



A constructed wetland system for residential greywater reuse: economic feasibility of, and willingness to pay for

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ABSTRACT

This paper evaluates the net present value (NPV) of the investment in a single-family constructed wetland system that provides water for reuse for non-potable purposes. Different scenarios were considered, using purchasing-power parity and different rates of water saving in 13 representative countries around the world. Moreover, the contingent valuation method was applied to assess the willingness of people to pay for such a system. The payback period for the constructed wetlands varies between 1 and over 20 years, depending on the scenario chosen, with about 47% of the scenarios presenting a positive NPV in 20 years. Generally, greywater treatment systems have economic viability mainly in low and medium investment scenarios, like using a handmade tank, when considering tax incentives, or when pumping costs are ignored. Considering foreseeable stress on water supply systems, governments should encourage the implementation of greywater reuse systems, seeking to improve access of the population to water and sanitation. In relation to contingent valuation, 65% of the respondents indicated a willingness to pay about US\$ 630 for the greywater treatment system, but the most desirable value would be between about US\$ 160 and US\$ 470, indicating that people are more interested in low cost systems. No correlation was found between socioeconomic indicators and the willingness to pay for the system.

Keywords: Greywater; Net present value; Contingent valuation method; Constructed wetland; Willingness to pay; Life cycle assessment; Wastewater treatment

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