



Is the Swedish wastewater sector ready for a transition to source separation?

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ABSTRACT

Source separation of urine for recycling has been applied in small-scale and decentralized wastewater systems in Sweden for the past 25 years and for blackwater for pollution control even longer. The Swedish experience with source separating nutrient recycling systems is relatively well documented; however, few reports have specifically studied the potential for expansion of this practice. The aim of this study is to fill this knowledge gap by assessing the status of source-separating technologies in Sweden based on transition theory. This study uses a multi-level perspective to determine how ready the Swedish wastewater sector is for transitioning to alternative systems. Given the stability of the existing sewage wastewater regime, it seems unlikely that changes within the regime will lead to a quick and large-scale transition to source separation. Instead, the initiative must come from the niche itself, exploiting institutional cracks in the regime and opportunities from shifting trends in the landscape. If source separation is to be mainstreamed in Sweden, it will need to break into markets within the wastewater jurisdictions. In order to do so, further knowledge needs to be developed that will overcome glitches with immature technologies, uncertain legal conditions/status, investigate potential risks, and clearly define complementary system advantages. This may require the use of new perspectives that focus on holistic sustainable use of resources, including other nutrients than phosphorous, and taking into account global issues such as planetary boundaries and effects from climate change, such as water scarcity. This knowledge can then be used to establish guidelines, norms, and standards, as well as clarify the legislative structures that can support such a transition. There is also a strong need to improve knowledge dissemination regarding best-practices for implementing source-separation technologies and supporting organizational structures. Similarly, support for entrepreneurial activities within the niche needs to increase, not least through strengthening social networks and communication platforms.

Keywords: Innovation; Resource recovery; Source separation; Transition; Wastewater

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