

Sanitation and related sustainability criteria

C. Werner*, **J. Lodemann**, **S. Rüd** (all three gtz-ecosan)

* ecosan program, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
Dag-Hammarskjöld-Weg 1-5 , 65760 Eschborn, Germany
e-mail: christine.werner@gtz.de
Tel: ++49-6196-79-4221
Fax: ++49-6196-79-7458

Keywords: Joint Monitoring Programme, MDG, sustainability criteria, improved/unimproved sanitation

INTRODUCTION

The global sanitation crisis has been recognised by the international community with the setting of a concrete target in the Millennium Development Goals (MDGs) to halve the number of people without access to adequate sanitation by 2015. According to the Joint Monitoring Programme (JMP) managed by UNICEF and WHO, 2.6 billion people presently lack access to basic sanitation. Taking into account the projected increase of the global population, another 1.6 billion people need to get access to improved sanitation until 2015 to reach the sanitation goal which means that current efforts have to be at least doubled. If the current rate of provision does not improve dramatically, the sanitation target will be missed by more than half a billion people. These data already show the immense need for action in the sanitary sector. But having a more in-depth look at the situation the picture becomes even worse. The data generated by the JMP create a rather optimistic and in cases even misleading picture, because its system of data collection is mainly based on counting household sanitary installations (“counting toilets”) only, without taking into account the requirements of collection, treatment and safe reuse or disposal of the wastes. In the worst case, this could lead to a thoroughly misinterpretation of a situation and thereby to wrong decisions about the measures that should be taken. With the pressing need for action to meet the MDG sanitation target there is a huge risk that the focus will fall simply on the provision of latrines/toilets, overlooking what is needed for sanitation systems and the related services to be sustainable from a broader perspective. Therefore, a more holistic approach for the collection of data may be much more appropriate where all required elements of the sanitary system will be considered including the treatment and reuse and / or final disposal of the excreta and the wastewater .

THE JOINT MONITORING PROGRAMME

In order to inform about the current state of development of the MDGs, the Joint Monitoring Programme for water supply and sanitation has been implemented. The present data on sanitation gives a general overview of how many households in different areas are connected to “improved” water supply and sanitation systems. The sanitation coverage data however often seem to be too positive, as performance and quality of the systems are not included, e.g. the inadequate performance of flush toilets in cases of low performance of water supply systems or frequent failure of wastewater treatment plants is neglected. Additionally the data does not inform about the reuse/final disposal, health and environmental impact, costs and sustainability. The impact is, that often downstream communities and the environment are exposed to pollution and pathogens. The list of criteria for the assessment of improved or unimproved sanitation therefore has to be extended to take sustainability aspects into account.

For the data collection a definition on improved sanitation had to be made. Hence an initial list of improved and unimproved sanitation facilities was elaborated by the JMP. The list however was heavily criticized because it concentrated too much on counting toilets only, without taking into account the necessary treatment of the effluents to avoid downstream pollution and public health risks. As a result of the discussion, the list of improved/unimproved sanitation was finally reviewed in the last Joint Monitoring Report of 2006 and e.g. composting toilets were added to the list of improved sanitation and flush toilets with no sewer connection were moved to the list of unimproved sanitation.

In spite of this considerable improvement of the classification, there are further amendments required. Systems which use flush toilets that deliver excreta to a piped sewer connection should not be considered as improved sanitation, if the generated wastewater is not at all treated and contributes on a high level to downstream environmental pollution and health risks. Pit toilets and VIP toilets should as well not be included in the list of improved sanitation as they contribute to groundwater pollution with nitrates, organics and pathogens.

On the other hand, WHO has produced guidelines for reuse oriented and hygienic safe sanitation systems, which also should be included into the list of “improved sanitation”. These comprise e.g. on-site ecosan systems such as urine diversion dehydration toilets and toilets connected to a biogas system.

