

Collective Solutions

Workshop Syllabus

Methane Digester: Design & Construction

Number of Participants: 10-20 people

Skill Level: Intermediate/ Advanced

Total Workshop Length: 5-9 Days

Classroom: 1-2 Day

Project Installation: 4-7 Days

Required Materials (subject to vary):

There are many variables for the construction of a digester such as type of waste to be used, how much waste is produced onsite, how many people will use the system. For a medium sized basic digester, materials may include the following: strong and flexible plastic sheeting, 3" PVC piping, ½" PVC piping, valves, 2x4's, bricks or cement blocks, sand, rock (to mix with cement), cement, rebar, small tubing (curved and straight), thin rope, gallon jugs, water.

Participants: Note pad, pen, shovel, basic construction tools (if they own them)

Host Organization: Classroom, lunch, and above materials to be determined between CS and Host Organization

Average Cost of Project: A simple system would start at \$300 and a complex system could exceed \$10,000. Average cost would be between \$1,000- \$2500* (*All prices are in US Dollars)

Host: Minimum 30% of cost to be paid for by host organization

Participant Cost: Free

Objective: To review options for biogas use and to construct a small-scale methane digester based on the needs of the host site.

Workshop Description:

Methane digesters are used to convert anaerobic waste into a valuable fuel source called biogas. These systems function best with certain types of waste, namely cow manure, due to its high methane content and the quantity that can be generated on a daily basis. In most rural contexts, methane digesters are directly connected via pipes to a kitchen stove to provide cooking fuel. In a more advanced application, biogas can also be converted into electricity. Methane digesters are not suited to all situations, as they require a significant amount of generated waste as well as general maintenance. In the appropriate context, however, these systems can turn large amounts of existing waste into a useful resource, simultaneously eliminating the constant expense of cooking fuel. This training will cover the design aspects of several different systems, the physical construction of one methane digester, and the safety precautions required during maintenance.