

Research to Policy: The Five Year Experience of the Egypt ESRIS Project

From 2010 to 2015, the SECO-funded ESRIS project researched scaling up small-scale sanitation systems in unserved settlements in the Nile Delta, together with the Egyptian wastewater utility. The project's policy recommendations were shared with Egypt's decision-makers [1]. Philippe Reymond¹, Rifaat Abdel Wahaab², Moustafa Moussa³

Introduction

Rural sanitation in Egypt encompasses around 4 700 villages and 30 000 scattered settlements. More than 85 % of the wastewater management in rural areas is informally managed, either via onsite systems with emptying by trucks or through sewer networks built by communities. In official terms, rural sanitation coverage is less than 15 %. The majority of the rural population lacks proper sanitation services and/or clean irrigation water for their fields. This situation also means high operational costs for poor service (up to 20 times higher than for urban dwellers [2, 3]), only to remove the wastewater without treatment. Regaining control of the situation, which represents a substantial health and development threat, is a challenge. However, international experience has shown that policies that combine incremental implementation of standards with innovative management schemes can be successful and lead to cost-effective solutions [4].

Large versus small

If large-scale centralised systems remain the first option for most of Egypt, it is clear that many small settlements will be left out for decades to come, mainly because it is not possible to cost-effectively connect them to such systems. Thus, it is important to develop alternative decentralised small-scale systems that can effectively treat the wastewater at settlement level and minimise the costs of sewer networks. Analysis of past small-scale sanitation initiatives in Egypt shows that the lack of an enabling environment prevented the institutionalisation and replication of any implementations [5, 6]. In particular, the lack of specific effluent standards for small-scale wastewater treatment plants in rural areas, as is the case in Europe, for example, is a major barrier to the development of pragmatic solutions. The lack of constructive collaboration between government Ministries, especially those dealing with wastewater, irrigation and health, is also a major issue.

Economies of scale

Small-scale compact sanitation systems are successfully run in Egypt's numerous tourist resorts. How can this model be transposed to rural settlements? The first step is to think in terms of economies of

scale, both at the implementation and management level. One has to go beyond the trial of isolated pilots because these remain prototypes and, as such, are not cost-effective or sustainable, do not receive the attention required, and are often

Policy Recommendations for the Scaling-Up of Small-Scale Sanitation in Egypt

The ESRIS Project Final Report

Philippe Reymond, Rifaat Abdel Wahaab, Moustafa Moussa

ESRIS: Egyptian - Swiss Research on Innovations in Sustainable Sanitation

1 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederación Suiza
Swiss Confederation
Federal Department of Economic Affairs,
Education and Research (EAE) /
State Secretariat for Economic Affairs (SECO)

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Figure 1: Policy Recommendations for the Scaling-Up of Small-Scale Sanitation in Egypt.

too expensive and/or prone to failure. For all of these reasons, they are not replicated. It is necessary to start with a critical mass of projects from the beginning as this allows for economies of scale and would involve the private sector.

Economies of scale at the implementation level can be achieved through standardisation of the sanitation systems. A limited number of simple and robust treatment systems should be selected and implemented. Different components of the sanitation chain could be prefabricated, which lowers costs, improves quality control and significantly reduces implementation time. To further increase cost-effectiveness, a modular and incremental implementation approach is recommended, with a planning horizon that does not go beyond 10 to 15 years for the treatment units.

Economies of scale at the management level imply the centralised management of decentralised systems. Yet, there is no need for permanent staff at small-scale treatment plants. Instead, a dedicated structure should be created with specifically trained professionals. This would provide the trained staff necessary for proper management and reduce the human resource management bottleneck of "overstaffing with under skilled people". Management units would have the task to monitor the planning, implementation and operation of the systems in the villages, while management of the sewerage networks could be delegated to the communities. Activities, such as effluent quality monitoring and troubleshooting, could be centrally managed.

Opening a new market

Adapted business models and proper incentives should be developed, building on the experience in the tourist resorts. Incentives to engage in rural sanitation should include a guarantee from the State for cost recovery, licenses and certification. In addition, design-build-operate mechanisms should be encouraged and local engineers and masons at the governorate-level should be trained. Two scenarios could be foreseen: (1) an incremental approach that starts at the local level in a defined area (strategic niche management) or (2) direct implementation as a national strategy.

There are specific challenges to the implementation of small-scale sanitation in rural Egypt. This is a new market, but it offers potential to the private sector and for job creation. This should be highlighted to enlist strong governmental support. The technical know-how is not fully available, but

local industry could produce prefabricated components when supported by experts. Advocacy for a national sanitation policy at the top level of the State is currently required since it has been shown that trying to reform regulations one by one does not work. Only a decision from the top can lead to quick change.

These recommendations are synthesised in the ESRISS project's final report (Figure 1). Figure 2 shows the main short- to long-term steps that could lead to wide-scale replication of small-scale sanitation systems. Because the situation in Egypt is similar to that in many countries, the project's recommendations are also applicable in other contexts. In short, scaling up small-scale sanitation systems can happen through implementing the following drivers of change:

- Thinking at scale
- A critical mass of projects and a centralised management scheme
- Piloting economies of scale, both at the implementation and management levels
- Convincing governments through the business and job potential
- Implementing effluent standards incrementally
- Facilitating the work of consultants and contractors [2, 7]

Conclusion

The 5-year ESRISS research project was embedded within the Egyptian Holding Company for Water and Wastewater (HCWW), which works with the main sector stakeholders and decision-makers. It was supported by high-level collaboration between SECO and HCWW, which gave it the unique opportunity to work at the science-policy interface. ESRISS researched and developed fact-based recommendations for small-scale sanitation systems in rural settlements in Egypt. These recommendations are now on the table of Egypt's decision-makers, and require only the right political momentum to be implemented. It has been shown that in such a complex and shifting institutional and interpersonal environment, scientific evidence, pragmatism and good will are not always sufficient to bring about change. There is now the need for a strong political drive to implement innovative sanitation schemes that would bring sanitation coverage to all as this would greatly benefit Egypt's large rural population.

SHORT TERM:

- Agreement on the incremental implementation of the effluent standards, at least for treatment plants under 5000 pop. equivalent.
- Definition of business models for rural small-scale sanitation systems
- Agreement with the Ministry of Irrigation on the integration of small drains in the wastewater treatment schemes
- Provision of technical support to communities willing to build a sewer network

MIDDLE TERM:

- Implementation of a large number of small-scale systems in a selected region, allowing a centralised management scheme
- Engagement of the private sector and local industry
- Adaptation of water tariffs

LONG TERM:

- Replication at national level

Figure 2: Prioritisation of actions for the wide-scale replication of small-scale sanitation systems in Egypt.

- [1] ESRISS: Egyptian-Swiss Research on Innovations in Sustainable Sanitation
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¹ Eawag/Sandec, Switzerland

² Holding Company for Water and Wastewater, Egypt

³ Helwan University, Egypt

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To download project documents and tools and to see the project video, go to: www.sandec.ch/esriss.

Contact: philippe.reymond@eawag.ch