

BESSE Newsletter 2

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Newsletter 2

Brokering Environmentally Sustainable Sanitation for Europe

JUNE 2010

What is Knowledge Brokerage?

What is knowledge brokerage? Who brokers and to whom do we broker? Is knowledge brokerage only necessary if there is a demand? The hypothesis of the BESSE project is that sanitation knowledge is not always passed from one actor to another and that this may hinder the use of knowledge on sustainable sanitation.

The traditional idea of knowledge brokerage is that there is a gap between those that need the knowledge and those that have the knowledge. A broker or mediator in-between is then necessary to bridge the gap. For this one needs a willing recipient. BESSE broadens this definition: Knowledge brokerage entails more than communication as knowledge needs to be adjusted and translated – in terms of language but also in terms of translation to local contexts – as it is brokered. In other words, knowledge needs to be socialised in order to facilitate the 'working' and appropriation of the technology. Further, knowledge brokerage is not a linear process from the producers of knowledge, via an intermediary, to the end user. The brokering of knowledge may happen between different actors and on different levels simultaneously, also without a central mediator.

The role of BESSE changes in the course of the three-year project. First, BESSE studies current practices of knowledge brokerage in sanitation to identify and understand current obstacles to, facilitating factors for, and mechanisms of knowledge brokerage. BESSE brings different actors together and may become a broker itself during the pilot projects.



Treatment plant at Castel Sant'Angelo di Rieti

How the BESSE Project applies Knowledge Brokerage

BESSE aims to test knowledge brokerage mechanisms to identify effective ways of brokering environmentally sustainable knowledge within Europe. Researchers provide the state of the art in technologies and brokerage and this knowledge will be synthesised to develop a number of mechanisms for brokerage to be tested in pilot studies in real time across three settings:

- ◇ Mediterranean Europe (Italy)
- ◇ Northern Europe (Netherlands) and
- ◇ Eastern Europe (Bulgaria)

The pilots will be designed to identify effective communication pathways between researchers, policy-makers and water companies taking into account the inter- and intra-disciplinary nature of environmentally sustainable sanitation brokerage as well as its public and socio-political contexts.

IN THE NEWS

Maastricht University and the Water Board Company Limburg set up a sustainable sanitation teaching and research project

As a spin-off from BESSE, the Department of Technology and Society Studies at Maastricht University and the Water Board Company Limburg have collaborated to set up a teaching and research project on sustainable sanitation for students from Maastricht University.

The project was set up within the MARBLE framework which stands for Maastricht University Research Based Learning project. (more information on Page 4)

Funding



Project Partners



PROJECT REPORT

The reason for the BESSE project is that notwithstanding the availability of (new) knowledge about environmentally sustainable sanitation (ESS), most sanitation approaches in Europe are based on knowledge, technologies and management systems developed in the 19th and early 20th century. These approaches do not adequately respond to the sustainable development needs of the 21st century, such as reducing energy use and the overall environmental impact of sanitation.

Existing knowledge about sustainable sanitation is not implemented in sanitation settings and our first challenge is therefore to understand the factors that hinder the dissemination of available knowledge about ESS. The second challenge is to identify mechanisms of knowledge brokerage to overcome these obstacles.

Work performed since the beginning of the project

Since the beginning of the project, BESSE has carried out an international literature review which collected, reviewed, and systematized existing knowledge on environmentally sustainable sanitation.

The project identified factors that hinder the effective dissemination of innovative knowledge geared to ESS as well as factors that facilitate this on basis of the international literature review.

Interviews are currently being carried out to investigate obstacles to knowledge brokerage and knowledge brokerage mechanisms to overcome these obstacles as identified in or in addition to the findings of the literature review.

Case studies are being written up to better understand the ESS technology adoption processes in the sanitation field. The case studies consist of field visits, document analysis, and interviews. The lessons drawn from the case studies will act as a springboard for further investigation of knowledge brokerage. The findings from the literature review, interviews, and case studies will be discussed in workshops in different countries.

The BESSE activities will be implemented in three main pilot project areas in different European countries, the Netherlands, Bulgaria and Italy.

We provide summarised backgrounds of the Bulgarian and Italian project partners and will give readers the opportunity to read all about our partners, Netherlands-based *Waterschaps-bedrijf Limburg* (WBL), in our next Newsletter.

Project partners at work



Gianfrancesco Costantini (LSC), Frank Odhiambo (WEDC) and Maria Jose Freitas (Hogeschool Zuyd in Maastricht)



Olaf Durlinger and Onneke Driessen (WBL)



Nikolai Genov (Reglo), Fabio Feudo (LSC), Andrew Cotton & Frank Odhiambo (WEDC)



EU Invests in Bulgaria

In November 2007, the EC approved a sectoral operational programme in Bulgaria. The Operational Programme 'Environment' involves community support for the whole national territory within the framework of the 'Convergence' objective.

