



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Energy & Technology

07 December 2017

Master's Thesis Project, 30 Credits

Proposed Title: Identifying effective transport systems and logistics for new sanitation systems that produce fertilisers from human wastes

Credits: 30 credits; **Level:** Advanced

Subject: Technology or Environmental Science

Start: January 2018 or later

Background: In the sanitation sector, there is growing recognition that we are in urgent need of a new paradigm that transforms the way in which we handle, treat and recycle human wastes in our environment. At the Swedish University of Agricultural Sciences, the environmental engineering research group has developed an exciting new technology that can convert liquid urine, a wastewater stream into a high-value, dry fertiliser. The technological chain we propose involves the separate collection of urine without the faeces at source (at the household level), using dry, urine-diverting toilets. Subsequently, the urine is dried in a drying cassette placed next to the toilet. Hence, the technology results in the production of dry fertilisers at the household level.

Although individual houses collect urine, and dry it, the dried fertiliser produced still needs to be collected by a service provider and either stored or transferred to agricultural areas for end use. Further, the households need to be supplied with new drying cassettes periodically. Hence, to formalise this system in an urban area, it is necessary to identify how a centralised service chain can be created. Some questions surrounding this service chain are: How should the cassettes be collected? By whom? When? Which actors/stakeholders need to be involved in the creation of this service chain? How can the service chain be managed, to ensure it functions smoothly? Obviously, there are multiple ways through which this can be done. For instance, one option could be to combine municipal solid waste collection and the collection of the cassettes. The aim of this Masters project will be to identify different approaches by which this service chain can be created, map these logistics and evaluate their suitability in terms of economics, environmental implications, and social sustainability.

Results from this project will significantly contribute towards an ongoing research project funded by the Swedish Research Council called, "*Productive on-site sanitation system: new value chain for urine based fertiliser*".

Interested? Get in touch with us:

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