

## Energy and Environmental Design Project

### Traveling Oasis

#### Mission Statement

Develop a manually operated transportation system that captures its residual energy to purify an onboard water source for developing countries.

#### Synopsis

The Traveling On-board Aquatic Specimen Irradiation System, also known as Traveling OASIS, started out with an idea of creating a cart that could be pulled easily by a human or animal without causing any harm, and generate power to filter and purify polluted water for human and animal consumption and also human sanitation. This cart would be designed not only to pull heavy loads but it would also be able to carry a water purification system and filtration. There would be two septate reservoirs, one for the polluted water and one for the clean water. As the cart is pulled along to its destination, the rotating axis of the wheels would generate power through some sort of power generation system that would then be stored in batteries. This power would then run the purification system.

The team had to think of goals and action steps that were obtainable within the three-month working time span. The team came to a decision to split the project up into three different stages. For 2016 the team only had enough time to work on stage 1 which focused on the filtration system and the purifying system.

A multimedia filtration system was selected because it could filter bacteria/pathogens and viruses up to a 95% level and some pollutants to undetectable levels. The most important part is that it is a low maintenance system that requires inexpensive material and equipment.

The purification system is made up of an ultra violet light system. The benefits from using this method compared to others is that it will kill microorganisms up to 98%, only requires lamps changes about every 9000 hours. It would only need an occasional filter change. The UV light does not need much power, which would make it perfect to run off the power from a cart.

An operational prototype was successfully built and demonstrated.



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