

Greywater – Part of a Water and Sewage Saving Solution

By: Katie Beecroft and Hamish Lowe of Lowe Environmental Impact, and Jacqui Horswell and Alma Siggins of ESR.

Greywater, the portion of the wastewater stream contributed from shower, basins and laundry (excluding kitchen and toilet waste) gets little consideration in most New Zealand homes, or from the TLAs who regulate its treatment and use. The benefits of greywater use or the risk associated with its use are interpreted differently by different people. Greywater is more often than not treated in the same way as sewage, and there has been little incentive to investigate greywater use in New Zealand.

The typical view is that greywater use is a water saving measure for water short areas. And it is. But there are a number of other reasons to seriously consider separation of greywater from wastewater.

Here we have focussed on the use of greywater for garden irrigation, however, reuse systems for non-potable uses such as toilet flushing or fire-fighting are feasible. They can offer long term benefits to water and wastewater treatment and use.

Opportunities

In water-short regions the ability to separate greywater and use it for garden irrigation can ease pressure on the water supply and reticulation limitations during high demand, summer periods. In water-adequate regions there is still significant benefit to be had resulting from the reduction of demand for potable water and the costs and resources required to produce it.

In rural areas with no water supply or sewer there is some benefit from reducing demand on a finite water supply, for instance by using greywater for garden watering. Potentially the greatest benefit though, is in reducing the pressure on poorly performing septic tanks and their discharge fields by diverting greywater to separate discharge areas.

For both municipal and individual on-site wastewater treatment systems the separation of greywater will result in a higher strength wastewater. However this allows an increased retention time in the treatment facility and a potentially higher degree of treatment.

The separation of greywater has possible follow on benefits for resource consent compliance. Most greywater use will occur during dry weather, a time when greywater diversion means that less water is discharged from a treatment plant. This reduction has obvious benefits to treatment plants discharging to surface waters during periods of low flow.

A Word of Caution

While the benefits from the use of greywater are worthy of further investigation, its use requires control to ensure it is distributed in a safe manner. Due to the sources of greywater it has the potential to contain high sodium concentrations, chemicals from cleaning, personal care and pharmaceutical products, and possibly human pathogens. These additions are, at best, little understood and, at worst, a risk to public health.

Current Resources and Research

To assist councils with the decision making process the Greymatters website (www.greymatters.org.nz, LG December 2011) is a repository of resources and contacts for the New Zealand greywater industry. In addition, NZ research programmes such as the ESR led “Greywater - developing the science behind a New Zealand Guideline “ programme are answering some of the questions that remain regarding the safe use of greywater. For more information contact Jacqui Horswell at ESR or Katie Beecroft at Lowe Environmental Impact.