Project: Enhancements in Biogas Plants

Lead Partner	FuE-Zentrum FH Kiel GmbH
Planned project start	January 2011
Project duration	3 years (2011-2013)
Title	Enhancements of biogas plants and solution of other specific problems in the field of biomass utilisation

Specific problem

The boom of the biomass branch generates beside many advantages also problems. Thus, in many regions a rivalry between crop growing of food and cultivation of energy crops (e.g., maize) has been developed, also because of the fee situation. In many places there are meanwhile huge acreages with monocultures (maize cultivation) whose products feed many active biogas plants. The involving problems as for example pesticide application, fertilization or noise pollution by transports affect negatively the acceptance of this form of biomass utilisation. Furthermore, technical problems during the permanent operation of biogas plants still exist.

Expected output

The object of the project is the development of concepts or concrete solutions for the existing problems to guarantee a successful long-term operation of biogas plants as well as to solve the acceptance problems. In this case, the project will use the international cooperation between partners (administration, planner, operator and science) to establish the best practice and to implement this in the all partner regions.

Main project activities planned

WORK PACKAGE 1: STOCKTAKING AND REPOWERING OF BIOGAS PLANTS

Stocktaking of technologic problems of biogas plants relevant nowadays and development of technological solutions and optimisation like repowering of biogas plants.

The technologic processes applied in the field of biomass show a deficit of several years. Existing plants have to position themselves more and more to the economic efficiency and have to optimise her potential. Improved general living conditions for the microorganisms, pre-treatment of the substrates and technical monitoring of the biogas processes are starting points for repowering. Thus, plants can be simple and robust, high efficient and more independent of substratum.

The work package has the object to improve the technical, economic and ecological production preconditions in the area of biomass production. In addition, complementary skills of the project partners should be concentrated and the processes from the lab to experimental plants up to practice should be reviewed. Background of this work package is

the common development of optimisation potentials and prevention of mistakes of the past, in particular in the partner regions which now intensified this technology.

The technological enhancements of the existing plants and the design of new plants cause a positive economic effect and at the same time an ecological lasting production is expectable. Consequently, the value-added chain of the biomass utilisation expands and new business segments will be created.

Another focus on this WP should be to enable technology transfer between the countries of the Baltic Sea Region. The results of the project should be documented on a created project website which also can be used as a platform to locate cooperation partners or to install a panel of experts. Besides that, conferences should be organised and information material for the project should be produced.

Working contents

- Development of optimisation potentials and analysis of possibilities for repowering the biogas plants to increase their efficiency.
- Check of technical possibilities for a re-arrangement to biogas of waste materials to minimise the rivalry between crop growing of food and cultivation of energy crops and to raise the acceptance for biogas plants.

WORK PACKAGE 2: PLANNING AND LAW INSTRUMENTS FOR BIOGAS PLANTS

For furthermore implementations of biogas plants the existing problems have to be detected and analysed in a planning and juridical view (i.e. other legal regulations). Relevant implementation concepts will be developed and these concepts will be discussed with operators and planners.

Working contents

- Definition / analysis / revision of planning for new biogas plants (small / big) taking into account the different status of realisation all around the Baltic Sea.
- International position of the legal situation in the field of electricity formation of biogas.
- Harmonisation of the methods.

WORK PACKAGE 3: TRANSNATIONAL EDUCATION ALLIANCE

Educational opportunities (as for example online courses and summer academies) for different professional categories will be developed with the purpose of a specialisation in the area of biomass utilisation or bio energy. Important cooperation partners will be the Chambers of Commerce and Industry for technician and universities for engineers.

Working contents

- Development of training strategies for certain professional career with the purpose of specialisation as well as the purchase of expertises in the area of biomass utilisation.
- Target groups: Farmers, foremen as well as engineers for development work, assemblers for service and preventative maintenance.

WORK PACKAGE 4: FEASIBILITY STUDY

Analysis of the market potential for biomass for each cooperating country should be carried out.

Working contents

- A potential analysis of biomass should be carried out to establish middle-term a "biomass portal". Therefore, the location of production should be compared with those of processing under consideration the routes of transport in the Baltic territory. For this a close-mesh network should be developed to guarantee a steady comparison or exchange.
- Analysis which kind of biomass is available in the partner regions for the production of bio energy
- Analysis which mix of energy crop is up to date
- Analysis which mixes of energy crop is reasonable and realistic for the country probably till 2020. Therefore, the aspect of a sustainable agriculture (good technical practise) and the expected political or economical basic conditions have to receive attention.