

Alternative and resilient sanitation solutions in emergencies and reconstruction situations – a case study analysis



Discussion and policy implication

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Summary

We have collected and analyzed 17 case studies worldwide, where more resilient and in many aspects more sustainable (or alternative) sanitation solutions have been used in emergency and reconstruction situations. In all cases the aim has been to cope with challenging environments, such as flood-prone areas. Cases are both from the immediate phase (3 cases in immediate phase, +1 case within a year of the disaster) and the reconstruction phase. They reveal examples of innovative solutions, which contribute to overcoming challenges in both immediate and reconstruction situations.

We recommend to:

- 1) Upscale alternative solutions in challenging environments, also in the immediate emergency. Resource conservation can be applied later, if accepted by the users.
- 2) Support agencies with the necessary expertise.
- 3) Introduce the concept of a *resilient sanitation service chain*, to emphasise that its solutions are *primarily* aimed at coping and adapting to local conditions and challenges, e.g. floods (and building resilience). These solutions also contribute to sustainability.



Introduction

A challenging sanitation situation

Emergencies often challenge conventional sanitation solutions including 'improved latrines' (WHO & UNICEF 2008) which may quickly become unusable and a health hazard by spreading disease and contaminating the local drinking water source.

Main challenges include:

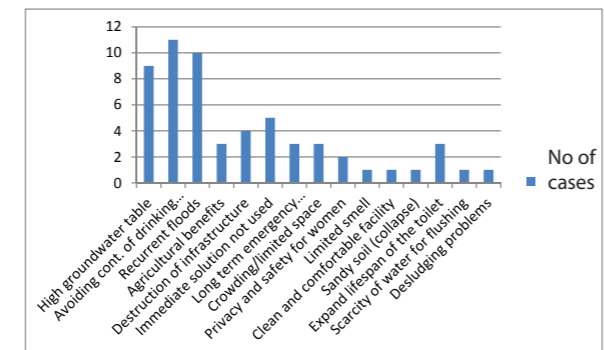
- * Lack of effort and investment in sanitation after a disaster
- * Existing latrines fill up quickly and desludging is a problem
- * Conventional latrines contaminate the surrounding (drinking) water
- * Temporary solutions can in worst case scenario remain for many years, especially in conflict situations.

Our aim

We wanted to investigate the feasibility of integrating critical short-term decisions with sustainable long-term ones. As part of the Working group 8 under SuSanA (Sustainable Sanitation Alliance) we collected 17 case studies. We analysed their alternative solutions, rationales, timing and success factors.



Alternative solutions in our cases are mostly implemented with the aim to cope with too much water. Often several rationales (see below) are behind the choices.



1 Be more alternative in challenging environments, also in the immediate emergency - 13 of our cases are from the reconstruction phase. However, resilient solutions (raised latrines, urinals, urine diversion, etc) have immediate effect and benefit in 4 of the immediate cases. Any sustainable aspects of resource conservation could be taken advantage of later on, if socio-culturally accepted.

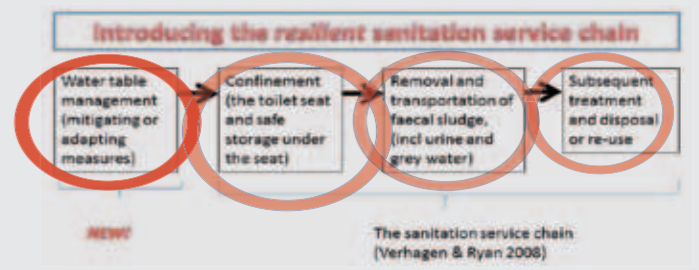
For example: Urine Diverting Dry Toilets (UDDTs) UDDTs have proven to be a robust solution and adding resiliency. UDDTs enables easier handling of excreta, minimises volume, increases composting and thus prolongs the life of a latrine. Its above ground location is suitable to flooded areas, not contaminating the groundwater and drinking water.

2 Support emergency agencies with technical expertise and longer term planning horizon - In our case studies technical expertise is the biggest key to success of implementation of alternative solutions



The number of cases with a certain success factor

3 We propose the concept of a resilient sanitation service chain, as most of the solutions in our case studies are implemented, primarily with the aim of coping with difficult environments. This includes resilient components in the entire chain. Additionally, we also propose a new link in the chain of 'water table management' or similar, including mitigating or adaptive measures to control the water table, such as drainage and solid waste collection.



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