



**TEAM (from left to right): Daniela Cantor, Daniel Verga, Mike Hoving, Jacob DeBartoli**  
**SPONSORED BY: Nick Bauer, Daniel Riedel**  
**PROJECT ADVISOR: Dr. Scott Shaffar**

# Condensation Organization

## WATER DESALINATION TRAY



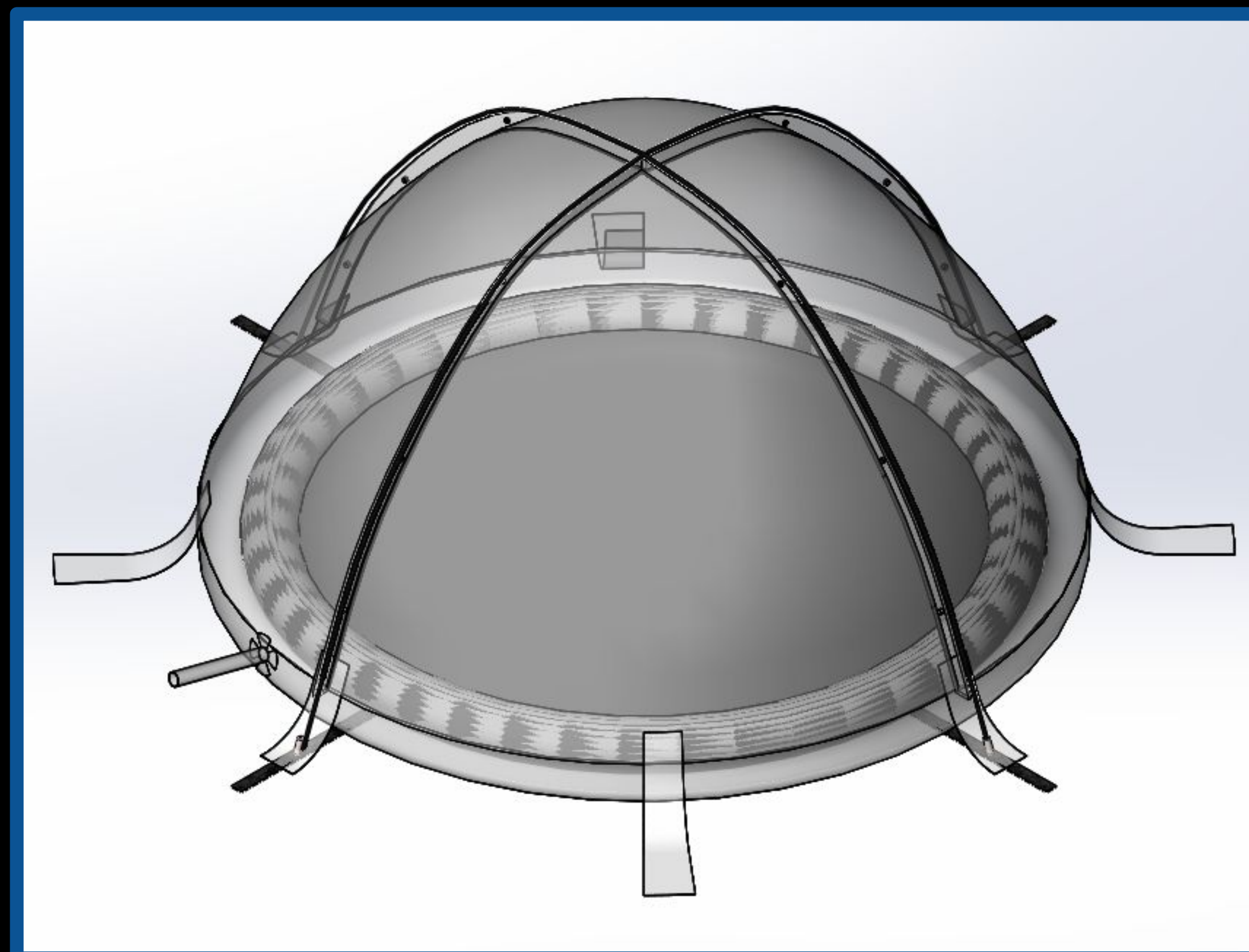
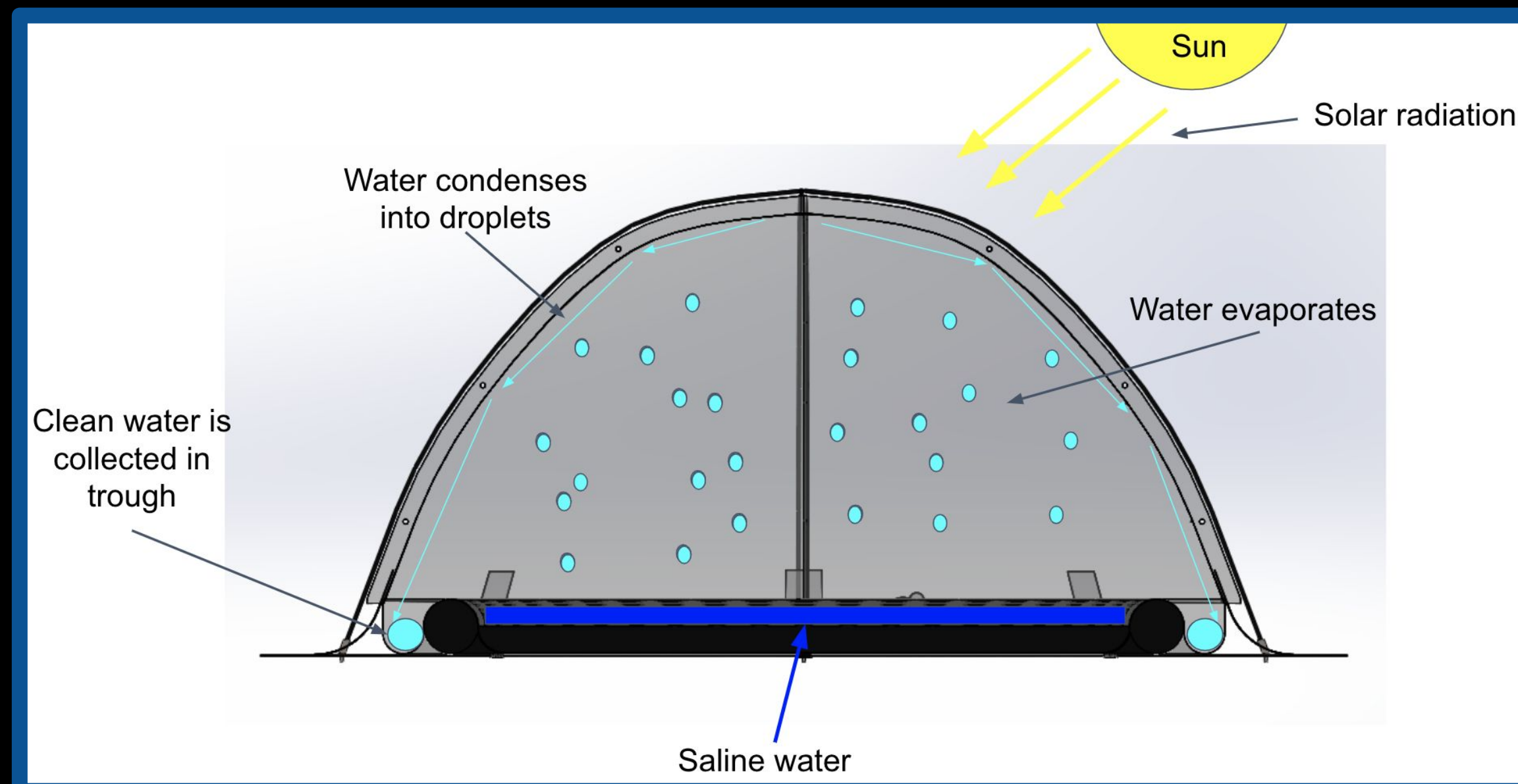
### PROJECT OVERVIEW

