Household Wastewater Still a Grey Area

Kathy Eales

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There remains a noticeable gap between the South Africa government's policy on water provision and the long-term sustainable water management challenges of the country. This is one of the main findings of a new report published by the Water Research Commission (WRC). Lani van Vuuren reports.

The report, which focuses on greywater in non-sewered areas, is based on a two-year investigation undertaken by the Department of Civil Engineering at the University of Cape Town. It states that while authorities' water supply interventions are aimed at improving the health of communities, no attention has been given to the resultant longer-term impacts on environmental health in non-sewered areas (i.e. the proper management of resultant greywater). "At a local government level there is still debate whether greywater is a stormwater (drainage) or a sanitation issue. Further, national policies and programmes do very little to promote greywater management in water and sanitation improvements," the authors report.

Government has focused strongly on improving communities' access to basic water and sanitation in recent years. Strict deadlines (all people to have access to basic water supply by 2008 and basic sanitation by 2010) have led to the connection of low-income settlements to municipal water sources on a massive scale.

However, this frequently occurs without giving adequate attention to greywater management in those areas which are non-sewered. According to the WRC report, it is likely that the problems related to the disposal and management of greywater will increase as basic water and sanitation services are attained and improved, and solutions are therefore urgently required to manage these impacts.

POTENTIAL STREAMS OF ILLNESS

At present, there are no definitive health regulations, bylaws or guidelines in place for the use and/or disposal or greywater in non-sewered areas in South Africa. The total volume of greywater that is generated on a daily basis in these areas is estimated at just over 500 000 m^3. This amounts to about 185 million m^3 a year – equivalent in volume to a medium-sized dam such as Voëlvlei Dam outside Cape Town, or about 50% of the present water demand of that city.

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According to the WRC report, the quality of greywater in non-sewered areas differs significantly to the greywater that is generated in higher-income, sewered areas in that there is a greater variation in the concentration of the various pollutants (such as sodium and phosphorus). At its most concentrated, it should be considered hazardous.

In the absence of suitable conveyance systems, people generally dispose of their greywater on to the ground outside their homes. The resulting total pollution load, particularly from densely populated settlements, reportedly has the potential to create a host of environmental and health impacts. This includes the pollution of nearby estuaries, wetlands and streams, mosquito breeding (from ponding of greywater), contamination of drinking water supplies and odours from stagnant water.

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A survey of selected communities in South Africa indicated that dense, non-sewered informal settlements pose the greatest risk to the biophysical environment and to human health. It has been shown that although households in these settlements often consume less water per capita than less densely-settled areas, the disposal of greywater to the ground surrounding the houses leads to ponding and runoff, which is often exacerbated by water leakage at the tapstands.

Greywater disposal down a stormwater manhole.

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This runoff is frequently channelled into the stormwater drains.

In some cases settlements are serviced by stormwater drains and canal systems that channel wastewater directly into water bodies. Such canals are frequently unsightly, unhealthy and contribute to the overall deterioration of the urban environment.

IMPROVING GREYWATER MANAGEMENT

"It is essential that there is systematic management of greywater in non-sewered settlements, both in terms of reducing health risks by eliminating inappropriate disposal and surface ponding, and also to provide benefits in terms of greywater use initiatives," say the authors of the WRC report. "While it is important that communities are educated and empowered with respect to greywater management it is the responsibility of the local authority concerned to ensure that working systems are in place."

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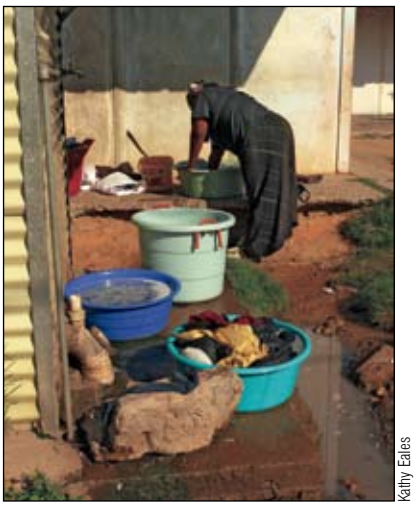
Settlement planning is key. The management of greywater should be included in the planning stage for the provision of water services in non-sewered settlements, in collaboration with the affected communities. As the authors of the WRC report point out, a sense of ownership, and therefore responsibility, is critical for the success of any sanitation system. "Greywater management initiatives are unlikely to be successful unless the recipient communities are involved in the decision-making process, as well as in the implementation and operation of the systems, so as to ensure buy-in and thereby enhance the likely success of service delivery."



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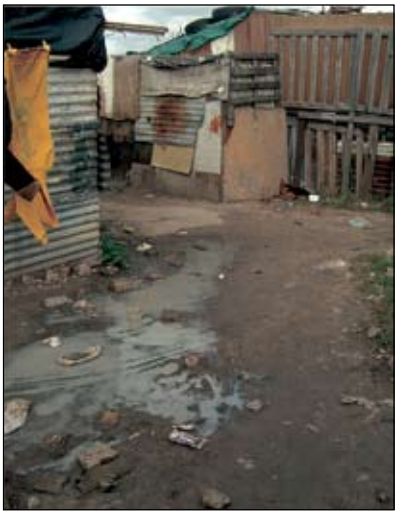
Above and below: The disposal of laundry water outside the home is a common occurrence in non-sewered settlements.



A greywater stream in Khayelitsha.

It is possible that greywater could make some contribution to water conservation and to easing the pressure on sources of potable water. Many people interviewed in the non-sewered communities were conscious of potable water scarcity and indicated a willingness to conserve water if the authorities showed them how this could be done.

It is important to note that greywater is generally unfit for use except under controlled conditions. However, greywater can potentially be used in pour-flush toilets, irrigation of gardens, lawns, shrubs and trees, as well as dust control, among others. The jury is still out with regards to the use of greywater for irrigation of food crops, and investigations continue in this matter.

In densely-settled areas where greywater use initiatives are generally not feasible, local authorities should provide greywater disposal systems that either treat the greywater on-site or convey the greywater to a sewerage system. It is vital that the local authorities are committed to the proper operation and maintenance of these systems.

Following up on this project, the UCT Department of Civil Engineering is conducting further research into sustainable options for community level management of greywater.

- To order the report, WRC Report No **1524/1/07**, contact Publications at Tel: (012) 330-0340 or E-mail: orders@wrc.org.za