

Executive Summary prepared for the Biomimicry Institute, 11/20/2020

UN SDGs

Goal 6: Clean water and sanitation.

Goal 7: Affordable and clean energy.

Goal 13: Climate action

Goal 14: Life below water

NATURE INSPIRATION

- Salps filtration and immobilization mechanism
- Devil ray filtering mechanism

NEEDS

- Hydraulic engineering laboratory for flow simulation
- Funding for further prototyping, building the devices and testing

FOUNDING TEAM

- Jennifer Balcucho, Lead Researcher
- David Sánchez, Lead Architect
- Sebastián Balcucho, Economist

CONTACT INFO

Eutrolife
Bogota, Colombia
+57 3165302334
+57 3213041254
contacto@mimicrew.com
www.mimicrew.com



BIOMIMICRY
INSTITUTE

Eutrolife is a proposal for the treatment of eutrophicated water in which we not only carry out remediation of the contaminated body, but also take advantage of the waste to convert it into resources for various industries such as biofuels, pigments, research and fertilizers. Several experts and executives from the agricultural and water treatment areas have shown interest in our idea and in having access to the generated prototypes.

PROBLEM & OPPORTUNITY

The main cause of eutrophication is the excess of nutrients in the water body due to the poor management of waste generated by humans. This produces an excessive growth of microalgae, which leads to the death of organisms and release of toxins.

SOLUTION

Our device has 4 key elements: First we have a 3D-printed filter that prevents clogging of the system by directing much of the biomass to a green storage compartment. Then we have a second nanofiber. The third element is the immobilization of nutrients in polymer beads that will be stored for later use. Finally, for the optimization of the processes, our devices will work in clusters.

BIOMIMICRY IN PRACTICE

When looking for inspiration in nature we came across Salps, organisms that act like a colony formed by many individuals. Each individual filters the food particles through a gelatinous network and can form rapidly sinking pellets that distribute nutrients to the deeper layers in the body of water. Finally, to avoid the clogging of the devices, we designed a 3D filter that emulates the filtration of Devil Rays, where the smaller particles pass through some pores and the larger ones are dragged by a tangential force.

REVENUE MODEL

We have identified 6 potential primary consumers of our proposal, which are those who will access the water treatment service. On the other hand, we have secondary consumers, which would be those industries interested in buying the biomass and nutrients that we have collected.

TRACTION

We are currently in prototyping. We have already printed the first 3D filter, synthesized nanofilters and performed nutrient immobilization tests on the polymer beads. In addition, We are evaluating ways to improve our design, such as the use of absorption islands with plants to help control the nutrient levels in the water. Also, we recently reached the final of the 100k LATAM competition in the Pitch category.

TEAM

Our team is interdisciplinary, including professionals in the areas of microbiology, architecture, economy and engineering. Our common goal is to change the established processes for new innovative alternatives that are more friendly to the environment.

NEXT STEPS

Our next steps are to complete the prototyping stage so we can evaluate our device in the field. Then, we will establish contact with potential customers by showing the collected data from our testing stage.