In the sectoral operational programme in Bulgaria for the period 2007-2013, as approved and funded by the EC, explicit attention is paid to construct new and/or rehabilitate wastewater treatment plants serving an additional 1,845,000 people, and 22 integrated waste management systems serving an additional 3.5 million people.

Investments in environmental infrastructure are strongly connected to sustainable economic growth and job creation. It also contributes to promoting convergence and increasing the competitiveness of regions. The programme also contributes to the preservation and restoration of Bulgarian rich biodiversity and will help to improve the implementation capacity of the local stakeholders.

The BESSE team hopes that its findings about wastewater treatment technologies and knowledge brokerage in the specific context of Bulgaria can inform the sectoral operational programme.



Background to the Bulgarian Pilot Project

In September 2009, the BESSE research team visited the town of Pernik, Bulgaria, which is located some 30 km to the south-west of Sofia. Pernik was over-industrialised after WW2 and experienced economic decline after the 1989 fall of Communism.

The purpose of the BESSE field trip was to visit the Pernik Wastewater Treatment Plant and discuss the rehabilitation of the treatment plant and the collection and application of knowledge about wastewater treatment with the Bulgarian project partners and Pernik Municipality. The treatment plant was constructed in the late 1970s, using technology and equipment typical for Eastern European standards. Currently, the station works at a third of its initial capacity due to a decline in productivity and organisational deficiencies as a result of the social and vocational vacuum that emerged after the fall of communism.

This plant treats the wastewater from industry and a population of 99,000 inhabitants and includes the mechanical and biological wastewater treatment; anaerobic stabilisation of the sewage sludge in two-stage methane containers and dehydration of sludge in drying fields. Nitrification, denitrification and phosphorus removal is not included. Currently, if more than 460 l/sec enters the station at the entrance, the plant overflows as a result of the dilapidated state of the facilities.

Construction of a new sewage system : The rehabilitation of the wastewater treatment plant consists of the construction of a new sewage system in the district Vasil Levski—Kalkas of the City of Pernik. The implemented cost is €16,903,395 and is financed by the National Operational Programme Environment, funded by the Structural and Cohesion Fund of the European Union. (See box for more funding details)

Integrated Water Project : Technical assistance under the National Operational Programme Environment has been received for the preparation of a project to improve the water supply system in Pernik. The project will cost €29 million to complete.

Images from our pilot site at Castel sant'Angelo di Rieti



Pilot Project in Italy

Castel Sant'Angelo (CSA), a small municipality in central Italy. Is the location where the Italian Pilot Project will be conducted. It is characterised by seasonal fluctuation of the number of inhabitants with increased population numbers in the summer time. This impacts on the water supply in the area.

The BESSE project activities aim to advise the CSA pilot project on the collection and application of knowledge about wastewater treatment. The system is currently not fully operational because of the low levels of incoming water. It is a common opinion that the current sewage system is the most important pitfall in the system.

The existing trunk line has become obsolete and it allows the groundwater intrusion in the pipeline. The area is characterised by the abundance of superficial groundwater which immerses the current trunk line and facilitates the groundwater intrusion and, hence, the dilution of the wastewater. This does not allow the treatment plant to work properly and the outflowing water has almost the same quality as the incoming water.

A preliminary round of interviews with local actors involved in wastewater management was carried out aiming to define, in a participatory way, the potential contributions of BESSE. There was consensus that the most urgent intervention concerns the improvement of the trunk line. To this aim, the municipality of CSA is substituting the main pipeline, using modern technologies and materials to enable the network to collect rainfall water. Some important improvements to both the infrastructures (sewage network) and the management system are required.

This network should be separated by the sewage trunk lines to allow for increased effectiveness of the wastewater treatment plant. The construction of this network may be difficult in some old urban areas in the municipality, due to the narrow streets. The interaction between the local water managers and BESSE team will allow the selection of innovative approaches and technologies to overcome the typological drawbacks of such urban settlements.

The management of the whole system will also significantly improve if an automated monitoring and remote control systems, able support crises management is installed. Such a system will prevent future problems of groundwater intrusion and/or wastewater losses in the groundwater. It will also allow water managers to immediately react to crises situations.

