

Solar Desalination for Underdeveloped Nations

Brian Blyth, Adam Tucci, Matt Adsit, Jen Toughlian, Adam Rheude, Kevin McFadden

Objective:

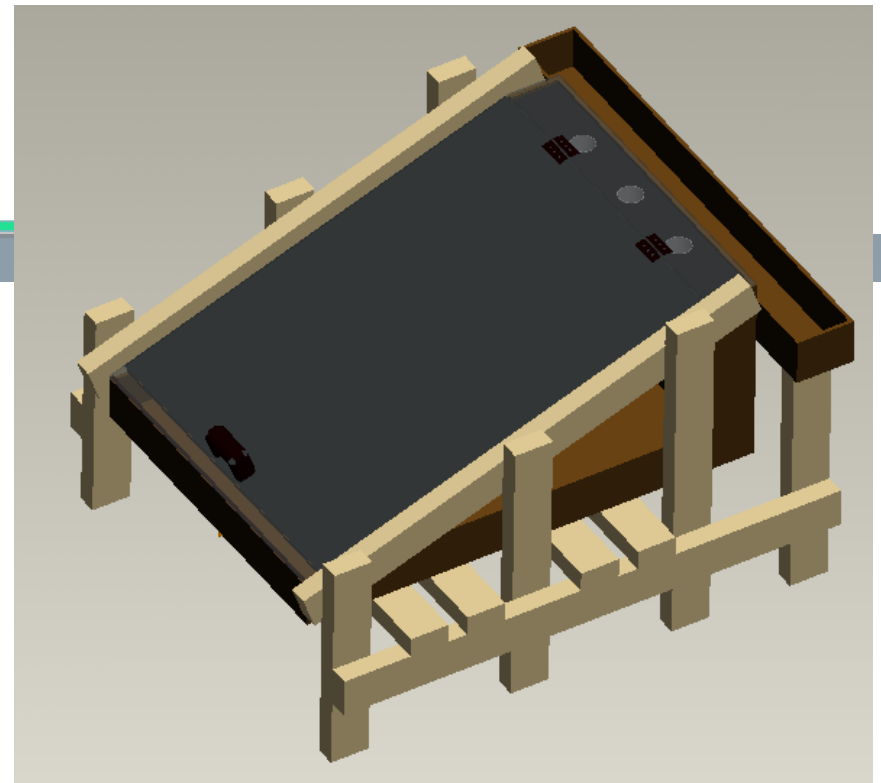
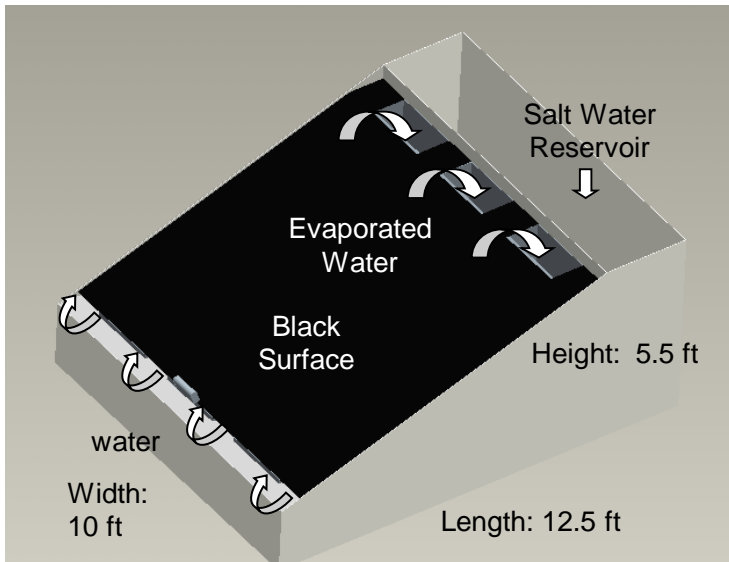
Design a solar desalination system to provide 10 liters of fresh water per day for inhabitants of a village near a seashore in a third world country.

Specific Goals:

- Should use strictly solar energy
- Durable enough to withstand outdoor environment in third world countries
- Avoid costly manufacturing processes



Basic Operation



Key Results:

- Maximum temperature using solar heat was 171° F (77.3° C) with ambient temperature of 70° F . Needed water to reach $180\text{-}190^{\circ}\text{ F}$ to start water evaporation.
- Average efficiency of system throughout seven hours of testing was 20.4%, while receiving only 16% of solar flux from sun.
- Both higher ambient temperature and higher solar flux are desirable; both are available in most third world countries

