



Many roads lead to bioenergy

Which way now? Research is being carried out in all directions.

Photos (2): Eva Augsten

Many puzzle pieces don't always create a complete picture. The presentations at the European Biomass Conference and Exhibition included many details, but the participants had to find their own way around, so to speak, in corridor conversations.

Visiting the European Biomass Conference and Exhibition is a little bit like studying an elephant under the microscope; bit by bit, hair by hair: looking at all the details. Researchers from all around the world come to present current advances which they have made in their fields of expertise. This time around 1,500 scientists met in the Congress Center Hamburg, Germany. There were approx. 250 presentations, split up into three parallel blocks, and covering subjects such as "High temperature Gas Treatment for the Operation of a Solid Fuel Cell" or "Combustion of Poultry Litter in Bubbling Fluidised Beds". Additionally, approx. 600 posters were presented.

The organiser, WIP, calls the European Biomass Conference the most important European biomass expert event. In the scientific context this is probably true. Unlike the photovoltaic conference EU PVSEC, however, also organised by WIP, the exhibition accompanying the Biomass Conference has not become established so far. This may also be because the conference provides companies with a bit too much biodiversity. The biogas companies thus prefer to present themselves to farmers at the EuroTier, CHP plant manufacturers go to the classic energy exhibitions, and those dealing with wood attend forestry management events or the Interpellets.

Europe gives itself targets

And yet the event provides a marvellous platform for interdisciplinary subjects. These are touched on in the plenary sessions, but not earnestly discussed together. All in all, bioenergy has great expectations to fill, as the organiser and speakers stress. The European targets for 2020 can only be achieved if it is included in the renewable energy mix. However, neither politicians nor scientists see themselves as being responsible for the decisions on exactly which paths to take towards biofuels, electricity or heating. "We can not select technologies. This is up to the market", says Fabrizio Barbaso, Deputy Director General for Energy and Transport of the European Commission, speaking at the press conference.

But then the politicians do reluctantly make a few estimations, for example that biofuels will not advance as fast as one had once thought. "Not before 2010" calculates Michael Müller, Parliamentary State Secretary, on when second generation biofuels will become available in noticeable quantities: "This is why we lowered the biofuel quota." Jos Delbeke, Deputy Director-General for the Environment, European Commission, adds: "The trend is maybe developing more to electricity. It is less driven towards biofuels than we would have said 10 years ago." Heating with bioenergy is also behind expectations so far, but that, says Barbaso, is going to change: "In the new EU directive we have clear targets that include heating and cooling. Member states have to state how they

want to reach their goals, breaking it down to heating and cooling. All in all, 10 to 20 % of the renewable energies in 2020 could be heating and cooling with bioenergy.”

Using potential in Africa and Asia

And yet far away from the directives and quotas of the European Union, biomass has been an important energy source for eons in Asia and Africa. But it has little to do with a green future when people spend most of their day gathering firewood. Instead, this typical type of biomass use is depleting resources, just as it is damaging the health of those who often breathe in the smoke from an open wood fire all day long. On the other hand, modern biomass use also provides opportunities for the economic development of rural regions.

The problems and opportunities are well known to both researchers and the industry. Thus, there was a one-day workshop at the Biomass Conference on “Bioenergy for Rural Development in Africa and Asia”. Researchers exchanged results on the sustainable and sensible expansion and use of biomass in developing countries. The workshop was organised by two projects supported by the EU: “Competence Platform on Energy Crop and Agroforestry Systems for Arid and Semi-arid Ecosystems - Africa (Compete)” and “Rural Energy Production from Bioenergy Projects: Providing regulatory and impact assessment frameworks, furthering sustainable biomass production policies and reducing associated risks (Re-Impact)”.

The event served partly as a project meeting for the research group participants, but the presentations also started off a row of conference side events for 2009, to publicly discuss difficult questions and criticisms: doesn't the worldwide use of biomass actually harm the climate and isn't biomass stealing land from food agriculture?

Timm Tennigkeit from the Centre for Mountain Ecosystem of China is studying opportunities for a transition to a modern, efficient use of biomass in rural China. This is the only way of establishing sustainable forestry. Until now, wood as a fuel in China has traditionally been inefficiently burnt in old stoves, which is true for 75 % for forested biomass worldwide. And yet more efficient wood stoves often don't find much acceptance. After his research, Tennigkeit now even somewhat advises away from using biomass in China; it could make more sense to put subsidies into electricity and rice cookers.

Jatropha: a blessing or a curse?

A further presentation showed to what extent Jatropha cultivation in India or Botswana can be used for rural electricity generation. Arvind Reddy, Manager at the Indian company Winrock International gave the example of the Indian village Chhattisgarh. Here, among other matters, a Social Impact Assessment looked at the effects of different production models on social sustainability. A further aspect being looked at by

means of case studies is Jatropha's economic sustainability.

Helen Watson from the University of KwaZulu-Natal, South Africa, and Donald Kgathi from the University of Botswana presented results on the extent to which land use in Botswana can and should be moved towards Jatropha cultivation. 432,000 ha of uncultivated land would be available. But how should the government or farmers go about things, to be absolutely certain that they don't create competition with food supplies?

Rainer Janssen, coordinator of the Compete project says: “Through the use of the energy crop Jatropha in CHPs the rural areas in developing countries could relatively quickly and affordably be supplied with electricity.” This is a prerequisite for building up the economy. “On the other hand, large energy crop plantations harbour the danger of exploitation. Steps must be taken to ensure that the countries and their populations profit from bioenergy”, says Janssen on the possible negative aspects.

Currently the use of bioenergy in Asia and Africa is just at its beginnings. The aim must therefore be, agree the workshop participants, to integrate land use management into the rural energy policies, for example to only allow certain areas to be allocated for biofuels. “The rural development implications of bioenergy cannot be understood with a superficial impact assessment. Bioenergy projects need to be based on sound management models with technical and economic viability, not on wishful thinking”, is how Jaime Amezaga, coordinator for Re-Impact, Newcastle University in the UK, sums up his experiences from the project studies.

One clear agreement was that there are areas available for biomass. Each region must be looked at closely and individually, however, and the land/bioenergy use adjusted to the local needs in each case. The workshop thus showed – as was symptomatic for the whole conference – exemplary local experiences, problem appraisals and solution approaches which can later also be transferred to other regions on a case by case basis.

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Further information:

Compete project: www.compete-bioafrica.net

Re-Impact project: www.ceg.ncl.ac.uk/reimpact/



Jos Delbeke, Deputy Director-General for the Environment, European Commission, can see a trend towards electric vehicles instead of biofuel that he would never have expected a few years ago.



Working together for sustainable biomass use: participants of the workshop Bioenergy for Rural Development in Africa and Asia.

Photo: WIP