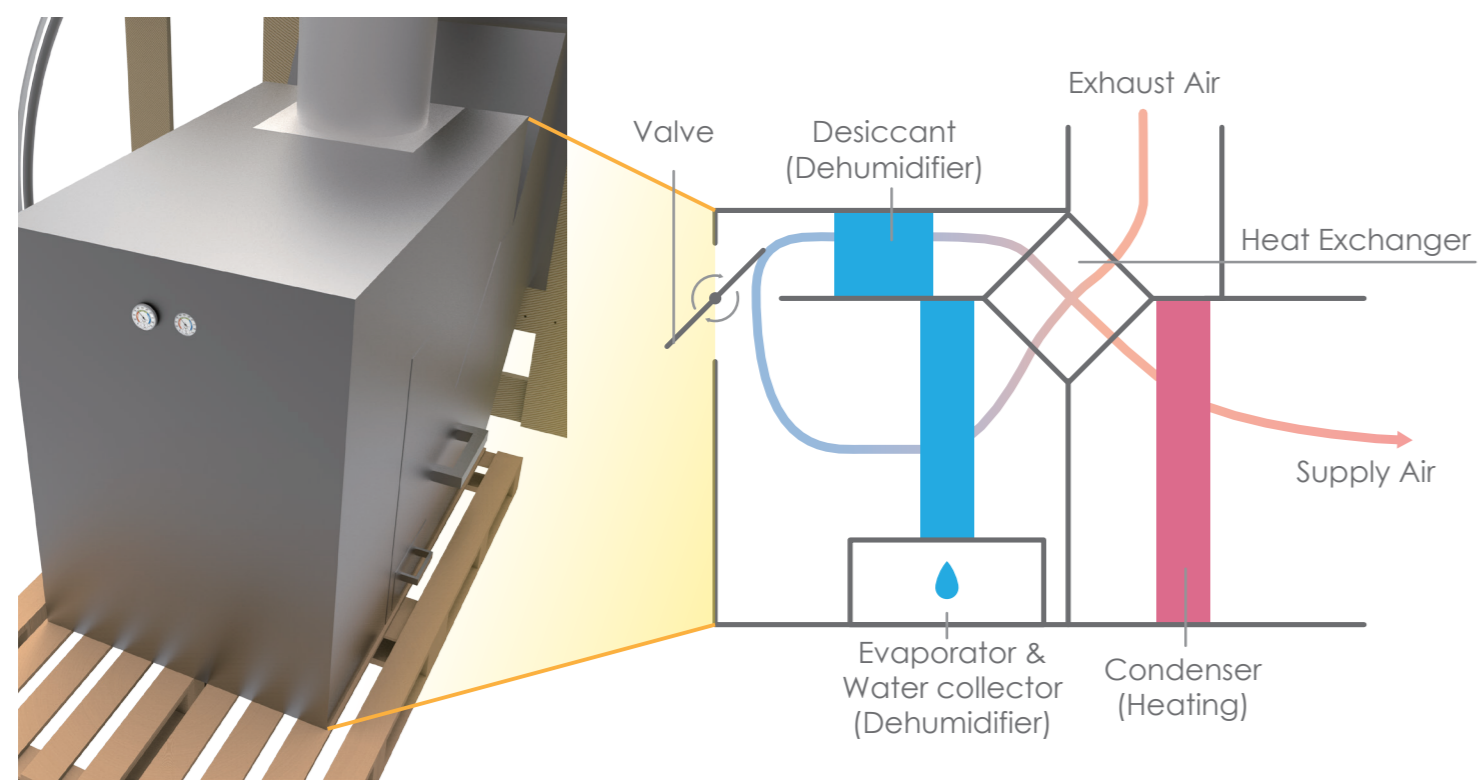
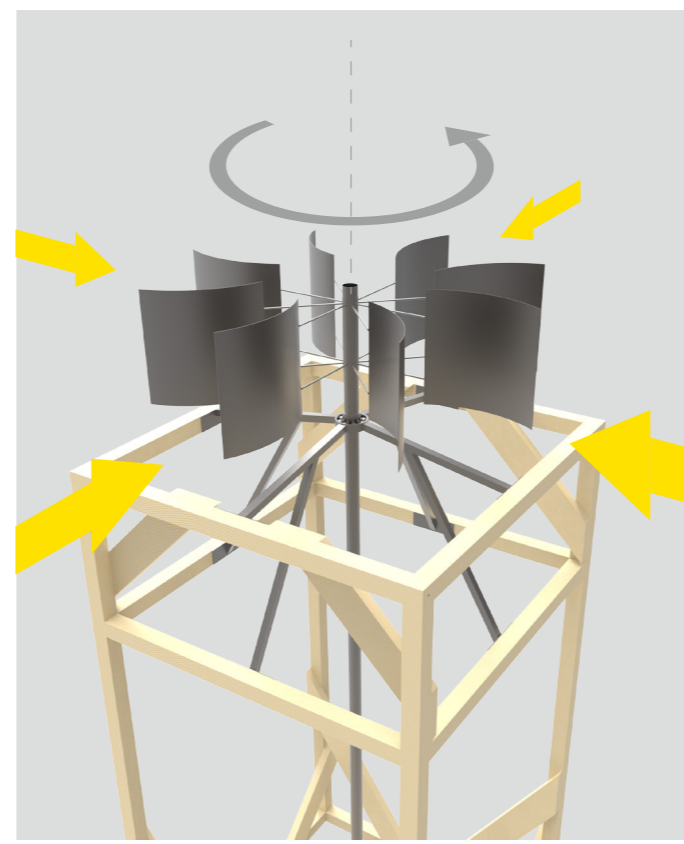


