

# Greywater handling in energy plus house

*M. S. Laursen*

DTU Environment, Technical University of Denmark

## INTRODUCTION

Greywater derived from clothes washing can be used for irrigation provided it is treated in a special bacteria-cleaning system. A mock-up model is described.

## Content and structure

The idea of using a greywater treatment system for the SDE house derived after observing a few house owners in Denmark using willow trees for evaporating both black-and greywater. Closed willow tree systems normally go under the designation: "vent free basin installation", which indicates that the system is enclosed to avoid surface runoff, a potential health risk for residents according to an announcement of the Danish Environmental government.

In this mock-up model greywater stored in a 160 L tank, placed below the garden terrace, is pumped through a particle filter and UV-light to a 1 m<sup>3</sup> raised bed filled with soil and planted with willow trees or reeds. The raised bed can evaporate 1 L of greywater daily and excess water runs to a non-potable water box in order to avoid potential spreading of bacteria and to be used for irrigation of other parts of the garden. During the contest week the greywater must be devoid of soap whereas the plants will need fertilization.

## Conclusion

This mock-up model could be produced in full scale as a vent-free basin installation requiring an area of 50-100 m<sup>2</sup> basin installation/person able to evaporate both grey –and blackwater. A full-scale installation has the advantage of being free of wastewater tax-payment as well as a relief of pressure on the sewage systems, which is an advantage in countries suffering from heavy rain.