Water From Air

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Project Description:

This Team will create an atmospheric water generator (AWG) that extracts water from humid ambient air. Water vapor in the air is condensed by cooling the air below its dew point, exposing the air to desiccants, or pressurizing the air. Many areas around the world have water that is deep within the earth and is not accessible. A success for this project will consist of designing, building, and testing an AWG that will produce potable water that requires no electricity and is capable of being built from rudimentary materials that would be available in Haiti.

Background

- Limited access to water
- Attempts to drill wells – low water table
- 6 month dry period

Mission Statement

To design a feasible atmospheric water generator that is sustainable and can be implemented in developing countries like Haiti.

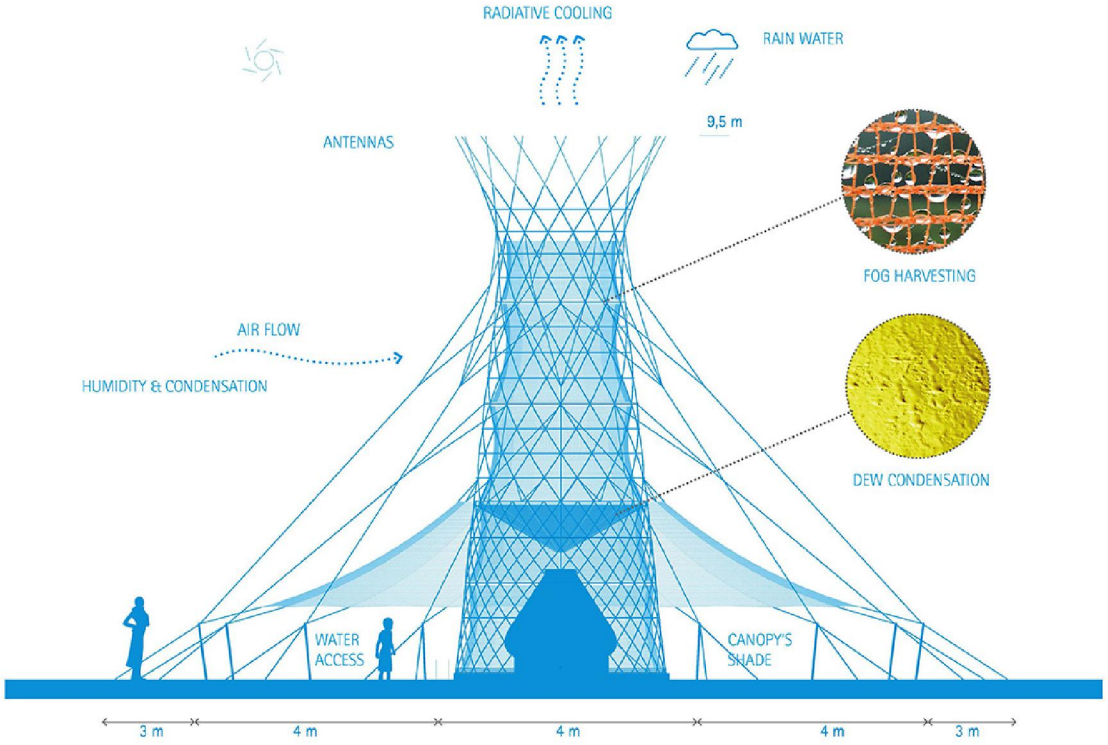
Atmospheric Water Generator

- Condense water in air
- Cool air below dew point

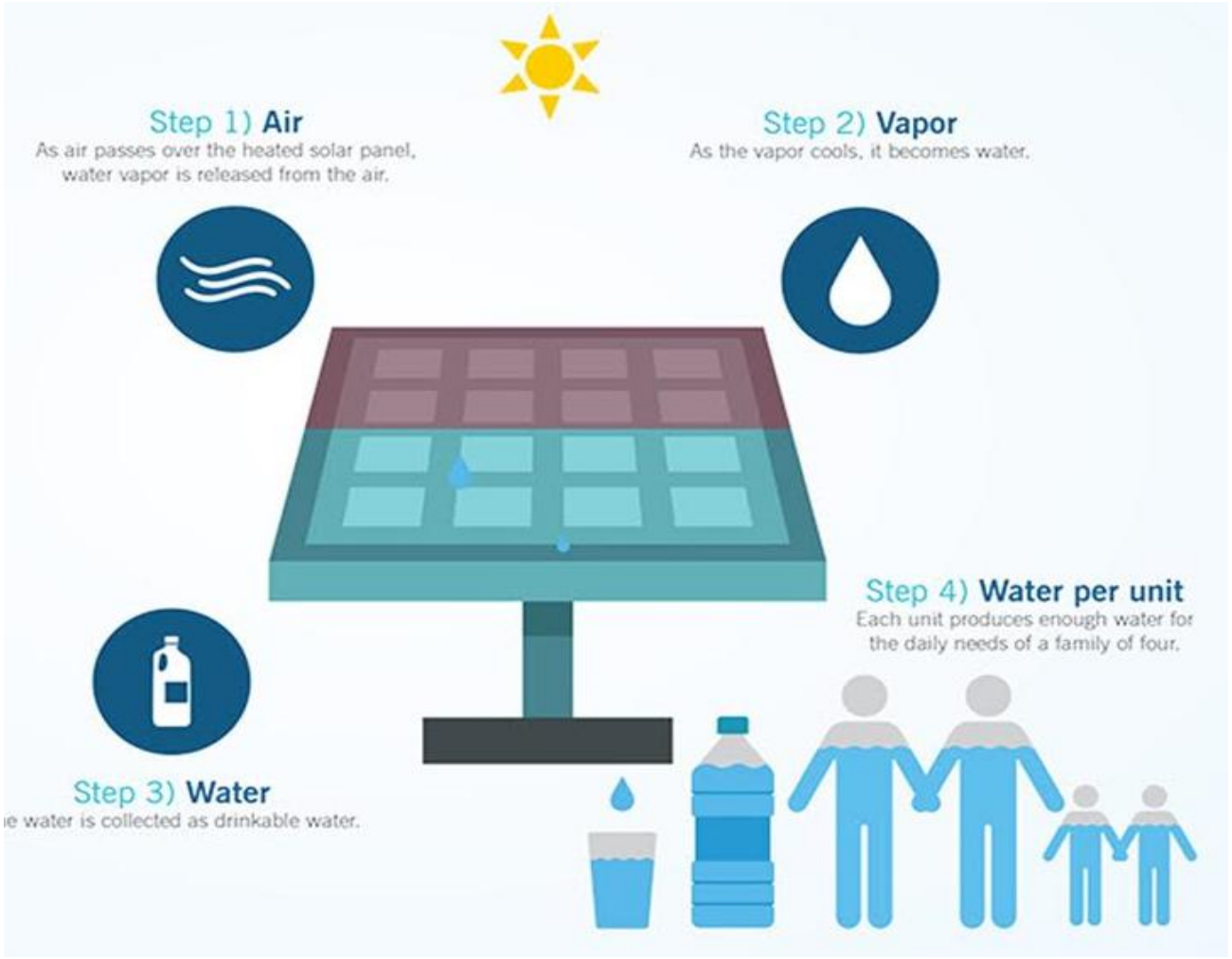
Need to **create air flow** and **temperature difference** to condense water vapor

Warka Water Tower

- Uses nightfall as temperature difference
- BUT there isn't a big enough temp difference between day and night in Haiti



