



SCENARIO VISUALIZATION | PIER SIDE VIEW

PERFORMANCE, MATERIALS AND SUSTAINABILITY

Desalination or desalination is a process that removes minerals from saline water. Salt water is desalinated to produce fresh water suitable for human consumption or irrigation. FORAM is a floating self-sustainable desalination plant focused on developing a cost-effective way of providing fresh water for human use. Along with recycled wastewater, this is one of the few rainfall-independent water sources.

FORAM is a formation of modular rafts. Each of these units is equipped with three water tanks for desalination with an overall surface area per raft of 80 sqm. Taking into account the local climate with an average Solar Radiation of about 5 kw/h/sqm/day the raft will be able to produce an average of 7.2 l of fresh water per sqm desalination tank surface area and per day. This sums up to a total water production of 2644 l per raft per year. In the current formation as we propose a group of 25 Rafts. This formation has the capacity to produce a total of 5,286,850 liters of clean water per year.

The tanks not only serve the purpose of desalination but at the same time also integrate a solar pond to produce clean energy. Salt water in a second group of tanks which are sitting below the desalination tanks store solar thermal energy. The hot, salty water can then be pumped away for use in electricity generation through a turbine. This energy in turn is used to power the pumps which are connected to the conduit system and pump salty sea water into the desalination tanks and water ponds. Thus a self-sustaining cycle is created which produces clean water and energy, purely based on solar energy and sea water.

FORAM aims at an optimized performance and minimized energy and material consumption considering the entire lifecycle.

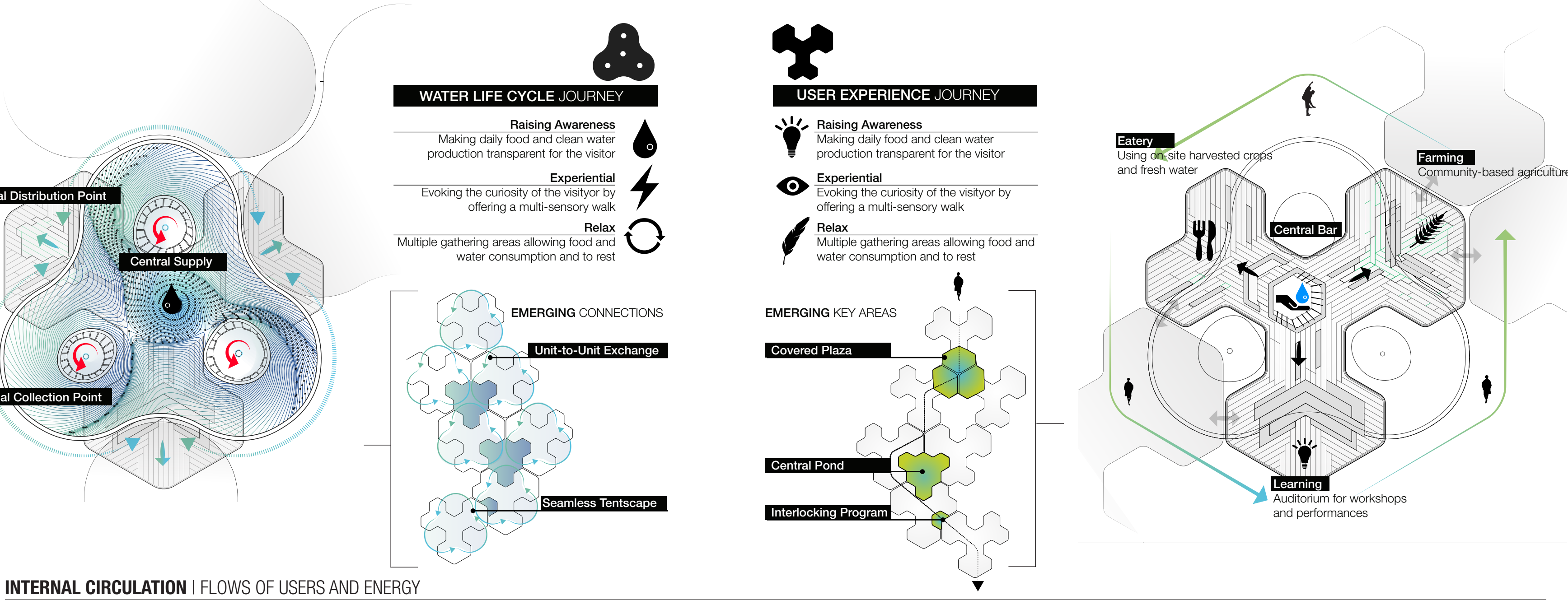
Most of the building components are made from re-used, recycled or reclaimed materials and none of the components are permanently fixed in such a way that down-cycling is impossible.

