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## 10 Recommendations for Action from the Luebeck Symposium on ecological sanitation, April 2003

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350 experts from 60 countries met in Luebeck from the 7<sup>th</sup> to the 11<sup>th</sup> April 2003, at the 2<sup>nd</sup> International Symposium on ecological sanitation organised by the GTZ and the IWA.

### **The World Water and Sanitation Crisis**

The problems raised by the decreasing quality and quantity of water resources are becoming increasingly serious. All indicators show that they are getting worse and that we are facing a serious world water crisis, which will affect us all, particularly the poor. They suffer most from this decrease in fresh water resources, and bear the brunt of water related diseases and a damaged environment.

Both central and on-site conventional sanitation systems have proven to be unable to make a significant impact on the dramatic service backlog of nearly half of the worlds population. Moreover, present sanitation systems are coming under increasing criticism as in many cases they are unaffordable or do not function properly. Indeed, they are using surface and groundwater as a sink for human excreta and wastewater resulting in increasing health hazards, environmental pollution, steady degradation of natural resources and a permanent loss of nutrients and organics from the soil sphere. Instead of solving the problem they often contribute to the contamination of freshwater and increase the scarcity of freshwater resources.

### **Need for a paradigm shift**

To the participants of the Luebeck Symposium it is clear that in order to achieve the Millennium Development Goals and the Johannesburg Plan of Implementation, a new paradigm is required in sanitation, based on ecosystem approaches and the closure of material flow cycles rather than on linear, expensive and energy intensive end-of-pipe technologies. This paradigm must recognise human excreta and water from households not as a waste but as a resource which should be made available for reuse.

### **The new paradigm is called ecosan**

Ecological sanitation (ecosan) is a holistic approach to sanitation and water management based on the systematic closure of local material flow-cycles. Ecosan introduces the concept of sustainability to sanitation.

One of the objectives of the five-day symposium was to formulate priority actions for the further promotion of ecosan and for bringing ecosan to scale.

The participants agreed on the following 10 Luebeck Recommendations:

#### **1. Promote ecosan-systems as preferred solutions in rural and peri-urban areas**

A variety of ecosan solutions, ranging from low to high-tech, exist for rural and low-density urban areas. These should now be implemented on a large scale, in accordance with local physical, cultural and socio-economic conditions.

### **Principles and objectives of ecosan**

The basic principle of ecosan is to close the loop between sanitation and agriculture. The main objectives are to:

- reduce the health risks related to sanitation, contaminated water and waste
- prevent the pollution of surface and ground water
- prevent the degradation of soil fertility
- optimise the management of nutrients and water resources.

Closing the loop enables the recovery of organics, nutrients, trace elements and energy contained in household wastewater and organic waste and their subsequent reuse in agriculture. In order not to compromise health in ecosan approaches appropriate treatment and handling must be ensured. In making the organics, nutrients and trace elements available to agriculture, soil fertility is preserved and long-term food security is safeguarded. In practice the commonly applied ecosan strategy of separately collecting and treating faeces, urine and greywater minimises the consumption of valuable drinking water and enables treatment of the separate wastewater flows at low cost for subsequent reuse in soil amelioration, as fertiliser, as service or irrigation water or for groundwater recharge. Rainwater harvesting and the treatment of animal manure may also be integrated into ecosan concepts.

Ecosan can therefore greatly help in saving limited resources. This is particularly urgent with regard to fresh water and mineral resources – for example current estimates for phosphorus state that economically extractable reserves will be exhausted within the next 100 years. Ecosan does not favour a particular technology but is rather a philosophy in recycling oriented resource management and offers modern, convenient, gender friendly and desirable solutions, in accordance with the Bellagio Principles as formulated by the WSSCC (Water Supply and Sanitation Collaborative Council).

Technologies based on ecosan principles should be vigorously promoted for all new construction of buildings and for the refurbishment of older structures wherever feasible. Additionally, existing on-site sanitation facilities that pose a significant health risk should be upgraded in accordance with ecosan principles.

## **2. Accelerate large-scale applications of ecosan principles in urban areas**

Urban areas with their rapidly growing populations are in greatest need of sustainable sanitation. Although initial experiences with ecosan systems are available from urban areas, further research and development is urgently required. Further ecosan pilot-projects should be carried out in order to develop a variety of technological, organisational and economically viable solutions for densely populated urban areas and to obtain results concerning the costs and performances of different systems in both industrialised and developing nations. The conversion of existing conventional systems towards ecosan should, wherever possible, be immediately started, adopting if necessary a step-wise approach.

