Executive Summary prepared for the Biomimicry Institute, 12/08/2021


PROBLEM & OPPORTUNITY
Approximately 21 million people worldwide are affected by river floods every year. Controlling floods is a challenge that many countries are facing. Our design reconnects rivers and residents by adapting to coexist with floods, increasing water filterability, and provides biological habitat.

SOLUTION
Our design will be installed onto the riverbed. E-Colant.Net manages water turbulence, thus enabling plant growth. The unit's arrangement and shape reduce overall flow rate to minimize erosion and flooding. To adapt to floods and to reduce erosion, silt will be filtered out and water will be used for groundwater recharge. These enhancements make E-Colant.Net more eco-friendly compared to modern cement riverbeds.

BIOMIMICRY IN PRACTICE
E-Colant.Net uses the shape and arrangement of the scales of Great Hammerhead sharks and fish to reduce water flow rate and pressure. Its sediment filtrations are inspired by marine sponges' pores. Next, the hook structure of Devil's Claw inspired the surface area to maximize plant grips. The gills of Tilapia inspired the sediment filter, while the heart valve inspired the backflow prevention system. These mechanisms form one complete system together.

REVENUE MODEL
We are pursuing a licensing model. We are looking forward to work with water conservancies and river engineering companies to ensure the feasibility of the installation of the product on the river.

TRACTION
We have run multiple software simulation tests to verify the feasibility of the product. We are continuing to interview stakeholders to understand the market's needs.

TEAM
As a new generation of architects and urban designers, R.E.A.D. Lab seeks for design advancement, especially in bio-intelligibility to innovate design for the Anthropocene. We strive to promote sustainable development under the guidance of Dr. Kuowei Chiu (Advisor) and Rune Percy (Coach).

NEXT STEPS
The next step is technical testing through design developments and establishing manufacturing partners. Then, we will be seeking initial funding for product development.