**Water Hyacinth Crop**

**Reflections between water and energy.**

**Describe the integration between the crop and its surroundings, environment and landscape?**

When we talk about green energy we should make reference to the systems of our nature. We want to build a reflection of some vegetative formations and study its geometry, its systems of growth and how they adapt to the environment. Therefore, we develop a new way of understanding the relationship between the “natural” and the “artificial” as a new NATURE that should be part of the contemporary landscape.

**How did you apply the sensitivity of the work to the environment, to local, and regional ecosystems?**

Our “Water Hyacinth” understands the environment and the local ecosystems as a part of the functionability of our design. We want to reverse the aesthetics of these mechanisms that commonly generate energy and which appearance clearly responds to its function. Our proposal aims to highlight this process in a harmonious way to build a different landscape in Santa Mónica.

**How do you describe your artwork?**

Our artwork evokes a vegetative formation, so we focus our interest on the Water Hyacinth, not only on for their appearance, but also for their phytoremediation process regarding to water.

We design the following two relative devices, although each has their own function and appearance:

**Water Hyacinth A:**

Its main function is to generate green energy through two systems associated with the sea waves and the sunlight. The first system is submerged and anchored to the seabed; meanwhile the second one emerges from the sea and responds to the solar movement and sunlight.

**Water Hyacinth B:**

Its main function is to collect rainwater through some parables and translucent floating tanks. Thus, this device produces drinking water for people. This process gets evident once it gets dark and the buoys light up like contemplative lighthouses, which allow visitors to have a visual relation to them along the beach.

**How does the public interact with it and how do you think this proposal will change the minds of visitors to the site?**

Our proposal is an artwork, a contemplative landscape, in the same way as the sunset in this place. We wanted people to be viewers of these event, as a dance of “Water Hyacinth” that will show the clean creating energy process. They will star to lighting up when the sunset starts making honor to the environment and life.

**What kind of green energy do you use?**

**Superficial wave energy**

These devices use a kind of wave energy that allows the production of electricity from mechanical energy generated by the movement of the waves, without the need of blades that may affect marine life. It is one of the types of renewable energy most currently studied, and has enormous advantages over other renewable energies. It presents greater ease to predict optimum conditions for maximum efficiency in their process; which means it’s easier to reach optimum wave predictions than conditions from wind power, as its variability is lower.

These devices follow the movement of the waves acting upon a hydraulic generator. It is a floating apparatus of articulated parts that gets the energy from the relative motion among these parts. This system consists of a module that is anchored to the seabed. Through wave oscillations the pistons get activated to make a hydro transformation. They mainly consist of an articulated structure where the connections of the nodes have a hydraulic system that acts on an electric generator.

**Solar Cells**

In the middle and top of the “Water Hyacinth A” we use solar panels or photovoltaic modules. They contain a set of photovoltaic cells and capture the sunlight that strikes them and produce electricity through the photoelectric effect.

**How will you light up the buoys in the sunset?**

We use a material with chemiluminescence properties. Chemiluminescence is a phenomenon that occurs when, in a chemical reaction, electrons jump from an upper layer of atoms to a lower one.

This causes energy release, and it is what we perceive as light.

Chemiluminescence has two types of chemical reactions: Phosphorescence and Fluorescence. However we are going to use the first one, because there is some delay in the release of radiation and it allows us to provide light at night.

**How many houses will this system light up?**

This technology is commercial. We calculate that 30 devices “Water Hyacinth A” could provide power to light up 2,000 homes.

**To how many people will this prototype provide drinking water?**

A person consumes 144 liters of water per day. We could store 20.000 liters per “Water Hyacinth B”, so we can provide water to 136 homes per week (1 home = 4 people approximately).

**How will your proposal clean the rainwater that it collects?**

The cleaning water process we use is very simple. It consists of a sand filter that strain all the big particles in the contaminated water. Then, the water is stored in a transparent container that allows sunlight to cross. Hence, the UV light from the sunlight will react with the small particles of the water, cleaning it and killing all the microscopic bacteria in it.

**What is the environmental impact of your proposal?**

Using this kind of movement to produce energy is highly safe and has almost no environmental impact on the local habitat. Through the mechanical parts are harmless such as pistons and buoys, and the relative movement among the parts of the system is slow and constant.

This type of energy is very clean and easy to produce, consequently this makes wave energy highly promising to generate energy.