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# BENWOOD

Short Rotation Forestry and Agroforestry  
in CDM Countries and Europe



The BENWOOD project is funded by the European Union under the 7th Framework Programme for Research and Innovation







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## Short Rotation Forestry and Agroforestry in CDM Countries and Europe

The BENWOOD consortium

Compiled by  
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# Foreword

As the Head of Unit for 'Agriculture, Forestry, Fisheries and Aquaculture' within the European Commission DG Research and Innovation, I am very pleased to introduce this summarized findings presenting the results of the BENWOOD project.

The BENWOOD project has been funded by the European Commission under the Seventh Research Programme (FP7) Theme addressing 'Food, Agriculture and Fisheries, and Biotechnology' in order to make relevant information on Short rotation forestry (SRF) available to stakeholders. It is particularly timely given the increasing importance attached to ensuring appropriate delivery of research results to the end user as a vital part of the innovation chain.

The work accomplished during the 2.5 years of the project has been outstanding, particularly with respect to the substantial number of stakeholders reached during this period. The objectives listed in the initial proposal, which were quite ambitious, have all been achieved, and in addition other avenues have been explored. This results from the excellent coordination work by Thomas Lewis from the SME energieautark, as well as major contributions from the other project partners who originate from a wide range of countries, including developing countries.

The BENWOOD results present opportunities for participation in various schemes aimed at mitigating climate change by allowing CO<sub>2</sub> emissions in one region to be offset by CO<sub>2</sub> emission reduction in another. The results are important with respect to fulfilling Kyoto Protocol obligations and they will have an effect on industrial policy and investment both in industrialized countries seeking to reduce the cost of generating CO<sub>2</sub> and in developing



countries where increased investment will occur. In addition, it should lead not only to increased investment in forestry, but also to increasing markets for equipment linked to biomass processing as well as generating markets for forest products with a focus on biofuel producers.

I hope that the outputs from the project, concentrated in this summarized findings, will help to support a new era for the production of renewable, carbon-neutral alternatives to non-renewable fossil fuels.

I would also like to take this opportunity of expressing a strong wish that the good work of the project does not end when the European

Commission funding has finished and sincerely hope that the initiative of continuing 'BENWOOD activities' under the umbrella of FAO in the SREN network (see foreword of Thomas Lewis) will be successful.

Timothy J. Hall,  
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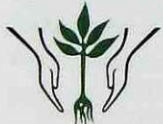




Swedish University of  
Agricultural Sciences

**:: 1.8 SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES, DEPARTMENT OF CROP PRODUCTION ECOLOGY (SWEDEN)**

Swedish University of Agricultural Sciences (SLU) was formed in 1977 and is the only agricultural, forestry and veterinary university in Sweden with a defined role in society: to take responsibility for the development of learning and expertise concerning biological resources and biological production. The Department of Crop Production Ecology is located in Uppsala, Sweden and is specialized in SRF with regard to all aspects of production and phytoremediation, e.g. abiotics, biotics, cultivation techniques, management, physiology and ecological sustainability. 20 years of research history covers various aspects of biomass growth, phytoremediation and biodiversity and have resulted in several hundred papers and reports, many of which have proven relevant to Benwood. Within the EU-funded BENWOOD project, the main tasks SLU contributed to were: 'State of the Art of SRF', 'Land Use Management Standards', and led the task of compiling the 'SRF Guidelines' based on obtained results of the project.



**:: 1.9 THE PLANTAR GROUP (BRAZIL)**

The Plantar Group has been working in the forestry industry and its multiple production chains since 1967. The group offers products and services including the production of cloned sprouts, the planting and management of commercial forests, Green Pig Iron<sup>®</sup>, products made of AMARU<sup>®</sup> wood, and the development of carbon projects. Based on its own experience, the company created Plantar Carbon Ltda., a company that offers services such as consultancy in the design and implementation of climate strategies and projects and carbon finance businesses mostly related to forestry activities and the sustainable use of biomass. Within the EU-funded BENWOOD project, Plantar provided information and analyses regarding the use of solid biofuels in CDM countries and general techno-economic data on the establishment and use of plantations. The main contribution was to the output 'CDM Specifics'.



