

Experiences of local policy for sewage nutrient recycling

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Municipality of Norrköping



- Coastal municipality
- 125 000 residents
- Norrköping + 10 smaller towns
- 6000 rural properties



Policy for small-scale sewage systems

- New policy 2002, revised 2009

2002

- 50 % reduction of nitrogen and phosphorus released to the environment
- Nutrients returned to ecocycle
- No specific technology
- New houses and new instalment of flushing toilet



Technology to meet requirements

- Urine diversion toilet (flushing)
 - initially on-site spread of urine
 - establishment collection system:
collaboration with Technical services department
 - no cost for urine collection; reduced cost for sludge collection
- 2007: urine diversion toilets largely unavailable
 - supply couldn't keep up!



Revision of policy

- Combination of circumstances
 - urine diversion toilets unavailable
 - new technologies available
 - 'new' legislation 2006
- Revision 2009
 - nutrient reduction **all** houses near watercourses
 - 'large amount' of nutrients recycled **new** houses
- Resulted in
 - increased nutrient reduction
 - reduced nutrient recycling



Accepted technologies

- On-site sewage treatment plants
 - initially on-site composting of sludge
 - now allow collection (certified sludge recycling)
- Phosphorus trap
 - contract with manufacturer for collection
 - collaboration with technical services department for future local recycling
- Vacuum (extreme low-flush) toilet
 - possibility for future



Directing development

- Important technology non-specific

But .. preference of urine diversion no secret!

- shape policy
- financial incentives
- Information to property owners
- Contractors and consultants important link to property owners



Closing the loop

- Open but restrictive with new technologies
 - few 'fractions' to recycle
 - don't accept 'possibility' to recycle
- Co-operation with Technical services department
 - clear and positive communication
 - identify areas of responsibility
 - co-operate in problem solving
- Property owners
 - information important (environment office and contractor)
 - allow for choice



Urine diversion in areas with mains sewage

- Political motion 2005
- Specific technology - urine diversion
- Investigated by working group 2006-2008
- Low-level support, especially within water and sewage company
 - stigma of different toilet
 - criticism of existing system, not possibility for increased recycling
- Wrong question at right time!



Experiences of implementation

- Prerequisite: broad political support
- Shared vision and goals; solve problems 'on the road'
- Co-operation and dialog with all parties: from contractors to politicians

Decisions:

- No appeals to regional council
 - not a requirement for existing houses; not 'reasonable cost'
- Initially interpreted by many as requirement for urine diversion
 - information important

Future of urine diversion in Norrköping

- More than 350 properties with urine diversion
- Since 2008: 25 % applications for urine diversion

Hopes for the future ..

- Enthusiasm for small-scale sewage treatment plants settles
- Urine diversion toilets readily available

But ..

- Current legislation impediment for urine diversion

Plan to .. continue to encourage urine diversion!

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