Faster Drying

The surface of the dagaa is constantly blown by dry air. During sunny days, the greenhouse body and heat recovery system maintain the indoor temperature at a higher level than that of outdoor. The dehumidification system keeps the indoor humidity in the desired range. According to the calculation, under this condition, the drying is 30% faster than sand drying. During rainy days, a modular heat pump will be installed to achieve the same condition.



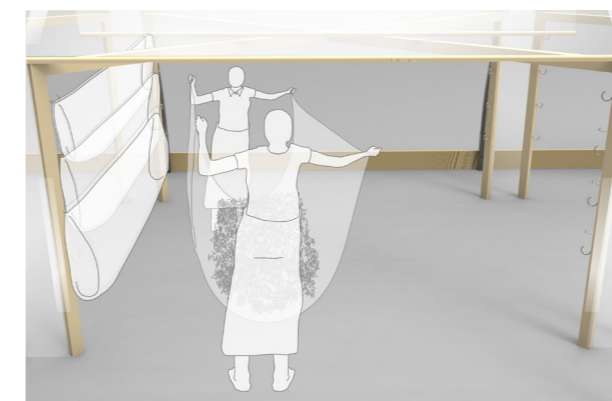
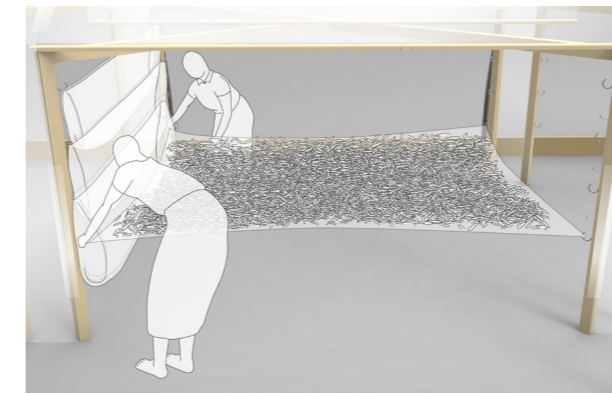
Lower Sustainability Impacts



UpWind was designed based on a former design project. The sustainability impact of its life cycle was analyzed and improved. UpWind replaced the charcoal burner with a heat pump and replaced the plastic-coated drying racks with retired fishing nets. Moreover, UpWind utilizes natural resources, such as a wind-driven fan and chimney effect, to reduce the need for electricity.

Low-Burden

The harvesting operation of UpWind allows users to harvest the fish in one swift move. In the user test, even the participant with lower back issues can perform the task without an issue.



Affordable

The heat pump is a shared component that will be installed only for rainy days. This has lowered the cost of the design and resulted in a 40% growth in the fishing camps' net profit.

In Tanzania, catching dagaa (a sort of sardine) is one of the main activities of the places surrounding Lake Victoria to earn a livelihood. Fresh dagaa does not last long; hence, preservation is required to extend its shelf life. Currently, sun drying is the most common way of preserving dagaa. However, the drying process is done directly on the sand, which leads to critical contamination. Moreover, during rainy seasons, dagaa cannot be dried before rotten, which leads to insufficient income and food waste. Therefore, UpWind, a greenhouse heat pump dryer that dries dagaa on various weather conditions, was designed to resolve this problem.

UpWind provides a hygienic environment for drying, away from the sand, animal, rain, and UV contamination. Moreover, it is sustainable, low-burden, faster, and affordable.



UpWind

Design for Sustainability

Fish Preservation in Tanzania

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 Design for Sustainability:
 Fish Preservation in Tanzania
 Sep 30th, 2020
 MSc. Integrated Product Design

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