



Centre of Excellence for Renewable Resources
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The scarcity of both, fossil fuels and raw materials, along with the adverse effects on the climate and environment, call for the use of renewable energy and natural resources. One of the more favourable options is the use of renewable materials from agriculture or forestry. They can provide resources for either solid, liquid or gaseous fuels. Basic material can also be utilized for non-energetic uses. At the Centre of Excellence for Renewable Resources in Straubing, the Bavarian State Government has focused all of its activities towards the field of renewable resources. The objective is to support applications of renewable resources by basic or applied research. This includes the development and testing of equipment as well as the exchange of technology and knowledge. Aid is also given for the emergence of new markets, evaluation of projects and for the execution of support programs.

At the Centre of Excellence these goals are achieved by the cooperation of three independently organized facilities; the Science Centre Straubing, the Technology and Support Centre and C.A.R.M.E.N. e.V. Each of these three institutions has a specific purpose and the objectives are attained by the combined effort and collaboration.

The **Science Centre Straubing** was founded in July 2005 by the Technical University of Munich, the University of Applied Sciences Weihenstephan, the University of Regensburg and the University of Applied Sciences Deggendorf. About a year later the University of Applied Sciences Regensburg joined as well. The Science Centre Straubing is financially supported by the Bavarian State Ministry of Sciences, Research and Arts. The main funding initially comes from the Technical University of Munich and the University of Applied Sciences Weihenstephan, which will both provide three professorships for the Science Centre Straubing. A new high tech and research building of 2800 square metres was opened in January 2009, where the chairs will focus on research and academic teaching in Straubing. The following chairs and professorships are already involved in the Science Centre Straubing:

- **Technical University of Munich**
Chair for Resource and Energy
Technology
Chair for Chemistry of Biogenic Resources
- **University of Applied Sciences Regensburg**
Chair for Enginetechnology
Chair for Heatechnology
- **University of Regensburg**
Chair for Molecular Ecology
Chair for Pharmaceutical Biology
Chair for Plantsphysiology
Chair for Botany
- **University of Applied Sciences Weihenstephan**
Chair for Management and Marketing of
Renewable Resources
Chair for Economics of Renewable Resources
- **University of Applied Sciences Deggendorf**
Chair for Geothermal Energy Systems

The Technology and Support Centre (TFZ), which has been established in Straubing in 2002, belongs to the Bavarian Ministry of Nutrition, Agriculture and Forestry (Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten) with about 60 staff members. The basic research in the field of energetic use of biomass conducted by different institutions of the ministry since 1973 was concentrated in the TFZ.

One main goal of the TFZ is applied research in the fields of agricultural production, the processing and utilization of renewable resources, the development and testing of products and methods, and the transfer of technology by demonstration and education. In addition, the TFZ is responsible for financial support of projects in Bavaria.

Specific tasks are listed in the following:

- development of agricultural production including plant breeding for new raw material crops, which shall be used for both, energetic and non-energetic applications,
- implementation and evaluation of agriculture field trials and execution of model projects,
- continued development and testing of technology and methods for the provision of renewable solid and liquid biomass fuels and raw materials with particular focus on applications in rural areas,
- consulting services for the agricultural sector and for companies, politicians as well as administrators,
- demonstration of practical applications, including permanent and non-permanent exhibitions and regular training sessions,
- the granting of governmental subsidies for biomass-based raw material applications.

C.A.R.M.E.N. e. V. (Central Agrarian Raw Material Marketing and Evolution Network) is a private non-profit organization which was founded in 1992. Before the relocation to the Centre of Excellence in 2001, C.A.R.M.E.N. e.V. with its 20 staff members was located in Rimpfing near Würzburg.

The aims of C.A.R.M.E.N. e.V. are

- compilation, processing and analysis of information about the utilization and applications of renewable resources,
- transfer of information by consulting, training and educational activities,
- increase of public relations for the renewable resources by brochures, events and exhibitions,
- preparation of site-specific analysis for decision makers,
- installation and coordination of demonstration projects,
- delivering expert opinions
- assessment and evaluation of projects in the field of research and development for renewable resources.

Permanent Joint Activities: TFZ and C.A.R.M.E.N. e.V. jointly operate a permanent Training and Exhibition Centre, including a comprehensive exhibition of general renewable resource applications. This exhibition opened during the summer of 2003. Furthermore, the TFZ organises a combined seminar and exhibition tour on domestic applications regarding information on solid biofuels. It is conducted weekly during winter and once a month during summer. The exhibition displays around 100 domestic biomass combustion units. It is free of charge to visit the exhibition as well as to attend the seminar.

The tasks of the Straubing Centre of Excellence are accompanied and assisted by a Coordinating Council where representatives from the sciences, industry, practice and from local politics are involved. The Coordinating Council is participating in the annual work scheduling of the three institutions and it advises the heads of these institutions in all important matters concerning

renewable resources. Furthermore it identifies useful R&D focuses and helps to allocate the limited public resources in an efficient and topic-related manner.

In 2005, the association “Straubing, a university city, e.V.” was founded. the charter of this associatin is to:

- support science and research in the Straubing Centre of Excellence
- win friends and promoters for the Straubing Centre of Excellence
- help to establish Straubing as the leading competence for renewable resources in Germany
- promote the development of Straubing to become a university city

In 2007 a biomass combustion plant was constructed in the area of the Centre of Excellence. This large wood chip furnace (about 1200 kW heat power output) provides the heating energy for all the onsite institutions. By doing so the Centre of Excellence sets a good example and demonstrates the feasibility of larger biomass installation in urban areas. Further use of the produced energy shall be utilised when the heating circulation of the Centre is linked to the district heating network of the City of Straubing.

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