**:: 1.10 UNIVERSITY OF NATURAL RESOURCES AND LIFE SCIENCES, DEPARTMENT OF APPLIED PLANT SCIENCES AND PLANT BIOTECHNOLOGY, INSTITUTE OF AGRONOMY AND PLANT BREEDING (AUSTRIA)**

Founded in 1872, the University of Natural Resources and Life Sciences (BOKU) is based in Vienna and currently comprises 15 departments and four service centres, as well as a number of experimental centres around Vienna. The university is attended by approximately 10,000 students, provides study courses at bachelor, master and doctoral levels and has approximately 1,800 staff and 460 persons working in services and administration. The department's area of research and teaching covers a wide range of topics from basic molecular biology, cell biology, plant biotechnology and applied plant sciences. The aim is to form an ambitious and integrative research profile and to offer high level teaching in plant sciences. Within the EU-funded BENWOOD project, BOKU's main responsibilities were in providing research expertise on the interactions of Short Rotation Coppice (SRC) with other ecosystems.



**:: 1.11 UNIVERSITY OF GÖTTINGEN, FACULTY OF AGRICULTURAL SCIENCES, DEPARTMENT OF CROP SCIENCES, SECTION AGRICULTURAL ENGINEERING (GERMANY)**

Founded in 1737, the Georg-August-Universität of Göttingen is a research university of international renown with a strong focus on research-led teaching. The section Agricultural Engineering is connected to the Department of Crop Sciences and has a long term goal of finding ways to provide biomass for energetic purposes sustainably without affecting food security. One option seems to be lignocellulosic biomass, such as wood from SRF. Hence SRF and associated production systems is one major research area since the early 1990s. The university now has extensive experience in the field of SRF harvesting techniques. Within the EU-funded BENWOOD project, the University of Göttingen was work package leader of 'Dissemination', task manager of 'Overview on actors SRF and CDM/II' and also worked on the task 'Research requirements to planting, cultivation and harvesting technique incl. logistics'.



**:: 1.12 UNIVERSITY OF ZAGREB, FACULTY OF FORESTRY (CROATIA)**

The Faculty of Forestry was established in 1898, when a Forestry Academy was founded within the University of Zagreb. The pride, the evidence and the organized nature of the profession is seen in the management of forests. The Faculty of Forestry is the only scientific-educational institution of its kind in Croatia and has applied the European Credit Transfer System (ECTS) which will enable students to pursue their studies at other European universities. Beside regular student education the Faculty provides knowledge in the field of training forest managers and experts on park and green area management, nursery production, environmental protection, spatial planning, clone forestry, and biomass production from forestry. Within the EU-funded BENWOOD project, the University of Zagreb (Faculty of Forestry) was work package leader of 'Linking' and task manager of 'Workshops and linking to other events'.

**WENA**



**:: 1.13 WENA, KOCHAŃSKA-DUBAS JOLANTA (POLAND)**

The 'WENA, Kochańska-Dubas Jolanta' company, founded in 1993, offers the production and wholesale distribution of SRF cuttings and has developed its own willow clones. About 30 varieties of willows, including 16 to 18 varieties of so-called 'energy willows' (fast growing clones) are cultivated in an area of approximately 130 hectares. The company gained expert knowledge through various research studies in field of planting systems including fertilization and nutrition. Further research and joint projects were undertaken in the field of SRF harvesting and processing systems. Besides intense activities at the national market, relevant exporting activities to former eastern countries such as Ukraine and Lithuania are present and maintained. Within the EU-funded BENWOOD project, the company was managing the task 'Profitability of Short Rotation Forestry from the Farmer's Perspective' and contributed a case study focusing on SRF tree species in Poland. Abundant knowledge contributed to the CDM project cycle.