

# ESRISS Inception Phase

## Executive Summary

*ESRISS Inception Phase: from May 2010 to June 2011*

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The *Egyptian-Swiss Research on Innovations in Sustainable Sanitation* (ESRISS), as a parallel research component of ISSIP, will focus on **small-scale sanitation systems** in the Nile delta. Whereas approaches have already been developed and implemented for big and mid-sized cities, there is still a strong need for clear guidelines to help decision-makers choose sustainable sanitation systems for villages and ezbas<sup>1</sup>. As mentioned in the conclusions of the SWSSC conference, rural sanitation is now a priority and there is a need for innovative alternatives to conventional systems.

The first step is to produce an **inventory** of existing small-scale sanitation initiatives. As initiatives at ezba-level may be rare, we will open our assessment framework to initiatives ranging from household level to mid-sized settlements level (up to 15.000 inhabitants) in the whole country (i.e. not only in the Nile delta). We will later assess how these initiatives can be upscaled (respectively downscaled) to the level of a village of around 5.000 inhabitants.

In a second step, initiatives with different technologies and institutional settings will be **selected**. We aim at being exhaustive within the Egyptian context. Some initiatives are only pilots, i.e. not representing a sanitation system as such. Thus, the second step of our assessment will also consist at determining what is needed for such technologies to be implemented as an integrated system.

Comprehensive **evaluation criteria** have been developed to assess the selected initiatives. The criteria are divided in seven categories: 1. Geographical factors, 2. Engineering & operations, 3. Nutrient recovery & reuse options, 4. Economics & finance, 5. Awareness, behaviour & participation, 6. Institutional factors and 7. Impact on area served. These evaluation criteria reflect Eawag/Sandec's integrated approach to sanitation systems.

The evaluation will include **sampling campaigns** to assess the technical performance of selected initiatives, **interviews** to identify stakeholders' perceptions and **cost-benefit analyses**. Special focus will be put on cost-effectiveness, social acceptance, institutional settings and operation & maintenance. The main objectives are to identify **success and failure factors** and define the **enabling environment** for each context.

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<sup>1</sup> We use the term „ezba“ for settlements up to 5,000 inhabitants. However, for better understanding, we will sometimes translate it into the expression „villages up to 5,000 inhabitants“.

The third step is to assess current sanitation and reuse practices in **unsewered villages**. In that case, we will produce a Material Flow Analysis (MFA) of wastewater and sludge. Collection, transport and reuse practices will be identified, as well as the related financial flows. We will analyse if the establishment of unsewered sanitation systems, based on micro-businesses of transport of wastewater and sludge by pumping trucks to defined treatment sites, are economically feasible.

The fourth step will be to compare all the sanitation systems that we evaluated/designed at the same scale. The choice of **a village of 5.000 inhabitants** as a basis for comparison seems to be a good trade-off between hamlets and villages big enough to be included in a cluster approach. It also represents the upper-limit for sanitation systems that can be managed at community level.

Assessing all the initiatives at a same scale will allow a **financial comparison** of the different systems, based on a life-cycle cost analysis. Different **scenarii** will be defined, based on several technical combinations and managerial systems. At that stage, it will be possible to draw **recommendations** and select one or two scenarii for pilot scale implementation in Phase II.

The management and operation of small-scale infrastructure will be discussed with HCWW and the Affiliated Companies to assess the **opportunities of going to scale**. Considering the heterogeneity of community capacities and the risks of failure, up-scaling implies an overall monitoring by the Affiliated Companies. We will define the **management interface** between the companies and the communities, which includes roles & responsibilities, questions of ownership, money fluxes, rules & regulations and what happens in case of service default. Water quality monitoring, spare parts management and faecal sludge collection and transport from on-site infrastructure could fall within the responsibility of the Affiliated Companies, whereas the daily maintenance could be handled by communities. We will also investigate the potential **synergies with the existing centralised sewerred systems** at the district level.

The ESRISS Inception Phase will terminate with the organisation of a **National Workshop**, for which the main objectives will be (i) the validation of ESRISS Phase I findings and conclusions by all relevant stakeholders and, (ii) the final choice of systems to be implemented in Phase II.

The ESRISS team is currently building a **network of sanitation experts** from Egyptian Universities and Research Institutions. The network is already well advanced. These experts will act as external advisors and will bring punctual support in their respective fields. They will also be an integral part of the National Workshop to be held at the end of the Inception Phase.

Several **reports** will be issued at the end of the phase: i) report on challenges and success factors of decentralized sanitation systems; ii) report on policies, practices and perceptions related to waste reuse in sanitation; iii) identified concept, technologies and site(s) for piloting of innovative sanitation systems; iv) Material Flow Analysis for water and nutrients and v) draft strategies for up-scaling.

**Cairo, 30th October 2010**