There are 785 million people who do not have access to an improved water source, according to the World Health Organization. With 40% of the world's population living near the coast, many of these people have access to saltwater but have no way of making this water potable. The Condensation Organization has designed a device that aims to solve this problem using nothing but the power of the sun. Portable, durable, and simple, the water desalination tray provides an innovative solution to people in need.

### DESIGN

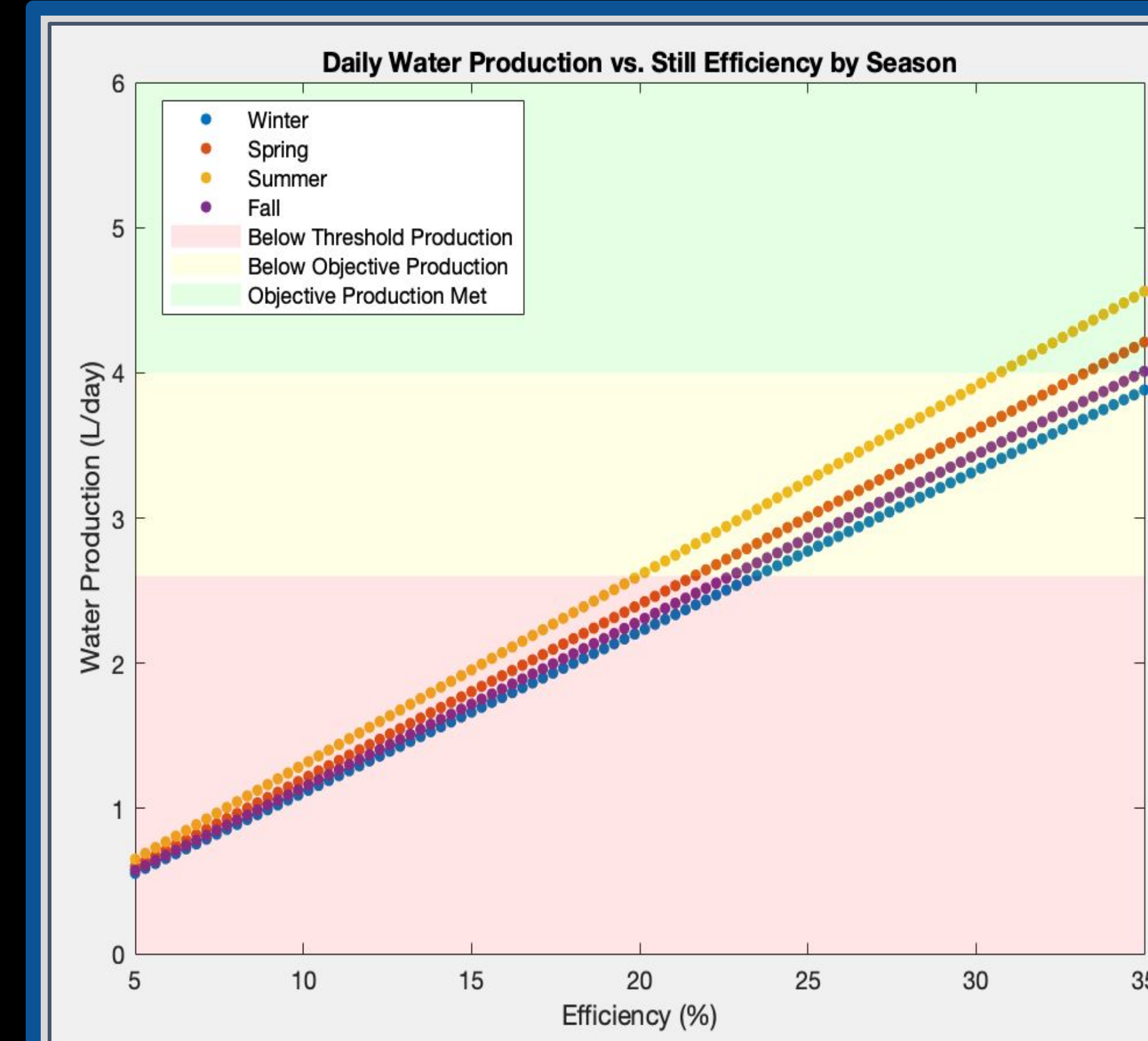
- Low cost
- Collapsible & Portable
- Highly Transmissive
- Simple
- Durable
- Quick Setup

**Basin:** Small pool modified to system's dimension and covered with black heat absorbing plastic  
**Canopy:** Tent shaped dome constructed of four quadrants of flexible, durable, transmissive plastic  
**Collection:** Canal dips around the outside of the basin to collect condensation with a roll up drain  
**Support Equipment:** Tent pole kit, 3D printed hooks, nylon straps, grommets, anchors, alignment straps



- **Materials:** PVC and PE (basin)  
10 gauge clear vinyl (canopy/collection)
- **System Dimensions:** 80"x 80"x 34.5"
- **Collapsed Volume:** 14 L
- **Total Weight** ≈ 7 lbs
- **Total Prototype Cost:** \$165 (excluding testing materials)
- **Estimated Unit Cost** ≈ \$29 (for 5,000 units)

### ANALYSIS



- Max Efficiency:** 30-35%  
**Improving Efficiency:**
- minimize heat losses to surroundings
  - maximize plastic transmissivity
  - optimize water level in basin
  - optimize collection of water

### FABRICATION

**Basin:** Attach black, heat-retaining plastic to basin surface to maximize water temperature  
**Canopy:** Four quadrants of vinyl welded together, by iron, with grommets in seams for tent poles

**Collection System:** Sized two rings of vinyl, using plywood molds, and welded together with iron. It is then thermoformed with a heat gun to reduce wrinkling around basin