Zero Mass Water



Zero Mass Water

- Complicated system to build
- May be too expensive and technical

Geothermal

Geothermal

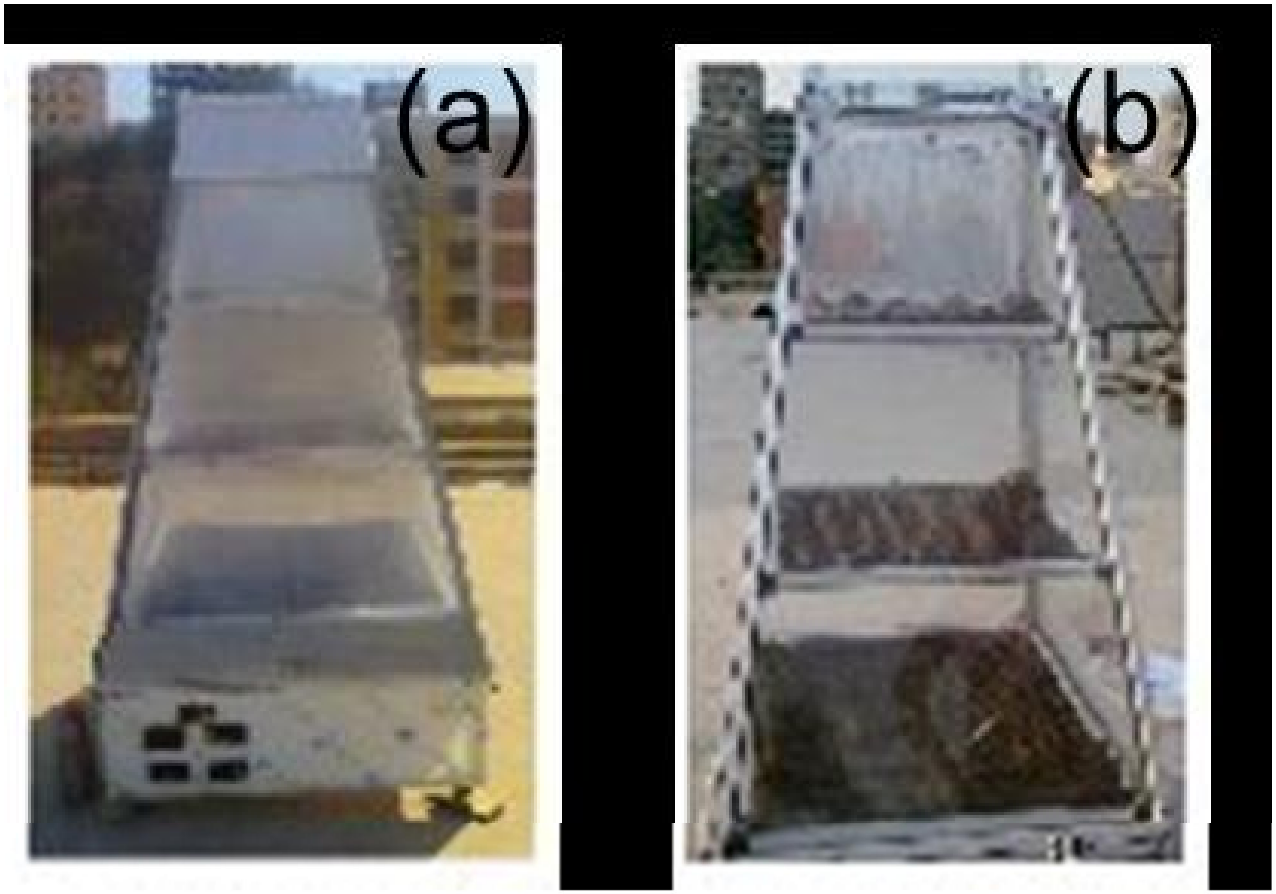
- turbine spins fan blades
- pushes air into a condensation chamber in ground
- geothermal cooling condenses water vapor
- water pumped out

Desiccant

Desiccant

- Desiccant used: calcium chloride
- with closed system desiccant captures water vapor at night
- with open system sun shines through fiber glass - uses sun's heat during the day to evaporate water from desiccant
- condenses on fiber glass
- 2.3 L of water per m^2 of incident solar radiation

Our Designs



Looking Forward

- Initial experiments
  - Proof of concept
- Refine design
  - Secondary experiments