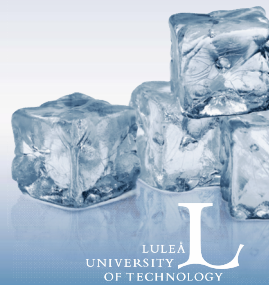
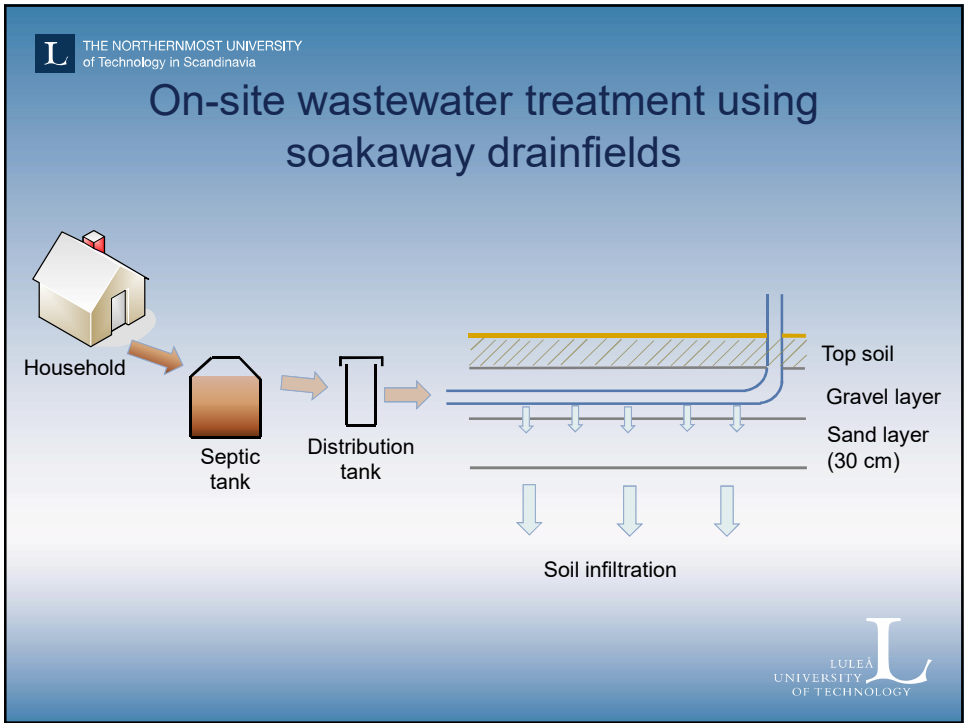