FURTHER INITIATIVES

With regard to the upcoming IYS 2008, the Sustainable Sanitation Alliance (SuSanA), has developed a set of criteria for the overall sustainability assessment of a sanitation system. These criteria may serve as a basis for further improving the definition of improved sanitation being presently used by the JMP. The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. In order to be sustainable, a sanitation system has to be not only economically viable, socially acceptable and technically and institutionally appropriate, but it should also protect the environment and the natural resources. When improving an existing and/or designing a new sanitation system, sustainability criteria related to the following aspects given in the following table should be considered. Most sanitation systems have been designed with these aspects in mind, but in practice they are failing far too often because some of the criteria are not met. In fact, there is

probably no system which is absolutely sustainable. The concept of sustainability is more of a journey rather than a stage to reach. Nevertheless, it is crucial, that sanitation systems are evaluated carefully with regard to all dimensions of sustainability. Since there is no one-for-all sanitation solution which fulfils the sustainability criteria under different circumstances to

Table 1.1: Sustainability criteria developed by SuSanA

Sustainability criteria developed by the Sustainable Sanitation Alliance (SuSanA)	
(1)	<p>Health:</p> <ul style="list-style-type: none"> • risk of exposure to pathogens and hazardous substances • hygiene, nutrition and improvement of livelihood • downstream effects.
(2)	<p>Environment and natural resources:</p> <ul style="list-style-type: none"> • required energy, water and other natural resources for construction, operation and maintenance • potential emissions from use • degree of recycling and reuse practiced and the effects of these
(3)	<p>Technology and operation:</p> <ul style="list-style-type: none"> • functionality and ease regarding construction, operation, monitoring • suitability to achieve an efficient substance flow management • robustness of the system • vulnerability towards disasters • flexibility and adaptability of the system
(4)	<p>Financial and economic issues:</p> <ul style="list-style-type: none"> • investment, operation and maintenance costs • economic benefits in “productive” sanitation systems • capacity of households and communities to pay for sanitation
(5)	<p>Socio-cultural and institutional aspects:</p> <ul style="list-style-type: none"> • socio-cultural acceptance • appropriateness of the system • convenience • gender issues • impacts on human dignity • contribution to subsistence economies • food security • legal and institutional aspects

the same extent, this system evaluation will depend on the local framework and has to take into consideration existing environmental, technical, socio-cultural and economic conditions.

The gtz ecosan project is actively involved in the development of sustainability criteria in different projects and working groups such as the Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall (DWA) and the EU project NETSSAF. The developed sustainability criteria include amongst others criteria on the impact to the environment, social, cultural and gender aspects and economical and financial issues. It was seen as important that e.g. the impact to the environment was considered as discharge values to the environment and not as elimination rates.

Taking into consideration the entire range of sustainability criteria, it is important to observe some basic principles when planning and implementing a sanitation system. These were already developed some years ago by a group of experts and were endorsed by the members of the Water Supply and Sanitation Collaborative Council as the “Bellagio Principles for Sustainable Sanitation” during its 5th Global Forum in November 2000.

CONCLUSION

This paper strongly recommends making a choice for more sustainable solutions which are taking into account holistic system approaches. Money and energy should not be wasted in the investment in unsustainable sanitary systems. Therefore a set of sustainable criteria should be part of the analysis and evaluation of the actual situation of sanitary systems. Data generated in such a reasonable way will be a good foundation for decision making processes.

Literature

Bracken, P., Werner C. and Kvarnström E. (2006) Making sustainable choices – the development and use of sustainability oriented criteria in sanitary decision making. 7th Specialised Conference on small water and wastewater systems, Mexico

NETSSAF – Network of the development of Sustainable approaches for large Scale Implementation of Sanitation in Africa (2007) D04: Criteria for the evaluation and classification of conventional and innovative low cost sanitation technologies. TUHH/TTZ.

Sustainable Sanitation Alliance (SuSanA) (2007) Towards more sustainable sanitation solutions. SuSanA Statement – draft 05/2007.

World Health Organisation (WHO) and United Nations Children’s Fund (UNICEF) (2006) Meeting the MDG drinking water and sanitation target : the urban and rural challenge of the decade.