



The SINC

Executive Summary prepared for the Biomimicry Institute, 11/16/2020

UN SDGs

The SINC addresses UN Sustainable Development goals 6, 9, 10, 11, 12, and 13.

NATURE INSPIRATION

The SINC emulates the thermoregulation of the Rainbow Trout in conjunction with the extreme temperature resilience and water collection mechanisms of lichen.

NEEDS

Funding is the primary limiting factor of this project. Having the necessary funds to complete a functioning prototype is our main focus for the near future.

FOUNDING TEAM

- Logan Boras - Team lead
- Bethlehem Mentie - Team member
- Mario Ochoa - Team member
- Madina Shayne - Team member
- Aiza Awan- Team member

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BIOMIMICRY
INSTITUTE

The SINC (Sustainable Ice Nucleation Contraption) is an ice nucleation device used for collecting water in below freezing temperatures. At ideal conditions, each cell of the SINC can produce 21,871 ml* of safe drinking water per day for cold climate communities impacted by water scarcity. The SINC is a sustainable and affordable way to provide water for these communities.

PROBLEM & OPPORTUNITY

Thousands of people are facing prevalent boil water advisories and do not consume orders in Northern Canada and in other northern countries. Our TAM includes the water supply for Canada, and countries that have similar climates.

SOLUTION

Our solution is an easy to install personal-scale water collection device that functions in freezing temperatures. The SINC collects moisture from ambient air by generating frost. Melting this frost allows The SINC to supply clean drinking water on short notice to communities in need.

BIOMIMICRY IN PRACTICE

The SINC was inspired by the countercurrent heat exchange system of the rainbow trout and the ice nucleation mechanism of lichen. By mimicking these systems, the SINC is able to generate water in cold climates. Inspiration was found locally, as these organisms are found in our biome. Our solution optimizes use of resources and is locally attuned and responsive.

REVENUE MODEL

Our revenue model primarily targets both government agencies and non-profit organizations as service providers. These organizations would purchase the units in bulk, and implement them in communities affected by water scarcity as relief measures.

TRACTION

We are currently contacting local organizations and groups that we can target with this product. Additionally, we are contacting organizations to partner with in building a pilot scale system.

TEAM

Our team consists of multidisciplinary students across multiple majors, allowing us technical expertise in delivering the best possible product. Additionally, our club, ENOVA (Emulating Nature in Innovation), offers support from members specializing in business to launch the product successfully.

NEXT STEPS

Our next steps consist of finding organizations to partner with us in order to refine our business model, build a pilot scale system, and bring this product to market. Then, we will begin providing The SINC as a relief option in affected areas.

*Maximum daily water production requires pilot scale testing.