

# BIOPROS

## Solutions for the safe application of wastewater and sludge for high efficient biomass production in Short-Rotation-Plantations

### Project Description

The economic situation for European farmers deteriorated constantly during the last decade because of increasing cost pressures on agricultural products. Priorities in EU's Common Agricultural Policy change and foresee to strengthen farmers' role in rural development and fulfilment of quality standards for environment, animal protection and food security. To be competitive, farmers are obliged to adapt their business activities in terms of alternative products and quality requirements. Short-Rotation-Plantations (SRP) are a very promising alternative source of income by cultivating fast growing tree-species as a source for bioenergy or other purposes with multifunctional characteristics as the application of wastewater and sewage sludge for irrigation and fertilisation. Due to this procedure SRPs are high efficient biomass production systems with additional contributions as biological filters to a low-cost and environmentally safe biological wastewater and sludge treatment. Thus SRPs perfectly meet general requirements not only for farmers in the former EU15 but also in the new Member States and Candidate Countries.

The aim of the proposing IAGs in the BIOPROS-project is to gain knowledge about the economic, ecological and technical feasibility of SRPs for different local conditions and market requirements and to transfer it to their SME members (farmers, biomass processors, engineers, decisions makers). This will contribute to promote SRP biomass production between SMEs throughout Europe and abroad. Main focus will lay on the safe and efficient application of wastewater and sludge to guarantee high yields and sufficient treatment performance without any negative environmental or hygienic impacts. Lack of knowledge about the high SRP potential and prejudices against the application of human wastes shall be minimised during the project as well as barriers against the application of SRP-biomass. For this reason a wide range of aspects will be subject of research including SRPs' best practice and costs as well as related legislation and standards.

### Objectives

Scientific and technological objectives:

- ♦ To enable an efficiency increase in Short-Rotation-Plantation (SRP) biomass production up to 3 times throughout Europe by reusing wastewater and sewage sludge for irrigation and fertilisation;
- ♦ To enable the safe and efficient application of wastewater and sewage sludge in SRPs;
- ♦ To promote SRP biomass production throughout Europe by transferring the generated know-how to potential SRP end-users and market actors.

Environmental objectives:

- ♦ To increase the production of CO<sub>2</sub>-neutral wooden biomass in SRPs as a renewable raw material for different technical purposes up to 3 times;
- ♦ To reduce application of natural water resources for SRP irrigation by 30%;
- ♦ To substitute chemical fertilisers by 100%;
- ♦ To completely prevent pollution of aquifers and surface waters potentially arising from uncontrolled wastewater and sludge reuse by developing standards for safe and efficient SRP operation;
- ♦ To contribute to soil improvement on agricultural land by humus and nutrient enrichment.

Social long-term objectives:

- ♦ To increase farmers' income by 10% thus strengthening their independency from regressing subsidies (e.g. from EU's Common Agricultural Policy);



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- ♦ To create employment in especially rural areas and throughout the whole biomass sector;
- ♦ To strengthen general sustainable development in rural areas.

## Expected Results

The main expected result is development of the decision support tools, for:

- ♦ Choice of the most suitable species/variety for use in different European regions based on the local climate, soil properties, types of wastewater / sludge to be used, and regional market situation for the produced biomass,
- ♦ Choice of best management practice in terms of establishment, irrigation/fertilisation rate, application of additional fertilizers, and harvest interval taking into consideration the site-specific conditions (climate, wastewater ionic strength, and soil properties),
- ♦ Economical optimisation of the cropping system for different European regions,
- ♦ Efficient application of SRP biomass in the regional market,
- ♦ Political decision makers regarding regional implementation wastewater/sludge application for biomass production.



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### Project Title

Solutions for the safe application of wastewater and sludge for high efficient biomass production in Short-Rotation-Plantations (BIOPROS)

### Contract Number

COLL-CT-2005 - 012429

### Duration

36 months

### Total Project Budget

2,758,385.70 EURO

### European Commission Contribution

2,045,815 EURO

### EUBIA Contribution

EUBIA is the general coordinator of BIOPROS from the administrative, legal and financial side and in charge to ensure the correct organization and cooperation between the partners and with the European Commission. The scientific management of BIOPROS is under the supervision of TTZ. Likewise, EUBIA will share the joint property of the knowledge on Short Rotation Plantations generated in BIOPROS and will have a major role in the exploitation and dissemination of this knowledge.

### Participants

- 1 EUBIA - European Biomass Industry Association (Belgium) - Coordinator
- 2 ASAJA - Spanish Farmers' Association (SPAIN)
- 3 CBAO - Council of the Bulgarian Agricultural Organisations (Bulgaria)
- 4 UFU - Ulster Farmers' Union (UK)
- 5 KZRKiOR- National Union of Farmers' Circles and Agricultural Organisations (Poland)
- 6 ETKL - Estonian Farmers' Association (Estonia)
- 7 ZSR - Silesian Farmers' Association (Poland)
- 8 CONF - Italian Farmers' Association (Italy)
- 9 CZ BIOM - Czech Biomass Association, (Czech Republic)
- 10 SK-BIOM - Slovak Biomass Association (Slovakia)
- 11 IEES - International Ecological Engineering Society (Switzerland)
- 12 Mr. Helmut Lamp (Germany),
- 13 Mr. Antonio Ramos Fernandez (Spain),
- 14 Mr. Grzegorz Plonka (Poland),
- 15 Attevalja (Estonia) ,
- 16 LEOCOMERCE-2004 (Bulgaria),
- 17 BIOMASA (Slovakia),
- 18 BIOAZUL SL (Spain),
- 19 Laqua Treatment AB (Sweden),
- 20 ETA - Renewable Energies (Italy)
- 21 TTZ - Technologie Transfer Zentrum Bremerhaven (Germany)
- 22 EAU - Estonian Agricultural University (Estonia)
- 23 SLU - Swedish University of Agricultural Sciences (Sweden)
- 24 ISCI - Research Institute for Industrial Crops (Italy)
- 25 UWM - University of Warmia and Mazury (Poland)



SIXTH FRAMEWORK PROGRAMME

Co-funded by the European Commission



HORIZONTAL ACTIVITIES INVOLVING SMEs

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