
33rd WEDC International Conference, Accra, Ghana, 2008

**ACCESS TO SANITATION AND SAFE WATER:
GLOBAL PARTNERSHIPS AND LOCAL ACTIONS**

**HCES: A new approach to
environmental sanitation planning for urban areas**

C. Luthi & E. Tilley, Switzerland

This paper presents the Household-Centred Environmental Sanitation (HCES) approach, jointly developed by the WSSCC and Eawag/Sandec (Water and Sanitation in Developing Countries). The presentation explores its origins, theoretical foundations and the problems it seeks to address. HCES is a method which proposes to start the holistic planning process with household decisions on service needs, and then move outward from the household to the neighbourhood, town and upper levels of government. Thus, the link between community expression of needs and mobilization of resources to solve them and other inputs from higher up the line is assured. The second part of the paper explores a new approach to widening system and technology options for household-centred approaches by thinking as sanitation as a 'cradle-to-grave' system rather than stand-alone technologies.

The case for change

In 2007 for the first time in the history of mankind the majority of the world's population will be urban. African and Asian cities in particular are growing at break-neck rates. Many, if not most of this new urban population will reside in mushrooming, unplanned and informal settlements or favelas, bidonvilles, chawls or bustees as they are popularly known. In these expansive urban and peri-urban settlements 'on-site sanitation' is the norm. Yet despite on-site low-cost sanitation being the reality for the vast majority of the developing world's urban population, much of the focus for policymakers is still on network sewerage and top-down centralised systems designed and implemented without consultation with, and the participation of stakeholders and beneficiaries.

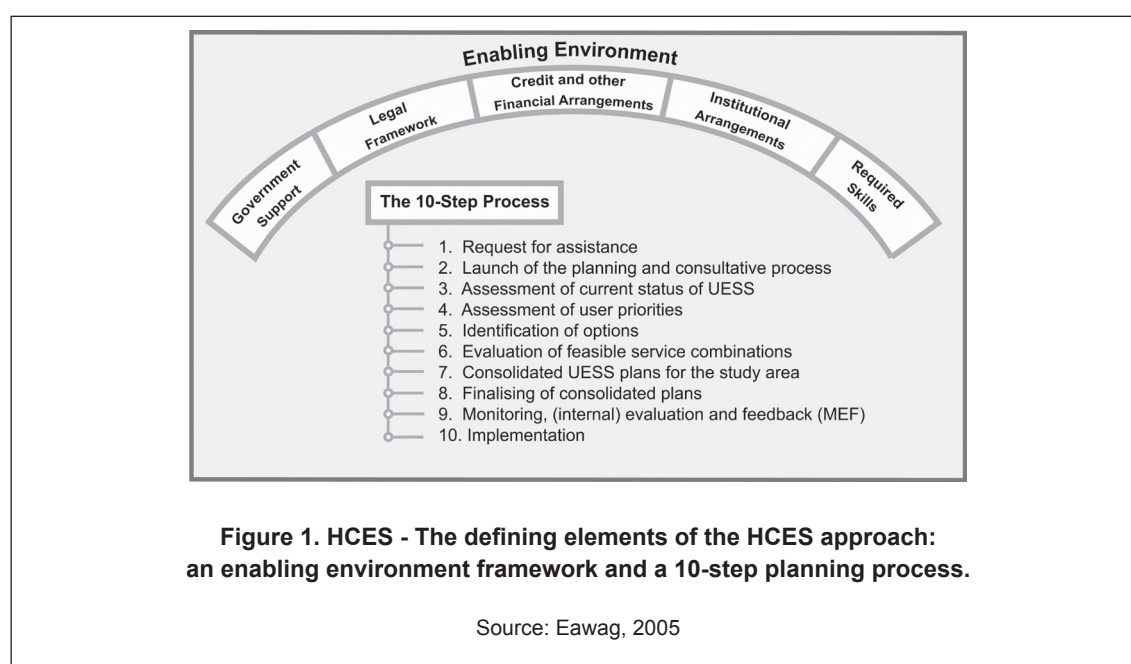
In the year 2000 a group of senior sector experts met in Bellagio, Italy, and suggested that any environmental sanitation system should be based on a set of 4 basic principles, also known as "*Bellagio Principles for Sustainable Sanitation*". The Bellagio Principles were endorsed by the members of the Water Supply and Sanitation Collaborative Council during the 5th Global Forum in November 2000:

1. Human dignity, quality of life and environmental security at household level should be at the center of the new approach, which should be responsive and accountable to needs and demands in the local and national setting.
2. In line with good governance principles, decision-making should involve participation of all stakeholders, especially the consumers and providers of services.
3. Waste should be considered a resource, and its management should be holistic and form part of integrated water resources, nutrient flows and waste management processes.
4. The domain in which environmental sanitation problems are resolved should be kept to the minimum practicable size (household, community, town, district, catchment, city) and wastes diluted as little as possible.

