

# Need for research and development in Denmark

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## **Abstract**

Decentralized wastewater treatment systems have been effectively implemented in Denmark to remove pollutants from domestic waste water and improve environmental quality. During the past few years, Denmark and its municipalities have focused resources in order to comply with legislation that demands wastewater treatment of small populations, isolated houses and dwellings to meet stringent standards that depend on the type, use and quality of the recipient body.

Decentralized wastewater technology has evolved rapidly and new ideas, new treatment technology and innovative changes in the design have brought a wider range of applications, the expansion of the capacity of the systems and even the reduction of the required area for domestic wastewater treatment. The latest efforts in research and development in wastewater treatment in Denmark have been directed to provide a solution to the known drawbacks of these systems, principally the limited nitrification-denitrification capacity, energy use, gas emissions and the effective and consistent removal of phosphorus using natural media as well as chemical injection systems.

Additional research is being done in the optimization of management and operation practices, and the disposal of primary and secondary sludge generated by these systems. Along with performance and development of existing and new systems, efforts are being made to reduce costs while maintaining high-quality removal performance as the one demonstrated by systems used in Denmark such as vertical and horizontal flow constructed wetlands, biological sand filters, compact technical systems, and evaporative systems. Even though a great deal has been done in implementing decentralized effective wastewater technology through the country, there are still some areas that can benefit for improvement.