

Growing gardens with greywater

In Jordan, one of the most water-scarce countries in the world, the shortage of water creates a double threat for the poor: food and water insecurity. Almost three-quarters of Jordan's population lives in cities and towns, and in these urban centres there is barely enough water to drink, let alone enough for agriculture. It is estimated that the amount of water available to each individual is less than 200 cubic metres per year. Below 1,000 cubic metres, water scarcity can impede economic development and harm human health.

Greywater is water that has been used for domestic purposes such as bathing or laundry. The potential to reuse this water for UA was the objective of a project jointly funded by CFP and the Inter-Islamic Network on Water Resources and Development and Management (INWRDAM) in Jordan. The project took a new approach to food insecurity and water scarcity in the region, exploring water management techniques, simple technological innovations, and creative agricultural practices.

An initial survey by the Department of Statistics estimated that households in the city of Amman tend to over 50,000 home gardens, totalling 648 hectares, although only 25% of available space was under cultivation. Most of these gardens were irrigated with fresh water from the public distribution system. At the same time, nearly one-third of all households suffered from water scarcity, and many complained of the high price of water. Some households, however, were already using water-saving practices such as collecting rainwater and applying greywater directly to their gardens (Shakhatreh and Raddad 2000).

Dr Murad Jabay Bino, executive director of INWRDAM, stresses the importance of finding ways to conserve and reuse water. He adds that reusing water for irrigation is a new area of research for UA that has substantially reduced the demand for freshwater. He believes that the techniques for wastewater reuse developed in this project can help produce more food for the poor. But he warns that it is essential to ensure that reusing wastewater is both safe and socially acceptable.

The researchers met these requirements in tests in a small town south of Amman. They developed a wastewater-recycling system that allows water from household uses to be reused in home gardens. Involving some minor modifications to household plumbing, the system diverts water from kitchen and bathroom sinks through a filter instead of allowing it to go down the drain. The project has exceeded expectations. Initial water savings are estimated to be at least 15%, and households are using the recycled water to increase crops such as eggplants, herbs, and olives. The use of greywater in market gardens is reported to have increased household incomes by anywhere from 10% to 40% (Bino et al. 2003).

The Ministry of Planning was so impressed with these results that it supported the construction of a further 700 systems across the country based on the INWRDAM model. As a bonus, the new technology has created a thriving local business enterprise involving engineers, plumbers, and contractors. Other Middle East countries are also showing interest, and INWRDAM is developing a network of partners throughout the region to share knowledge and research. For its part, IDRC is supporting similar projects in Lebanon and the West Bank and Gaza, researching policies for UA and wastewater reuse.