The Household-Centred Environmental Sanitation (HCES) approach was consequently developed by the Environmental Sanitation Working Group of the Water Supply and Sanitation Collaborative Council (WSSCC). Preliminary guidelines were published in 2005 targeting public officials and decision-makers and sector specialists (Eawag, 2005). The overall goal of the HCES approach is to contribute to the achievement of the MDGs by promoting sanitation that is sustainable and reaches the poorest communities in urban and peri-urban settings.

The HCES approach follows an integrated approach where safe water supply, environmental sanitation and hygiene promotion are addressed simultaneously. HCES places the household and neighborhood at the core of the planning and implementation process. Decisions on determining the type of environmental sanitation

services to be implemented is heavily based on the actual *needs* and *means* of the users and is done in close consultation with all stakeholders. Rather than suggesting and/or promoting one specific solution or technology, the HCES approach suggests a holistic planning process whose key participants are the stakeholders, including those at the household level, especially women, who make the basic decisions on personal hygiene and environmental services. Local government and government agencies respond to the needs by creating an environment which enables the successful implementation of the services identified as the most adequate during the participatory planning process. A further feature is the environmental sustainability concept based on circular resource management systems, where environmental sanitation problems are addressed as close as possible to their source and an emphasis is placed on resource conservation and waste reduction.



Testing the HCES planning approach

In the past year, six testing sites were selected and the process initiated: two sites in Costa Rica, Central America one in Burkina Faso, West Africa, two in East Africa (Kenya and Tanzania) and one in Laos, South-East Asia. The selected sites in Latin America, Africa and Asia are all situated in the two typical settings of cities of the developing world:

5. Unplanned informal settlements or slums (inner-city or near centre of town). These overcrowded, low-income urban communities usually house over half a city's population in Africa and South Asia. They are characterized by low water consumption (20 - 40 liters per capita per day) and a maximum wastewater volume of up to 40 liters per capita per day. Housing is of poor structural quality and population density can reach up to 500 persons per hectare.
6. Peri-urban city fringe settlements (previous agricultural or barren land). These settlements are less dense (<200p./ha) but are also characterized by insecure residential status, inadequate access to safe water and sanitation infrastructure and poor quality habitats. On-site sanitation is the norm with frequent problems associated with contaminated shallow wells and ensuing health problems.

Planning with, not for the community

So far, HCES launching workshops (step 2 of the planning process) were held in Costa Rica, Kenya, Laos and Tanzania and their results in terms of stakeholder participation and content surpassed our expectations. Multi-stakeholder participation, reflected by the lively debate involving the community at large and key stakeholders at national and municipal level, was achieved in all workshops. The following factors largely contributed to the success of the launching workshops: (i) a balanced mix of stakeholders, (ii) a gender balance in community representation, (iii) ensuring space for the community to speak out and voice its concerns, without intimidating authorities present, (iv) a careful preparation and detailed organisation of the launching event.

Not unlike the total sanitation approach in rural settings, HCES stresses the importance of people's capacity, skills and local knowledge. A one-day interactive community workshop ensures that the communities' views and knowledge is recognised and forms a valuable input to the assessment report that follows in the third Step¹. This launching event ensures that the whole community is actively involved in project planning, implementation and monitoring from the beginning. At the end of the launching workshop an 'Environmental Sanitation Task Force' or HCES Development Committee is formed, comprising all major stakeholders involved in championing the process.

Successful implementation of the HCES approach requires the dissemination of information to those responsible for improving environmental services, such as municipal officials, urban planners, and policy makers responsible for creating an enabling environment. To fulfil their new roles, process stakeholders need to be provided with information and assistance so their capacity to make decisions, implement and manage services grows.

