

**International Conference on Wood-based Bioenergy
17-19 May 2007 in Hannover, Germany**

CONCLUSIONS AND RECOMMENDATIONS

The conference, organized by the International Tropical Timber Organization (ITTO) in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and hosted by the German Federal Ministry of Economics and Technology, was attended by about 90 people from 32 developed and developing countries. It was convened amidst growing interest in the use of logging and wood-processing residues and dedicated bioenergy timber plantations for energy generation, driven by concerns over energy security, climate change and resource-use efficiency.

The conference was held in Hannover, Germany, in conjunction with LIGNA-2007, the world's largest biannual international woodworking machinery fair. This allowed conference participants to see, first-hand, recent technological developments in wood processing and the use of wood-based biomass for energy generation. A study visit to a site near Hannover focused on the optimized use of wood-processing residues in the application of finger-jointing technology for the assembly of off-cuts combined with wood pellet-based heat generation for drying. A second site demonstrated the integrated local use of agricultural biomass (conversion to biogas) and forest-based wood residues as fuel for joint energy generation (electricity and heat) at the village/community level.

Key messages

Wood-based bioenergy offers countries, including developing countries in the tropics, an opportunity to improve their energy security

Wood industries can use wood residues for the co-generation of energy, thereby increasing the cost-effectiveness of their operations and improving energy efficiency

The use of wood-based bioenergy, both in the wood industry and generally, can help reduce greenhouse gas emissions

The wood-based bioenergy sector needs to be developed on the basis of sustainable forest management

The international community should support the development of efficient and cost-effective wood-based bioenergy in tropical countries, including by facilitating the transfer of appropriate technology and investment

Conclusions

Papers presented at the conference gave an overview of the global wood energy sector, considered the challenges and possible role of bioenergy production in the context of a sustainable timber industry in the tropics and worldwide, examined the challenge of mobilizing wood resources under sustainable forest management (SFM), reviewed policies to enhance the use of forest biomass and wood residues for energy generation (such as those in the European Union), investigated the technology and economics of energy generation from logging and wood-processing residues, and canvassed the situation in Brazil, Ghana, Malaysia and China. The conference received reports from the FAO/IEA/ICFPA workshop 'Energy and the Forest Products Industry' held in Rome on 30–31 October 2007 and on the UNECE/FAO workshop 'Mobilizing Wood Resources' held in Geneva, Switzerland on 11-12 January 2007 and used these as a valuable resource in drawing its conclusions and making its recommendations¹.

From the papers presented and the discussion they generated, the following conclusions emerged:

- a well-planned wood-based bioenergy sector can generate alternative or even additional revenue with which to finance sustainable forest management, improve resource-use efficiency, reduce energy costs in industry, improve energy efficiency, offset greenhouse gas emissions from the burning of fossil fuels, and provide local employment;
- the raw material supply for the wood-based bioenergy sector can be augmented by:
 - the use of residues that are currently uncollected from forest-based operations and the wood-processing industry and by the use of post-consumer waste
 - expansion of the harvested forest area in keeping with the principles of SFM
 - in the tropics, the increased use of lesser used and lesser known species
 - the greater use of woody biomass from outside the forest
 - the development of short-rotation wood-biomass crops including on marginal agricultural sites
 - the increased productivity of the resource using silvicultural and genetic innovations;
- the volume and composition of the sustainable wood resource available globally for bioenergy is not well known, in particular because a large part is harvested and used through the informal sector. There is an urgent need for reliable information on the potential for future wood mobilization for bioenergy, globally and on a country-by-country and regional basis;
- the availability of wood resources for bioenergy depends on many factors, including:
 - the awareness of resource owners and their willingness to harvest and sell their wood
 - the price that resource owners receive for their wood
 - the availability and accessibility of the resource, its proximity to appropriate infrastructure, other logistical concerns and the energy required to harvest, transport and process the wood
 - the development of transparent markets based on reliable and up-to-date information

¹ IEA = International Energy Agency; ICFPA = International Council of Forest and Paper Associations; UNECE = United Nations Economic Commission for Europe

- the effectiveness, efficiency and economics of harvesting, marketing and energy conversion;
- one of the most sensitive economic factors in wood-based bioenergy is the distance between wood source and the site of energy generation. The use of pelleting and similar technologies can increase energy efficiency and cost-effectiveness in the transport system;
- wood production for bioenergy generation should take environmental constraints and concerns into account. Without SFM, intensified forest management could lead to the loss or degradation of natural forests and other ecosystems;
- for long-term success it is essential that the wood-based bioenergy sector is developed sustainably. It should not be an agent for the replacement of natural forests or peatlands by other land-uses and it should contribute to the sustainable management of its resource base;
- when based on assessed resource potential, wood-based bioenergy is well-suited to small- and community-scale projects and can increase farm and forest income, make productive use of marginal lands and bolster rural economies;
- wood residues are a valuable co-product in forest harvesting and wood processing. Their use for energy generation, coupled with energy savings in the industry, can improve the economic viability of forest and wood-processing operations and help finance sustainable forest management. It is evident, however, that not all forest industries, particularly in developing countries, currently use wood residues efficiently for energy;
- a greater understanding of the economic and social benefits that could be created by developing sustainable wood-residue-based bioenergy generation, combined with energy-saving measures, is needed in developing countries in the tropics;
- to help the organized wood-based bioenergy sector grow in the tropics and to maximize its contribution to sustainable development and SFM, a number of supporting mechanisms should be put in place by governments, the private sector, research and development agencies and other stakeholders; and
- the north-south and south-south exchange of information and technology, and investments to foster the development of the bioenergy sector in tropical countries, are essential.

Recommendations

Principles

- Wood-based bioenergy is a rapidly developing sector. Detailed investigation into its potential and the policy and other measures needed to stimulate it at the country level is warranted
- Measures to increase the use of wood-based bioenergy must always be within the limits of SFM
- Policies affecting wood-based bioenergy, and their implementation, should not create undue market distortions
- The transfer to developing countries of energy- and resource-efficient technologies for wood-based bioenergy must be a priority

Specific recommendations

The conference made the following recommendations for international organizations, national-level policy-makers, and the wood-based bioenergy sector:

- 1) Assist countries in strengthening their capacity to assess, monitor and report on forest- and wood-energy-related information;
- 2) Convene regional fora for government, the private sector and civil society and support demonstration projects to increase awareness about the potential of efficient wood-based bioenergy and support the exchange of best practices in this field;
- 3) Commission regional and global studies to assess the extent to which wood-based bioenergy can substitute for fossil fuels in the energy economy;
- 4) Encourage and assist governments, in partnership with the private sector and other stakeholders, to formulate and implement policies and strategies to develop efficient, cost-effective and sustainable bioenergy as an alternative to fossil fuels;
- 5) Develop measures to increase the participation of the tropical wood-based bioenergy sector in international carbon markets and the Clean Development Mechanism of the Kyoto Protocol;
- 6) Investigate the creation of small-grants' schemes to stimulate local- and community-level development of wood-based bioenergy, especially in tropical countries;
- 7) Work with producers to identify suitable markets for wood-energy products such as charcoal, wood and charcoal pellets, briquettes and other biofuels and to ensure they meet any standards that may be required for export;
- 8) Support research and development, including through pre-projects and projects, into wood-based bioenergy technologies and the marketing of bioenergy, and make efficient wood-based bioenergy generation technologies available to developing countries in the tropics;
- 9) Support, through projects, investment and other means, the development of integrated wood-processing industries that use wood residues to efficiently and cost-effectively generate thermal energy and electricity for both their operational needs and those of local communities.

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