BESSE Policy Brief 1

Policy Brief

Brokering Environmentally Sustainable Sanitation for Europe (BESSE)

Background

The collaborative project 'Brokering Environmentally Sustainable Sanitation for Europe' (BESSE) is funded by the European Commission under the environment sub-theme 'Enhancing connectivity between research and policy-making in sustainable development' of the Seventh Framework Programme.

BESSE is a sanitation/wastewater knowledge brokerage project that addresses the issue of the availability of new and cutting edge knowledge about environmentally sustainable sanitation (ESS), while current sanitation approaches in Europe and the rest of the world are based on knowledge, technologies and management systems developed in the 19th and early 20th century. These approaches do not respond to the sustainable development needs of the 21st century, such as reducing energy use and the overall environmental impact of sanitation.

The BESSE project addresses this schism through investigating and bringing in knowledge and technologies needed to transform the sanitation supply chain through effective knowledge brokerage. It does this by answering the following two questions:

- What are the obstacles that hinder the transfer of available knowledge about environmentally sustainable sanitation?
- What are the knowledge brokering mechanisms to overcome these obstacles?

The summaries on the next pages reflect the outputs of the project thusfar (objectives 1 and 2 of the overall project): the complete BESSE project is described on page 4.

Introduction

Mapping the sanitation landscape in Europe was done in three distinct phases:

1. Developing a map of innovative and cutting-edge wastewater/sanitation technologies
2. Developing a listing of actors in sanitation
3. Performing mini studies (case studies) that illustrate sustainable and innovative use of wastewater technologies.

Together, these activities provide a baseline indicator of the level of advancement and innovation in the sanitation/wastewater sector in Europe.

The rationale was to provide an inventory of cutting-edge—not necessarily comprehensive—wastewater technologies present in the market. The approach adopted was to identify a small number of technologies used in each stage of the wastewater treatment process.

Technology Map

The purpose of the map is to give users an indication of the type of technologies that are available in each area of the treatment process. The technologies were referenced against a list of important sustainability attributes identified by water companies in the BESSE project.

The criteria identified were energy use, suitability for decentralisation, environmental impact, and flexibility of design and use.

Therefore, the value of the map of technologies is that it guides users in the right direction by citing examples of relevant technologies. Further, in project terms, the map acts as an experiment in testing the brokerage efficacy of a non-animate intermediary.

The technologies were mainly identified through a desk-based internet search. A sanitation expert then evaluated the technologies and referenced them against a list of important sustainability attributes identified by water companies in the BESSE project. The map itself resides in the BESSE project website and exists as a matrix on a single webpage.

Full reports of the Project Objectives will be made available on the BESSE website.

Inventory of Actors

The project has developed a listing of actors engaged in an aspect of sustainable sanitation in Europe. This listing is arranged by category of actor. The categories are: EU member state, national and international agencies, research agencies, research funding agencies, research programmes, technology manufacturers, consultants, private sector companies, user associations, and civil society organisations.

Brokerage Case Studies

To identify specific factors in the brokerage of sanitation, two case studies were carried out in each of the following three countries: Bulgaria, Italy and the Netherlands.

Map of Technologies

The cases illustrated the diversity between country contexts, but also resulted in common findings:

- Sustainability (energy use) though important is not the overriding factor in technology choice – cost is;
- Water companies tend to be risk averse in the interest of public health, which influences the uptake of 'innovative' technologies; and
- Water companies are more open to sharing information on operational innovations involving technologies than innovation in other areas.

Preamble

Apart from a few examples of good practice, the analysis of the data collected during the research process shows a bleak picture of the sanitation sector: low levels of social mobilisation around sanitation-related issues in comparison to the energy or water sectors; sanitation is not seen as a political priority; research and innovation programmes are scattered and often underfunded; sanitation is a highly regulated technology market, with relatively low levels of competitiveness where innovation often plays a secondary role; utilities are conservative as a result of tight and uncertain regulations and oversight and burdened by high investments they need to implement large-scale infrastructure projects.

Obstacles

Serious obstacles have been recorded along the entire innovation cycle. This cycle is fed from two sources:

1. society which continuously poses demands for new goods and services which, when gathered and organised by the political and economic players, are transferred to the research system;
2. techno-scientific research, which generates the knowledge and develops the technologies necessary to produce goods and services which impact on society and encourage the emergence of new opportunities and needs, reactivating the cycle.

When these sources are scarce the rate of innovation slows down.

Even in the cases where sanitation players seem to be oriented towards innovation, few show an attitude to review the (often tacit) principles upon which standard sanitation practices are based, such as resorting to centralised infrastructure or the adoption of energy-spending, water-based technologies.

