its results are intended to support decision and policy making.
- BiogasDoneRight is an initiative that promotes organic matter and soil conservation, efficient photosynthesis and soil use and a migration from NPK fertilizers to C-NPK, which is already being used for sequential cropping.
- RenovaBio is part of the Brazilian commitment at COP21. It uses carbon credits for biofuels as an initiative to reduce carbon footprint by incorporating available and new technology which will encourage bioenergy producers to be more efficient and to incorporate technologies with less carbon footprint.
- COVID19 crisis have already affected demand and price on the biofuel market, however, special financing policies are already under discussion to face the crisis.

- Most of charcoal production in Zambia is done illegally. However, if well done, charcoal can contribute significantly to income generation and improved likelihoods of the rural forest dependent countries.
- Sustainable practices along the value chains represent opportunities for synergies between wood energy and Forest Landscape Restoration (FLR). To take the best of opportunities, mitigation and adaptation practices are needed.
- Biochar represents a great potential for carbon storage. Latest IPCC guidelines already addressed biochar, therefore providing a favorable scenario from the policy perspective. However, coordination between different organisms working on carbon storage projects are needed to guarantee better outcomes.