

Dry Latrines in Nicaragua

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Abstract

Sabana Grande is a small, agricultural based community located in Nicaragua. The ETHOS Center sent three students to this area to work with the Promotores Solares Agro-Ecológicas (PSAE), a member of Grupo Fenix. The team worked on the dry eco-latrine pilot project designed to improve public health and quality of life. The students worked on the construction of the latrines to understand the local methods of construction and analyzed the engineering aspects of the project. Once the latrines were complete, four dry latrine construction manuals were written. Two for each available size and in both Spanish and English.

Introduction

Sabana Grande is located in the northern part of the country near the town of Totogalpa. Grupo Fenix was started in 1996 through the National University of Energy in Managua. Grupo Fenix got their start by working with renewable energy in rural communities. Since then Grupo Fenix has become an independent organization working out of Sabana Grande. The Organization has expanded to working as conglomeration of groups focusing on agriculture, renewable energy, clean cooking and many other things. Such as the member group, PSAE, who specialize in sustainable ecological agriculture practices and natural construction.

Project Description

In Totogalpa, Nicaragua, the most common form of sanitation is the pit latrine. This is a pit dug in the ground that, when filled, is capped and a new pit must be dug. Not only is this design unsustainable, if the pit is unlined by concrete or bricks, the leachate from the pit can contaminate the groundwater in the area. Because the houses in Sabana Grande are bunched together and close to community wells, this problem is compounded. A viable solution to this problem is the installation and use of dry, composting latrines. Because these latrines are built above ground and are lined with concrete, the sewage will not enter the groundwater. Also, these designs are sustainable because there are two chambers. When one chamber fills up, it is capped and the other is put into use while the first composts. The use of a urine diverting seat keeps the contents of the chambers dry and thus produce less of an odor. After a few months the chamber can be emptied, the compost safely used, and the process can begin again. This eliminates the need to dig additional latrines after one is full, and provides a safe and cheap compost that can then be used on fields or sold.

The pilot program in Sabana Grande saw the installation of six latrines. Three of these latrines were in public spaces to raise awareness throughout the community and the other three were installed at private homes owned by families in the community. Another key part of the pilot program was the production of a manual for the construction of the latrines so that interested parties could construct their own.

Results & Discussion

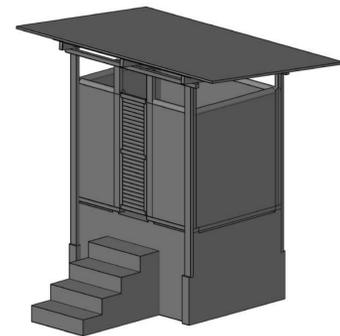


Figure 1: CAD of Completed Dry Latrine

- Team completed the construction of the dry latrines
- Beginning of an Eco-Latrine Culture created
- All four construction manuals were completed
- PSAE will continue with the follow-up and maintenance, the final phase of the project
- Limited access to materials and equipment affected the quality of latrines and also delayed the construction
- Limited access to materials encouraged creativity and resourcefulness
- Only one member knew all the details of the construction so the project was delayed whenever he was absent
- Written manuals will allow everyone to know the steps of construction
- Disagreements between PSAE construction team members lead to delays and challenges
- 3 families received new dry composting latrines

Recommendations

- Develop exact measurements for materials needed in mixes
- Create a materials list for each both sizes of latrines that include quantities of all materials
- Pushing the program to encourage more people to build dry latrines
- Using existing latrines analyze the construction and design to make needed modifications

Acknowledgements

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Figure 2: ETHOS Sabana Grande Team Members