CASE STUDY – CENTROPE_TT VOUCHER

Cooperating organisations			
ASIO, spol. s r.o.	South Moravian Region, Czech republic	**University of Natural Resources and Life Sciences, Vienna**	Vienna, Austria

SME beneficiary	
ASIO, spol. s r.o. (www.asio.cz)	
Seat	Tuřanka 1, 627 00 Brno
Field	Energy, Waste water treatment
Size	Medium sized company
Profile	ASIO, spol. s r.o. is an engineering contractor dealing in design, project management and supply of technologies for waste water treatment. Company has also research activities and co-operate with various universities, when developing novel technologies. ASIO, spol. s r.o. has built up a large network of customers throughout Europe and it has specialized manufactures working with up-to-date technologies. Together with system of quality control certifies according to international ISO 9001 norm. (More at www.asio.cz)

R&D service provider	
University of Natural Resources and Life Sciences, Vienna Department of Water, Atmosphere and Environment Institute of Sanitary Engineering and Water Pollution Control	
Profile	The main focus of the activities of our institute is water, one of the fundamental natural resources and basis of life. SIG contributes to the sustainable quantitative and qualitative availability of water for different purposes by research and development, education and services. **Research areas/topics** ▪ **Water technologies** Drinking water Treatment and supply, Wastewater Treatment, Urban drainage and Appropriate Technologies ▪ **Water Quality Monitoring and Modelling** Environmental and Water Chemistry, Aquatic microbiology, On-line monitoring networks, and Modelling in sanitation engineering ▪ **Water management** Development cooperation, Sustainable use of water resources, Decision support systems, risk assessment and integrated assessment, Actors networks in water supply and sanitation, and Management and planning methods and Performance evaluation (More at http://www.wau.boku.ac.at/sig.html)
Responsible researcher	Ertl, Thomas, Priv.-Doz. Dr.

Cooperation	
Implementation period	11/2010 – 05/2011
Value	4.900 EUR without VAT
Subject	Critical review and feasibility study – Energy recovery in the area of wastewater treatment
Output	Energy recovery is the hot issue recently being discussed and investigated in the area of wastewater treatment. Recent pressure on energy supply caused by the fluctuation in energy cost has highlighted innovative ideas of the maximization of the energy utilization. Wastewater contains organic matter and conveys heat and mechanical energy. All of which are renewable energy sources that can be produced and used in wastewater treatment plants. The energy potential is of four kinds: energy savings, recovered energy, energy from biomass and external renewable energies. Project was therefore divided into four main working packages: 1) Review of energy consumption and optimization in wastewater collection and treatment 2) Review of energy production within wastewater collection and treatment 3) Review of innovative technologies in wastewater collection and treatment regarding energy optimization 4) Suggestions for practical implementations in wastewater collection and treatment (within Centroppe Region)
Use and benefits	The main benefit to the company is the detailed description of the processes involved in the energy recovery from the wastewater from scientific point of view. It introduced the main issues and borders of this application. The review based on research description with feasibility study demonstrated the economic viability of the proposed technological scenarios. It enabled to introduce the energy saving for this novel attitude in wastewater treatment. Application of lately developed technologies will lead to significant decrease of the operational expenditures at the wastewater treatment plants.

Cooperation evaluation – Karel Plotěný, managing director (ASIO, spol. s. r. o.)	
Project report is milestone for new activities of our company. ASIO, spol. s r.o. starts to focus on the waste water treatment plant design significantly insisting on energy consumption, energy minimization for waste water treatment and energy recovery from wastewater. *Main task was to obtain general background, new knowledge, and new ideas from the view of important scientific authority.* *Our expectations were mostly fulfilled. We only expected more detailed description of some part of the problem, some modern innovative ideas and novel suggestions.*	
Has the company cooperated with any research institute in the past?	*Company has large history in the cooperation with research institutes. The cooperation is focused on scientific background for product development and for cooperation through grant projects both in local (Czech Technology Agency Programs, Ministry of*

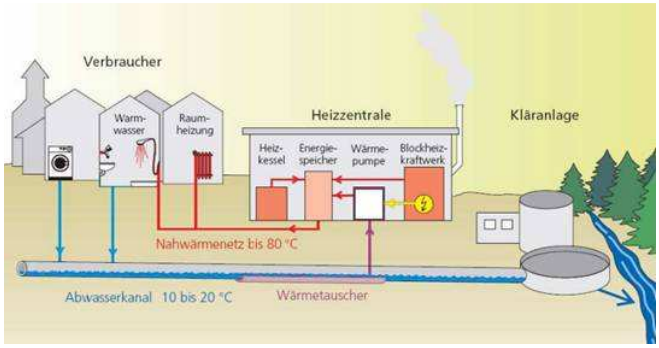
	Industry and Trade, etc.) and in international level ˇ6. And 7. Framework Programme). The closest cooperation is established with following institutions: Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, CRIC Barcelona, PERA Institute London, Institute of Chemical Technology at Prague, Brno University of Technology, Slovakian Technical University in Bratislava, Palacky University of Olomouc, etc.
Would you cooperate also without centrope_tt voucher?	*Yes. We found very useful the cooperation with one of the leading research institutes. On the other hand, centrope_tt voucher enabled us quicker approach to the problem understanding.*

PHOTOS from cooperation

DEMON® treatment reactor for digester supernatants for the reduction of the reject water load at a 170,000 PE plant.

Low load stage (B-Stage) for nitrification and denitrification.

Typical red colored anammox biomass of the DEMON® Reactor.



Basic principle and main components of wastewater heat recovery (Mueller et al.,2005)