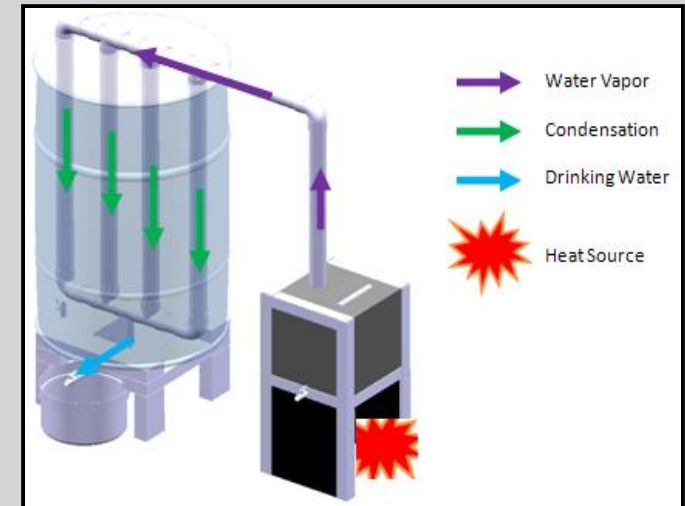




# Desalination by Fire

**Project** Manual Desalination System for Third World Countries using Distillation Process

**Team:** Steve Krupa, Elizabeth Cox, Matt Vargo, Rachel Hollowell, Heather McCall



## Design Objectives:

- Provide potable water for about twenty people a day
- Use easily accessible power source
- Non-corrosive materials in fresh and seawater environments
- Low cost and durable parts

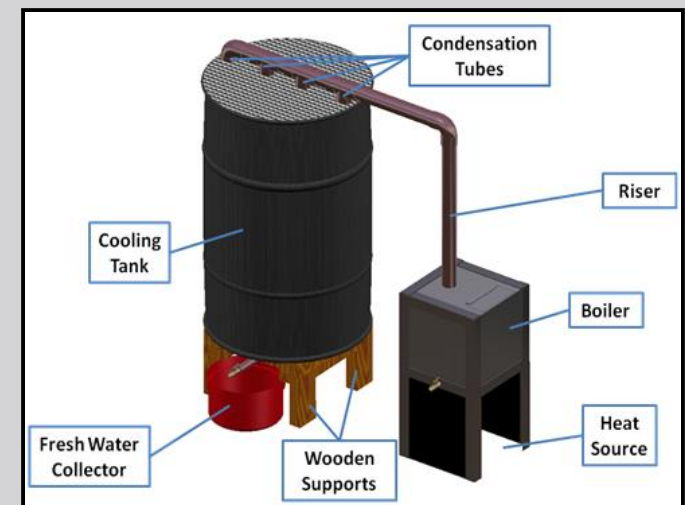
## Materials:

- Stainless steel boiler
- Galvanized steel flame shields
- Wood/coal heat source
- Copper condensing tubes
- 55 gal plastic drum
- PVC fittings and valves
- Brass ball valve

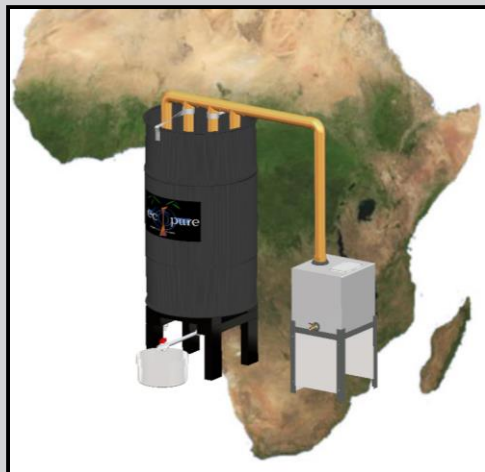
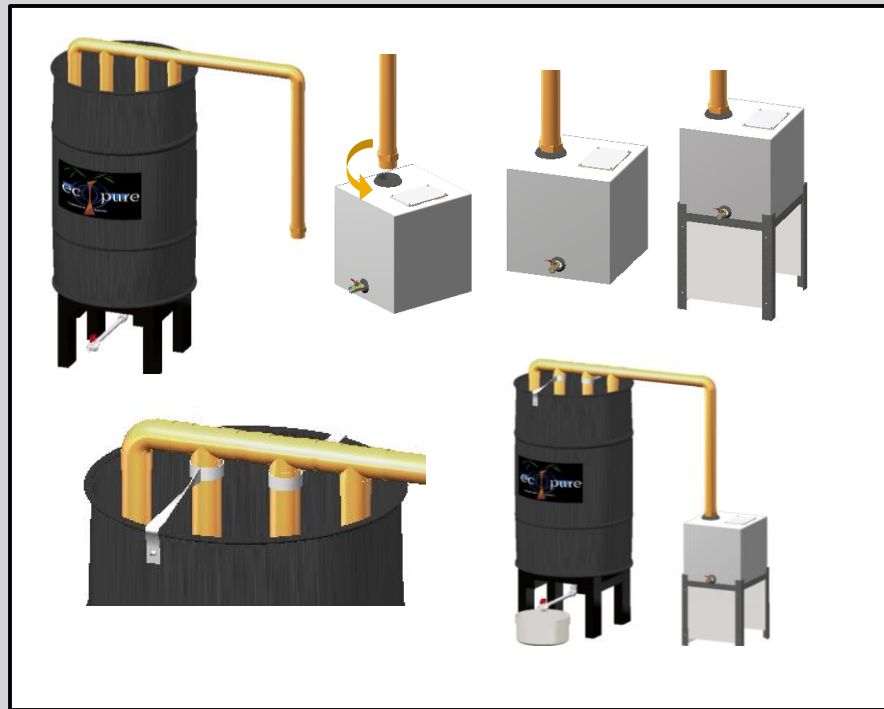
## Prototype Parameters:

Design consists of three main parts:

- The boiler where the saltwater is heated until constant boiling and vapor forms.
- The riser and condensation tubes where the vapor rises and heat exchange occurs.
- The cooling tank filled with extra saltwater to aid in cooling of the vapor so condensation can occur and fresh water is released by a valve at the bottom of the tank.
- Overall dimensions: 50" tall x 46" wide x 25" deep



# Prototype



## Key finding:

The system produced one gallon of water an hour after reaching steady state with the heat source. After a taste test, the freshwater was cool, very drinkable, with no trace of salt.