

BIOFILTERS

SMART WATER SOLUTIONS FOR RESILIENT FOOD SYSTEMS

World Vision Guatemala



Context

In Guatemala's Dry Corridor, rural families with access to water still face a major challenge of untreated wastewater. Without sewage systems, greywater flows into local streams, harming ecosystems. This environmental degradation also impacts food security, as families can't reuse water for crops, especially during dry seasons. As a result, chronic malnutrition in children under five exceeds 60%. Affordable, sustainable solutions are needed that improve water reuse, protect natural resources, and support household food production in these vulnerable communities.

Innovation Description

The Biofilters project offers a simple, sustainable solution: household greywater treatment systems using filter beds and native plants. These systems reduce harmful pollutants, allowing families to safely reuse water for home gardens and small-scale farming. This helps prevent pollution, supports food production during droughts, and improves child nutrition. The filters are low-cost and effective—empowering communities to protect their environment and build long-term resilience against water scarcity and malnutrition.

Project Goals

- Reduce the environmental impact of untreated household wastewater on local water bodies by introducing sustainable, low-cost treatment solutions.
- Improve ecosystem and child health by minimizing water pollution and promoting cleaner environments.
- Enhance household food security by enabling the safe reuse of filtered greywater for home gardening and small-scale agriculture.
- Construct 247 household filter units and provide 220 women with household sinks, improving sanitation infrastructure and daily living conditions.
- Strengthen community resilience through training, empowering families to self-construct and maintain greywater treatment systems.

What We Are Learning

Implementing household biofilter units may be a sustainable solution for rural sanitation, but it requires thoughtful planning and strong local engagement. Empowering families through training and involving community leaders increases ownership and long-term sustainability. To ensure quality and impact, dedicated staff, pre-construction capacity building, and consistent monitoring are essential—especially when working across wide geographic areas with non-traditional construction materials.