Italian Partners

LSC LABORATORIO DI SCIENZE DELLA CITTADINANZA

Laboratorio di scienze della cittadinanza (LSC) : Laboratory of Citizenship Sciences is an independent, not-for-profit association of researchers, knowledge managers and research designers founded in 1992 and based in Rome (Italy). For more than ten years the association has been operating in Italy and Europe-wide with projects in the following thematic areas: science and society; global phenomena; public policies; health and services; social inclusion; crisis of institutions and political systems; integrated scientific project design and management.



AICCRE is the Italian Section of the CEMR, the Council of European Municipalities and Regions. The CEMR is the largest organisation of local and regional government in Europe; its members are over 50 national associations of towns, municipalities and regions represent some 100,000 local and regional authorities.

palities and regions from 37 countries. Together these

AICCRE participates in the CEMR's **fields of activity** such as regional policy, transport, the environment, equal opportunities, governance. Its committees and working groups seek to influence draft EU legislation to make sure the interests and concerns of local and regional authorities are taken into account from the earliest stages of the EU legislative process. AICCRE has its headquarters in Rome and has **Regional Federations** in 20 Italian Regions. Since 2007 has its office in Brussels at the CEMR's together with other European national associations and sections.



National Council for Research of Italy (IRSA/CNR) : The National Research Council (CNR) is a public organisation and its duty is to carry out, promote, spread, transfer and improve research activities in the main sectors of knowledge growth and of its applications for the scientific, technological, economic and social development of the Country. To this end, the activities of the organisation are divided into macro areas of interdisciplinary scientific and technological research, concerning several sectors: biotechnology, medicine, materials, environment and land, information and communications, advanced systems of production, judicial and socio-economic sciences, classical studies and arts.

Since 1968 the Water Research Institute (IRSA) has been involved in finding solutions to problems of water resources management and protection, and in developing processes and technologies for potabilisation and wastewater treatment. IRSA operates over the whole range of technological process from basic and applied research, environmental studies, processes and methodologies development, pilot and full-size plant design, supported by cost evaluation, result dissemination.

PROJECT REPORT

Main Results BESSE so far...

The collection and review of internationally existing knowledge on environmentally sustainable sanitation (ESS) has led to the production of a map of knowledge and technologies. Rather than a list of relevant technologies as originally envisaged, the map is constructed in such a way that it provides information about the circumstances in which the identified technology can most suitably be implemented and used. The technology map is dynamic and BESSE partners will continue add to it for the duration of the project. Regarding the identification of technologies, the actors involved in sustainable sanitation were mapped.

A second literature review has identified factors that hinder the effective dissemination of innovative knowledge geared to ESS as well as factors that facilitate this. Two internal reports were produced and discussed.

One important overall conclusion of these deliverables are that there are indeed many sanitation technologies that can be classified as sustainable, but that these may focus on different aspects of sustainability, for instance energy use. The extent to which these technologies will be useful depends on the needs of the particular context and actors, for instance how important the costs of the technology, how important is energy use as opposed to use of space, etc. A second conclusion is that the sanitation sector is organised very differently in different countries and that this may have consequences for knowledge brokerage.

The Marble Project

BESSE spin-off

As a spin-off from BESSE, the Department of Technology and Society Studies at Maastricht University and the Water Board Company Limburg have collaborated to set up a teaching and research project on sustainable sanitation for students from Maastricht University. This is done within the Marble framework which stands for Maastricht University Research Based Learning project.

Partially financed by a subsidy from the Dutch Ministry of Education, Culture and Science (the Sirius Program), the goal of Marble is to stimulate excellence in higher education by involving small groups of students in research projects. The Marble projects emphasize the connection between research and teaching as well as academic and societal



BESSE Steering Committee representing all the partner organisations.

relevance.

Five students from the bachelor programmes 'Arts and Culture' and 'European Studies' (all in the top 20 per cent of the third-year bachelor students), have been working on sustainable sanitation since February 2010. The students are working on

- ◇ Sustainable innovation in sanitation (Lotte Jansen);
- ◇ Sustainable water resource management - the reclamation of wastewater (Marie-Luise Mussenbrock);
- ◇ Integration of industries for sustainable management of by-products of wastewater treatment (Fabienne Pradella);
- ◇ Public-private partnership in sanitation (Claudia Bochnia), and
- ◇ (Public) participation in sanitation (Dorothee Kassing)

The Marble project on sustainable sanitation focuses on mutual learning between the students, research staff, and the Water Board Company Limburg. The findings and outcomes of the project relevant to Water Board Company Limburg and the wider sanitation community will be presented in June 2010. In addition, as all five projects address issues around knowledge brokerage, it is expected that they will also inform BESSE, in particular with regard to obstacles to and facilitating factors for knowledge brokerage.

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