



Ecosan – recycling oriented wastewater management and sanitation systems

Background

Ecological sanitation (ecosan) is a new paradigm in sanitation that recognises human excreta and household wastewater as resources that can be recovered, treated where necessary and safely reused.

Ecosan systems enable the recovery of nutrients contained in excreta and wastewater, and their reuse in agriculture. In this way, they contribute to improved soil fertility and food security, whilst minimising the consumption and pollution of water resources. They also have the potential to produce renewable energy from biogas systems.

It is evident that the United Nations' Millennium Development Goals (MDGs) cannot be achieved by conventional disposal oriented sanitation solutions alone and that alternative approaches are needed.

German development cooperation considers ecosan as a promising approach which can contribute to achieving the MDGs – not only the MDG target for improved sanitation, but also for example for reduced child mortality and enhanced primary education. Ecosan does not equate to a specific technology but is rather a way of thinking. It includes diverse technologies such as urine-diversion dehydration (UDD) toilets, composting, rainwater harvesting, constructed wetlands, vacuum sewers, biogas reactors and many more.



UDD toilet near Durban (South Africa) and ecosan workshop in the Philippines



Urine application on agricultural field near Stockholm (Sweden)

Approach

Commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), GTZ started the international ecosan program in 2001. The aim of this program is to establish ecosan concepts as a well-known approach and to contribute to improved sustainability of sanitation and wastewater management projects in development cooperation. The lack of capacity in the sector is a bottleneck to achieving the implementation of large-scale, sustainable sanitation systems.

The activities of the GTZ ecosan program include:

- Knowledge management for ecosan topics, projects and experiences (via websites, DVDs, printed materials, workshops, discussion fora, presentations)
- Collaboration in the Sustainable Sanitation Alliance (SuSanA) – an international network of more than 100 organisations active in the field of sustainable sanitation
- Mainstreaming, awareness raising and capacity development for ecosan concepts
- Supporting ecosan pilot, demonstration and up-scaling projects.



Girls living in an urban slum close to Bangalore (India) / Construction of a biogas sanitation system in Lesotho / Urban agriculture in the Netherlands

Impacts

Since beginning its work in 2001, the ecosan program of GTZ has gained an international reputation. Due to the efforts of GTZ and other organisations, ecological sanitation has become a promising option for widely-recognised sustainable sanitation.

The information service of the GTZ ecosan program is very popular. A quarterly newsletter in five languages and the GTZ ecosan website provide extensive and up-to-date information on ecosan. Publications such as the data sheets and case studies on ecosan projects make experiences available for interested readers around the world.

GTZ has also contributed to the formulation of international guidelines relevant to ecological sanitation, for example the WHO guidelines for the safe use of wastewater, excreta and greywater and the publication on ecosan capacity building with UNESCO.

GTZ has conducted workshops and implemented pilot projects in Africa, Asia, the Middle East, Europe and Latin America. The aim of the pilot projects is to develop and adapt ecological sanitation technologies, organisational schemes and reuse concepts, and to find best-practice examples for demonstration, training and upscaling.

In India, for example, GTZ supports the implementation of innovative reuse oriented sanitation concepts at three primary schools and a vocational centre in the state of Gujarat. In addition, GTZ has assisted in developing a modular capacity building training course for ecological sanitation in India which can also be used in other regions of the world.

In the Philippines, GTZ supports the implementation and operation of urine-diversion dehydration (UDD) toilets for

several allotment gardens, several villages and schools. In the allotment gardens, dried faeces are composted with garden waste and urine is used as a nutrient-rich fertiliser. This fertiliser and soil conditioner derived from treated human excreta has increased the agricultural productivity and therefore improved the economic situation of the urban gardeners.

Two large-scale ecosan projects (supported by GTZ and partly EU-funded) are now taking place in Ouagadougou (Burkina Faso) and Nairobi (Kenya).

Since 2006, GTZ is operating a urine-diverting sanitation system in its headquarter in Eschborn to underline GTZ's commitment to innovative ecological sanitation concepts and to demonstrate their potential in an urban context.



Picture left: Training course on reed beds for wastewater treatment near Damascus (Syria)

Picture below: UDD toilet provides fertiliser for allotment garden in Cagayan de Oro City (Philippines)



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