A strategic role

The recorded obstacles are very different in terms of size, nature, diffusion and impact. Most of them cannot be addressed through knowledge brokerage alone, since factors such as investments, laws and regulations, effective sanitation policies, training programmes or new organisational solutions, are required.

Knowledge brokerage, however, can play a strategic role to accelerate innovation processes and address them in a more environmentally sustainable way.

Knowledge brokerage is a mediation process, transferring knowledge between different social, professional, cultural, institutional and organisational players.

This process is performed by specific professional authorities carrying out activities explicitly connected with knowledge brokerage and by people playing other roles who, occasionally or marginally, implement brokerage-related activities.

Knowledge brokering is pivotal to the process of transferring knowledge

- on the environmental risks linked to standard sanitation systems to civil society and the public at large in order to increase social mobilisation;
- on social demands regarding the different approaches to sanitation problems to the political arena for translation into policy;
- on the needs of utilities and communities to the research environment and processes;
- on the research outputs to technology developers and innovators for practical implementation;
- on the technological options among the utilities and the national and local authorities.

Knowledge brokerage contributes to supporting new policies and approaches to sanitation by creating alternative ways to innovation by making it more visible and viable. It is also instrumental in breaking logjams, inflexible organisational routines, consolidated visions and cultural biases which obstruct the path to sustainable sanitation. This requires commitment from civil society stakeholders, cultural leaders and decision makers.

Testing the solutions

To test the research outcomes and collect empirical evidence of the extent of the influence of the knowledge brokerage process in supporting innovation in the sanitation sector, a pilot project will be carried out in each of the following countries: Bulgaria, Italy and the Netherlands.

While these pilot projects have different contents, they share the same approach, being that of applying knowledge brokerage tools to existing or planned projects in order to help them test alternative procedures and solutions based on knowledge otherwise neglected.

The pilot projects will be observed by resorting to a common methodological framework in order to make comparison possible. The information gathered will be used to develop policy guidelines.

Project objectives

The project has four objectives:

1. The project collects, reviews, and systematises existing knowledge on environmentally sustainable sanitation (ESS).
2. It identifies the factors that hinder the effective dissemination of innovative knowledge geared to ESS. It also identifies mechanisms to broker this knowledge more effectively.
3. Testing these knowledge brokerage mechanisms in pilot studies that aim to support innovation processes in the sanitation field. The pilot studies take place in Italy, Bulgaria, and the Netherlands and address the specific (knowledge) needs in these different contexts.
4. The knowledge produced will be disseminated to sanitation actors and policy guidelines will be developed.

Key findings

Key finding 1: The research collected and reviewed existing knowledge transfers pertaining to environmentally sustainable sanitation. The findings were transcribed to produced a map of knowledge and technologies. The technology map is summarised as Project Objective 1. The full report will be made available on the BESSE website.

Key finding 2: A literature review identified factors that hinder the effective dissemination of innovative knowledge and facilitating factors geared to environmentally sustainable sanitation. In addition to the literature review, a series of stakeholder interviews further identified locally unique knowledge brokerage mechanisms and obstacles. This component of BESSE is summarised as Project Objective 2 and the full report will be made available on the BESSE website.

Testing the solutions

Project objectives 3 and 4 are the conclusion of the research noted above. In objective 3, the knowledge brokerage mechanisms will be tested in pilot studies in Italy, Bulgaria, and the Netherlands. Objective 4 is the dissemination of the knowledge produced in all three phases described above. During the final phase, the project will develop policy guidelines that will be informed by the knowledge gained throughout the project life cycle.

Policy implications

The BESSE project will identify the causes for the schism between available knowledge and sanitation operational and implementation practices. Through this identification, the policy implication is that the BESSE project will attempt to shift the current approaches from utilising archaic principles to principles in line with 21st century imperatives.

While sanitation *per se* has not attracted the interest that it warrants—reinforced by the technology in use—the sectors that it impacts on are high on the policy agenda. Neglecting the sanitation sector will have a major impact on reciprocally-connected sectors. It is therefore important that policies around sanitation are integrated into those of other European policies on environment, agriculture, energy, transport, tourism, etc.

The global push for energy efficiency is one factor that is directly linked to the sanitation sector. Another factor that is impacted on by the archaic sanitation technology is the use of water as a scarce resource.

Once the BESSE results are integrated and interpreted according to the project's theoretical framework, policy guidelines will be drafted to influence European Union policy makers as well as actors interested in knowledge brokerage as a tool to better integrate science, technology and society, also outside the domain of sanitation.

Partners

Maastricht University
LSC Laboratorio di Scienze della Cittadinanza
IWA International Water Association
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Waterschapsbedrijf Limburg
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IRSA CNR
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Further reading : http://www.besse-project.info/news-and-articles

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