

ABSTRACT

Name of Finalist 1:

Name of Finalist 2:

Name of Finalist 3:

Title of project: To recycle grey water from households for use in gardens.

Category: STEM / Environmental Studies

Country:

PURPOSE OF THE PROJECT

The purpose of this project was to investigate ways to reduce water use in the home. After studying water consumption in a household situation, it was found that almost 40% is used in baths and the laundry. This water after use, described as grey water is ‘relatively clean’ and can be re-used in instances where potable water is not needed, for example, in the garden. As 20% of household water is used for irrigation in the garden, recycling grey water would be the simplest solution to reduce household water consumption. If implemented correctly, this could lead to potential water savings of 20 – 50%.

HYPOTHESIS

Water shortage is a global challenge; but far worse in Africa, one of the driest countries in the world. Changes due to global warming, coupled with the fact that we are in the midst of a severe drought means that water conservation is critical.

PROCEDURE

In this project, a simple “do-it-yourself”, gravity feed filtration system was developed to recycle grey water from baths and laundry. A four stage filtration media was developed; starting with muslin, followed by coarse gravel, fine pool sand and eventually finely crushed charcoal. These materials were selected as they were easy to obtain and cost effective. The filter layers became progressively finer, removing more and more impurities at each stage (physical and chemical adsorption).

DATA / RESULTS

It was evident, at each filtration level, the grey water became much cleaner and clearer.

The results showed us that by implementing a simple filtration system in the home, grey water could be cleaned for use in garden irrigation. This easy to adopt system for recycling water, could reduce water usage by 20 – 50%.

CONCLUSION

This system was cost effective, simple to install and clearly showed considerable water savings. It is recommended that households adopt this system as they will be able to save precious drinking water and money.

To recycle grey water from households for use in gardens.