Sludge formation in soakaway drainfields for on-site sanitation

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Objectives

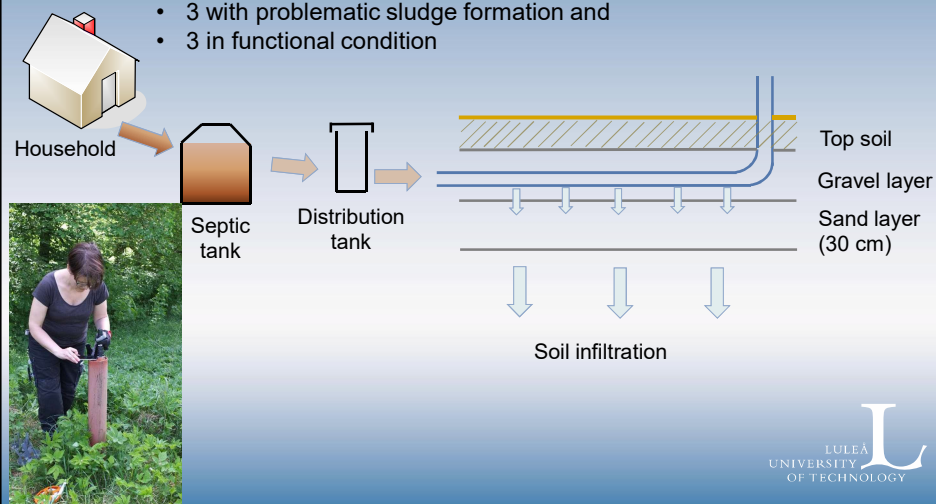
Investigate

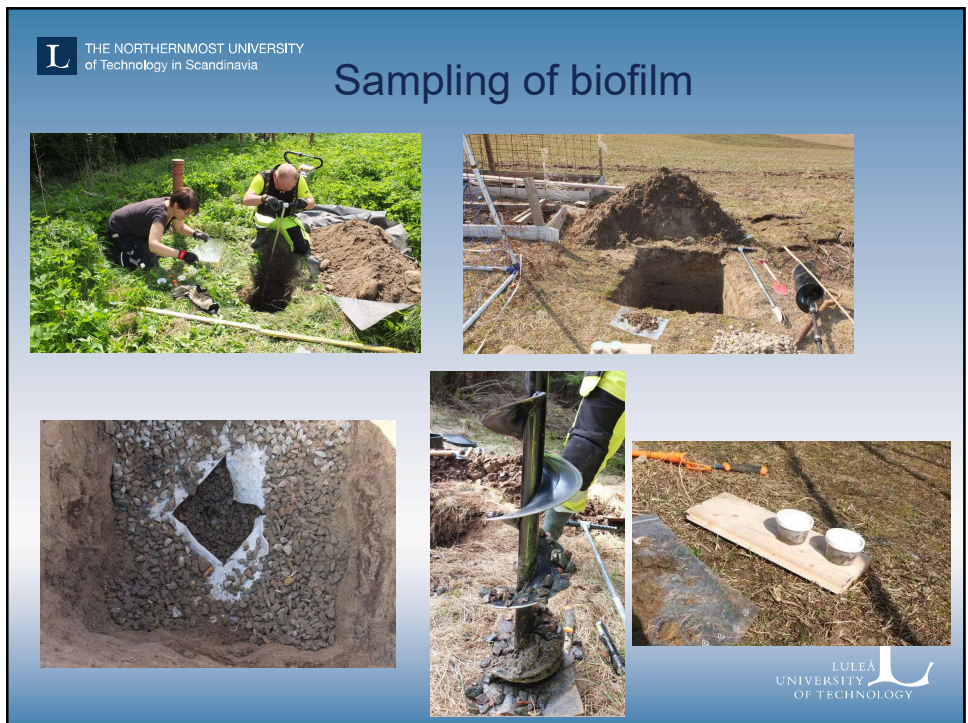
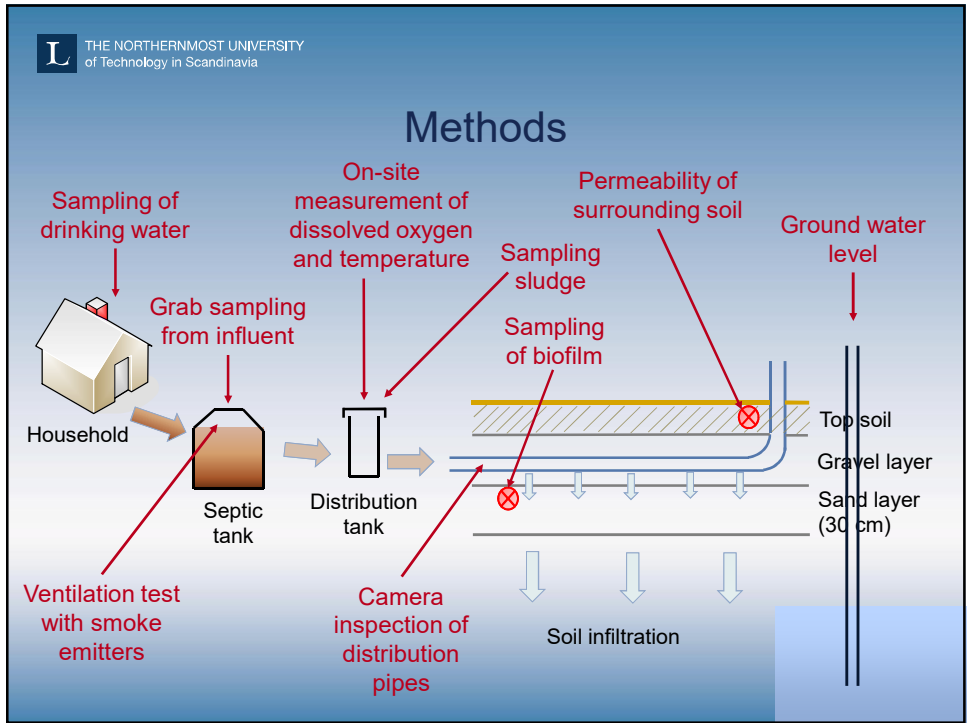
- where in the system the sludge occurred
- if the occurrence of sludge persisted over time
- if the occurrence of sludge correlated with influent wastewater characteristics
- if signs of clogging could be noted for sludge-affected beds
- What are the microbial communities in soakaway drainfields and do they differ between sludge-affected and functional facilities?

Methods

We selected 6 on-site facilities with drainfields using visual inspections:

- 3 with problematic sludge formation and
- 3 in functional condition





Methods

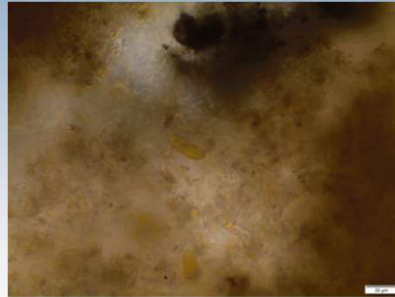
- 6 drainfields, each visited 8 times
- Visual inspections
- Influent sampling
 - TSS
 - BOD
 - Fats
 - Colloids
 - Iron
- Sludge and biofilm sampling
 - Microscopic investigation
 - (DNA sequencing)

Sludge in septic and distribution tank

- Occurrence of floating sludge in the septic tank was positively correlated with the occurrence of sludge in the distribution tank



Results: Microscopy of sludge



40X; yellow round particles:
grease?

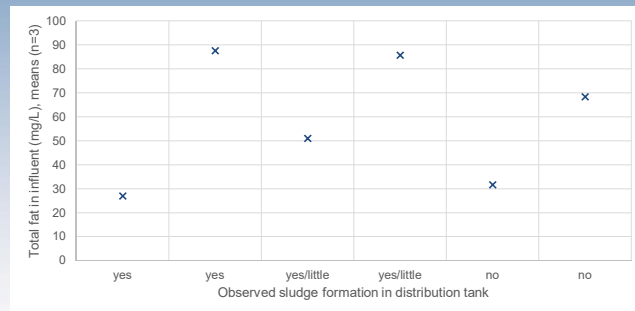
Results: Microscopy of biofilm

Biofilm between sand particles looked like
activated sludge



10X

Effect of influent properties on sludge formation



Neither the content of **TSS, colloids, fat** nor **iron** correlated with the observed sludge formation.

Preliminary conclusions

- Occurrence of floating sludge in the septic tank was positively correlated with the occurrence of sludge in the distribution tank, sludge persisted over time
- Microscopy showed no difference in the biofilm in the sand layer of the different treatment facilities
- Content of iron, fat, TSS, colloids and BOD in the influent did not correlate with the extent of observed sludge formation



Thank you for your attention!

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