

Composting Toilets in Nogales, Sonora: Results from an Ongoing Pilot Study

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Problem

Economic policies of the US and Mexico have led to border industrialization and massive mobilization of people to the border, resulting in rapid urban growth without sufficient time or resources for developing adequate infrastructure such as water, electricity, roads, and sewage. Water entering the Santa Cruz River via the Nogales Wash and other upstream locations has been found to carry untreated sewage from Nogales, Sonora, contributing to nitrogen and microbiological pollutants such as giardia and fecal coliform bacteria. Consequences include threats to human health on both sides of the border.



Community-Based Participatory Research (CBPR) "is a collaborative, change-oriented research that engages faculty members, students, and community members in projects that address a community-identified need."

-- Kerry Strand, Sam Marulo, Nick Cufforth, Randy Stoecker, Patrick Donohue 2003

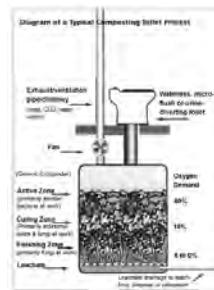
Tenets of Community-Based Participatory Research

- Focus on community of learners
- Explicit examination of relations of power
- Foster collaboration among community members and researchers (including students)
- Engage all in reflective practice and reciprocal learning
- Build the capacity of community groups to create change
- Balance research and action
- Practice inter- and multi-disciplinary work
- Situate community concerns in a larger context

Implementing a Community-Based Participatory Research Project: Moving from Study to Action

Steps in Process

- Identify and articulate problem
- Assess local conditions and alternatives developed elsewhere
- Share findings within community, decide whether, when, and how to move ahead
- Develop workshops and small pilot projects with ongoing assessment and analysis
- Share findings within community and with policymakers, scientists, etc.
- Extend or expand project, accompanied by outreach and education to build necessary social infrastructure
- Recognize related problems, return to step 1



Month	Completed Bathrooms
June – December 2008	28
January – April 2009	7
Total	35



Implementation of Pilot Project

- Meetings with city officials: Project endorsed, possible neighborhoods identified
- Meetings with community leaders and residents: Community selected
- Establishment of Advisory Board to include:
 - local and state government officials
 - neighborhood leaders
 - academics
 - NGO representatives

Advisory Board: Developed criteria for selecting households, proportion of payment required by households, monitoring program

- Recruitment of U.S. and Mexican students
- Community information meetings: Residents indicated interest
- Household assessments: Households selected
- Workshops for households to receive toilets

- Construction of toilets
- Regular household monitoring

Advisory Board: Prioritized search for additional funds to assist low-income families, redesign of toilets to address problems identified in monitoring

- Development of partnerships with Friends of the Santa Cruz River and Fondo Accion Solidaria, A.C., and identification of other potential funding sources

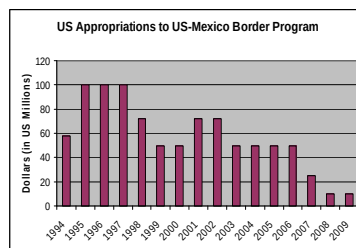
Key Findings from Initial Monitoring

- All participants reported being satisfied with their toilets
- All participants had shown their toilets to others and many identified neighbors and friends who want toilets
- The biggest problems noted were with insects, particularly flies, and participants were given strategies for dealing with them
- Lack of sawdust was initially reported to be a problem for almost half the households; the neighborhood leader brought sawdust to the community center and most households then reported getting sawdust there



Approach

Work with border communities to identify, develop, implement, and evaluate alternatives for capturing and managing human waste, despite limited resources. Alternatives must be appropriate for urban contexts.



Source: Daniel Chacón, Border Environment Cooperation Commission, 2008 <http://www.cocof.org/ingles.php>

Border 2012: U.S.-México Environmental Program

Original Goal

GOAL 1 – Reduce Water Contamination

By 2012, promote a 25 percent increase in the number of homes connected to potable water supply and wastewater collection and treatment systems.

Making Room for Alternatives

2007 Project Funding Priority Areas

GOAL 1 – Reduce Water Contamination

Arizona-Sonora

Conduct a study to identify ways to mitigate flooding in Nogales, Sonora

Support composting toilets and water harvesting in Sonora.

References

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 Strand, Kerry, Sam Marulo, Nick Cufforth, Randy Stoecker, Patrick Donohue, 2003. *Community-Based Research and Higher Education: Principles and Practices*. San Francisco: Jossey-Bass U.S. EPA 832-F-99-066 "Water Efficiency Technology Fact Sheet: Composting Toilets"

Where We Are Heading...

Further develop alternatives to problems for which existing approaches are inadequate due to:

- lack of resources to serve everyone
- waste of water in arid environments

Secure government resources for marginalized communities

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