## **3. Promote agricultural use**

Ecosan systems are not complete until the fertiliser products are reused. The promotion of agricultural reuse must therefore be a key element of every ecosan project. Reuse options for ecosan fertilisers need urgent field testing at medium and large scale, and appropriate pretreatment, distribution, marketing strategies and guidelines for safe handling and use for different local conditions must be developed. Particular care has to be taken to ensure that the pathogen cycle is broken.

## **4. Raise awareness and create demand**

To be willing to make a change, politicians, local and regional authorities and the public need to know that the current system can cause many problems and that the application of ecosan principles can solve several of them. Advocacy and lobbying is therefore essential. There is also an urgent need to showcase ecosan systems at a municipal or large neighbourhood level in order to convince decision makers ("seeing is believing").

## **5. Ensure participation of all stakeholders in the planning, design, implementation and monitoring processes**

Planning with a household or neighbourhood-centred approach should be adopted as it places the user at the core of the planning process. The Household Centered Environmental Sanitation Approach (HCES, as developed by the WSSCC) responds to the knowledge, needs and demands of the users. This approach attempts to avoid the problems resulting from either "top-down" or "bottom-up" approaches, by employing both within an integrated framework. Gender issues must be given particular consideration in all processes.

## **6. Provide for decisions on an informed basis**

People should be involved in assessing a range of ecosan options addressing their needs, thus placing, as far as possible, the decision for the type of system they wish to use directly in their hands. In ecosan projects, all stakeholders must be informed intensively about the closed-loop ecosan philosophy, the use of the sanitary facilities, and the safe treatment and ap-

plication of the recyclates with respect to hygiene and the environment. Study and documentation of the health risks posed by the different sanitary concepts, and the necessary means to overcome these, is required.

## **7. Promote education and training for ecosan**

Ecosan is multidisciplinary and should be integrated in the teaching curricula of universities, schools and vocational training centres. The engineers, architects, farmers, developers, constructors, consultants, municipal planners, economists and authorities concerned should know about the concept, the wide range of existing technical and organisational ecosan solutions and the hygienically safe treatment and reuse of the recyclates. Ecosan principles should be integrated into capacity building and continuous learning programmes for all the actors involved.

## **8. Adapt the regulatory framework where appropriate**

The documentation and results of pilot-projects must be transformed into e.g. technical, socio-economic, and reuse guidelines reflecting the interdependencies of water supply, sanitation, waste management, health, hygiene, environment, agriculture and energy supply. Ecosan technologies should be codified into the local, national and international systems of technical standards and norms in order to provide reference for Best Practice and Best Available Technology. The regulatory framework should be verified or adjusted with the aim of authorising and promoting a closed loop with new innovative technologies and management concepts.

## **9. Finance ecosan**

Appropriate financing instruments need to be developed, putting particular emphasis on the possibility to finance the users investment for on-site and neighbourhood systems, recognising that ecosan systems have a different cost structure from conventional sanitation systems. Innovative financing alternatives including start-up funds, community based finance programmes and cost recovery mechanisms may be required. The possibilities for private sector participation are large and should be stimulated, thus opening opportunities particularly for small and medium-sized enterprises and job creation. Additional financing should also be provided to secure research activities.

## **10. Apply ecosan principles to international and national Action Plans and Guidelines**

Ecosan strategies should be implemented in national and international action plans including the Implementation Plans for the MDGs (Millennium Development Goals), PRSPs (Poverty Reduction Strategy Papers) and the National Plans of Action within the UNEP GPA (Global Programme of Action for the Protection of the Marine Environment from Land-based Activities). The indicator system for safe and sustainable sanitation provision should be revised to

reflect the real risks and dangers to the environment and public health posed by all forms of sanitation.

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Christine Werner, [christine.werner@gtz.de](mailto:christine.werner@gtz.de), GTZ-ecosan-project, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH  
Ralf Otterpohl, [otterpohl@tuhh.de](mailto:otterpohl@tuhh.de), Hakan Jönsson, [hakan.jonsson@lt.slu.se](mailto:hakan.jonsson@lt.slu.se), IWA specialist group ecological sanitation  
Luebeck Recommendations for Action to be found at: [www.gtz.de/ecosan](http://www.gtz.de/ecosan)

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