Focus on HCES Step 5 and 6: Identifying sanitation options and evaluating service combinations

Usually when talking about 'sanitation' one speaks *not* of sanitation, but rather of a single technology, or an instrument, that is designed to treat wastewater. Septic tanks, pit latrines, and composting toilets, among others, are often referred to as sanitation systems. What these are in fact, are technologies; technologies are merely single parts of a sanitation system. However, too often a technology (under the guise of being a sanitation solution) is implemented, only to realize later that there has been no provision made for the treated effluent (which is soon diverted into open drains), the faecal sludge (which, in the absence of a collection site, is soon being dumped in open fields), or other various sidestreams that may emerge. So while the technology itself may work, the system as a whole may actually be a failure.

The goal of the Compendium of Sanitation Systems (Eawag, 2007) ('Compendium') is to overcome and prevent these sorts of planning oversights. Step 5 of the HCES approach is the 'identification of options'; however, rather than just simply helping to identify technology options, the Compendium will help users identify compatible, appropriate technologies with the ultimate goal of building a *sustainable sanitation system*. The Compendium is targeted at engineers, planners and other professionals who will be primarily responsible for selecting and proposing the 'possible' options. It is assumed that the user has a foundation in sanitation and that, although some concepts and processes may be new, the underlying principles should be easily understood (with or without referring to the references provided). Effectively, the goal is to augment the range of options and potential variations, which may not have been previously considered.

With the International Year of Sanitation fast approaching, and the list of sanitation reference books growing accordingly, it is easy to ask what this sanitation source book offers that one of the other hundreds currently available does not. Unlike other sanitation guidebooks which loosely define each technology based on site (rural/urban), resource affordability (high-tech/low-tech) or various other arrangements, each technology in the Compendium is indexed by two specific criteria: **product** and **process**. 'Product' refers to the type of 'waste' that the technology is suitable for treating; blackwater, greywater, faecal sludge, urine, faeces, and excreta are the products defined within the Compendium. 'Process' refers to the way in which these products are handled. The five processes included are User Interface (type of toilet); On-site Storage and Treatment (onsite containment and partial treatment); Conveyance (transportation); Centralized Treatment (offsite); and Resource Application and Disposal (to recover water and/or nutrients).

Within each process section, a variety of technology options (6-17) exist. The user selects the technologies that are appropriate for each product at each process step in order to achieve the specific economic, financial, hygienic, and environmental goals. This tool will help to formalize the process by which a sanitation system is built in order to ensure that the most technically robust, resource-appropriate, financially feasible, culturally acceptable system possible can be designed.

The lowest desirable level of service is decided upon in Step 4 of the HCES process: assessment of user priorities. Based on the 'possible' systems identified by engineers/planners, the community can then participate in a workshop negotiating process to select the systems and technologies that are suitable in terms of socio-economic, cultural and technical conditions. This does not exclude the possibility that multiple systems or technologies may be selected for different users or regions and that they may overlap to varying degrees. The task of Step 6 is then to integrate the sanitation system(s) and other environmental services based on institutional arrangements and the level of stakeholder involvement. An open question remains about what happens if stakeholders fail to reach consensus and shortlisted sanitation options differ significantly. This informed 'systems' approach has yet to be tested on the ground in the six different sites mentioned above,

and we hope to provide answers to some of these questions at the 33rd WEDC International Conference in Accra.

Key aspects of the household-centred approach

- sustainable environmental sanitation solutions are central to improving both human dignity, health and environmental concerns;
- people's skills, abilities and knowledge are valued;
- multi-stakeholder approach engaging authorities, utilities to local beneficiaries;
- formation of a locally-based task force to champion the HCES process
- mobilisation of local and national resources to enable implementation
- 'cradle-to-grave' systems approach for sanitation planning

References

Eawag (2005) *Household-Centred Environmental Sanitation - Implementing the Bellagio Principles in Urban Environmental Sanitation, Provisional Guideline for Decision-Makers*.

Eawag (2007, forthcoming) *Compendium of Sanitation Systems - from the user interface to disposal/re-use*.

Note/s

¹ see for example: Waruku Status Assessment Report, Nairobi, Maji na Ufanisi, September, 2007.

Keywords

household-centred sanitation, environmental sanitation, urban infrastructure

Contact details

Christoph Luthi
Eawag – Sandec, PO Box 611
8600 Dübendorf
Tel: +41-44-8235614
Email: christoph.luthi@eawag.ch
www.sandec.ch

Elizabeth Tilley
Eawag – Sandec, PO Box 611
8600 Dübendorf
Tel: +41-44-8235602
Email: elizabeth.tilley@eawag.ch
www.sandec.ch
