Sustainability in the making: the case of new sanitation in the Netherlands

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Motivation

In the Netherlands, sanitation developments were mostly focused on uniformity, scaling up, and end-of-pipe cleaning of wastewater. Although this linear way of dealing with wastewater improved the public health and water quality, its demand for energy and resources is high [1]. Therefore, solutions are needed to improve the way wastewater is treated and that allow for the recovery of resources. Separating wastewater streams at the source is one way to achieve that, which is referred to as 'new sanitation'. Compared to the conventional approach, in which inhabitants were separated from the wastewater chain, new sanitation focuses on separating waste streams, recovering of resources, and aims to make inhabitants more engaged with and conscious of this wastewater chain [1].

Socio-technological challenge

New sanitation techniques might be difficult to adapt to the current infrastructure, regulations might hinder new sanitation techniques, and end-users and institutional actors might be not benevolent towards sanitation changes. Unlike the technical aspects of new sanitation, which seem relatively mature, the social aspects seem to be more complex in different contexts [2]. Therefore, the challenge is to assess possible barriers and find ways to overcome them in a process of system change in the context of the Netherlands. In this PhD-project, the theories of Responsible Innovation (RI) and Learning towards System Innovation (LSI) are used - that have not yet been applied to sanitation specifically - to understand how new sanitation contributes to a transition of the centralized sanitation system.

- RI - with its four dimensions (figure 1) - is about opening up an innovation process by including multiple perspectives, seeking to align the innovation process with societal values [3,4].
- However, expanding the scope of the problem definition provides a challenge for taking decisions. System learning provides a complementary view, since it focuses on the interaction and actions to develop solutions to barriers encountered along the way [5,6] (figure 2).

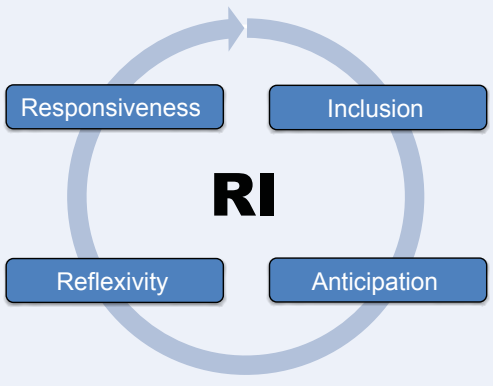

Figure 1 – Four dimensions of Responsible Innovation (based on [4])

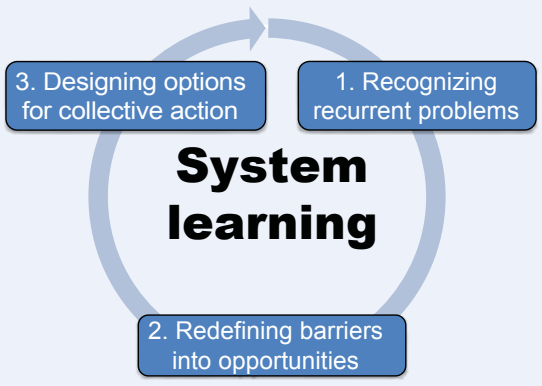

Figure 2 – System learning (based on [5,6])

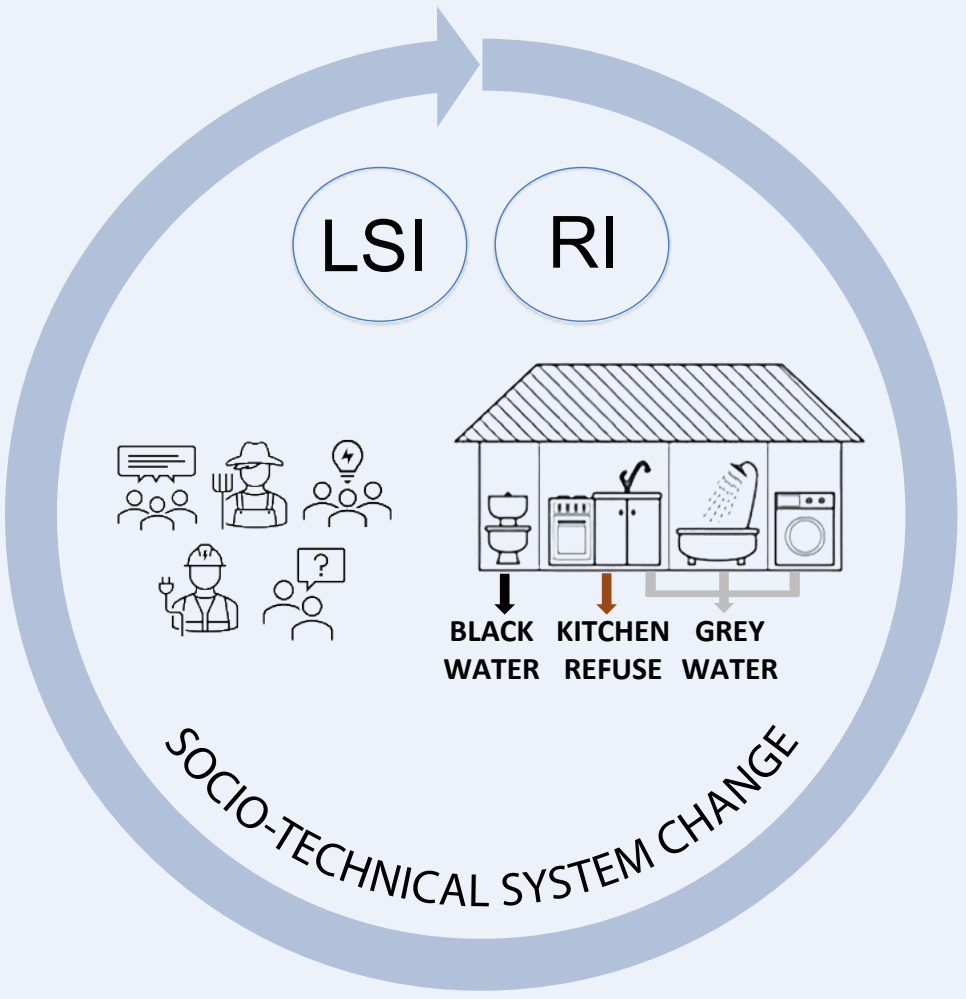

Figure 3 – Illustration of a sanitation transition in which sanitation and the actors represent the socio-technical dimensions of the system to change.

Research goals

- Contribute to new sanitation projects by studying them from a social scientific perspective, using the theories of RI and LSI.
- Contribute to the process of a running sanitation project by using and applying the theories of RI and LSI, and insights from the studied sanitation projects.
- Contribute to the literature on RI and LSI by studying new sanitation projects.
- By approaching new sanitation from a socio-technical perspective, to contribute to a potential sanitation transition.

References

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