ENVIRONMENTAL IMPACT STATEMENT

FORAM addresses one of the most pressing issues of our time and the future – water scarcity, on multiple levels: Quoting Christopher Gasson of Global Water Intelligence, „At the moment, around 1% of the world’s population are dependent on desalinated water to meet their daily needs, but by 2025, the UN expects 14% of the world’s population to be encountering water scarcity. Unless people get radically better at water conservation, the desalination industry has a very strong future indeed.“

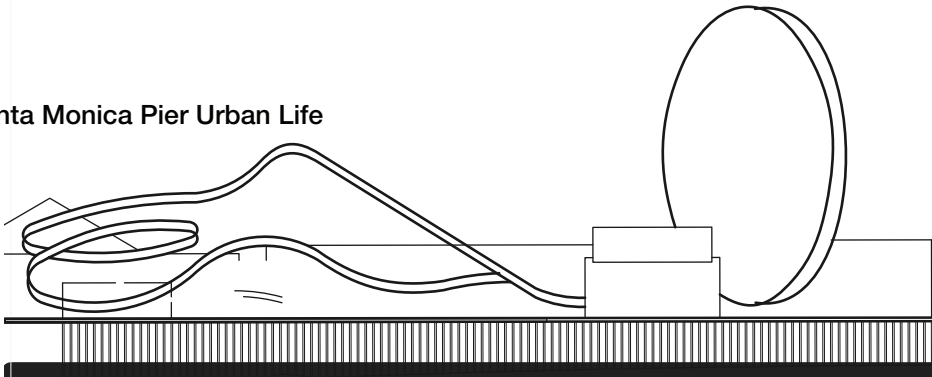
FORAM a radical concept to produce fresh water from sea water which can be scaled to local needs, can be applied globally wherever there is a need for fresh water and also is maneuverable which allows to bring FORAM quickly into areas with an urgent need for fresh water. Although conceived for the coastline of Los Angeles, more precisely the area around the Santa Monica Pier, FORAM has a strong global relevance.

In addition FORAM integrates a one of a kind visitor experience which allows to learn about the cycles of water desalination and clean energy production through solar ponds in a fun and exciting way. In that sense FORAM combines a floating plant for water and energy production with a science center and a new destination out in the open water to have a drink or experience food which has been grown on the rafts using the fresh water from the desalination.

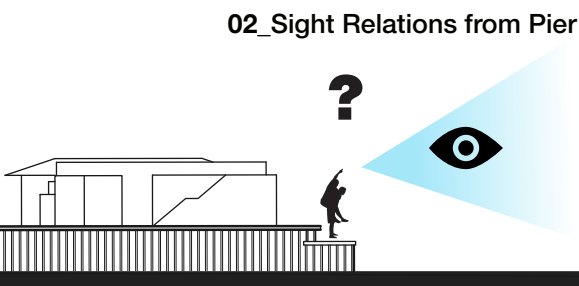


INTERNAL CIRCULATION | FLOWS OF USERS AND ENERGY

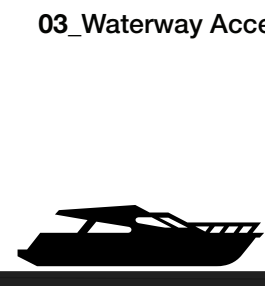
01. Santa Monica Pier Urban Life



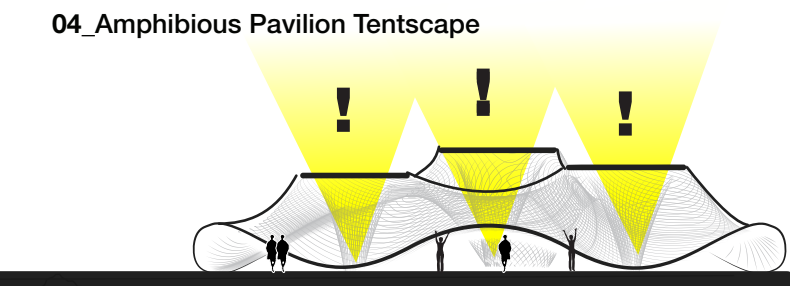
02. Sight Relations from Pier



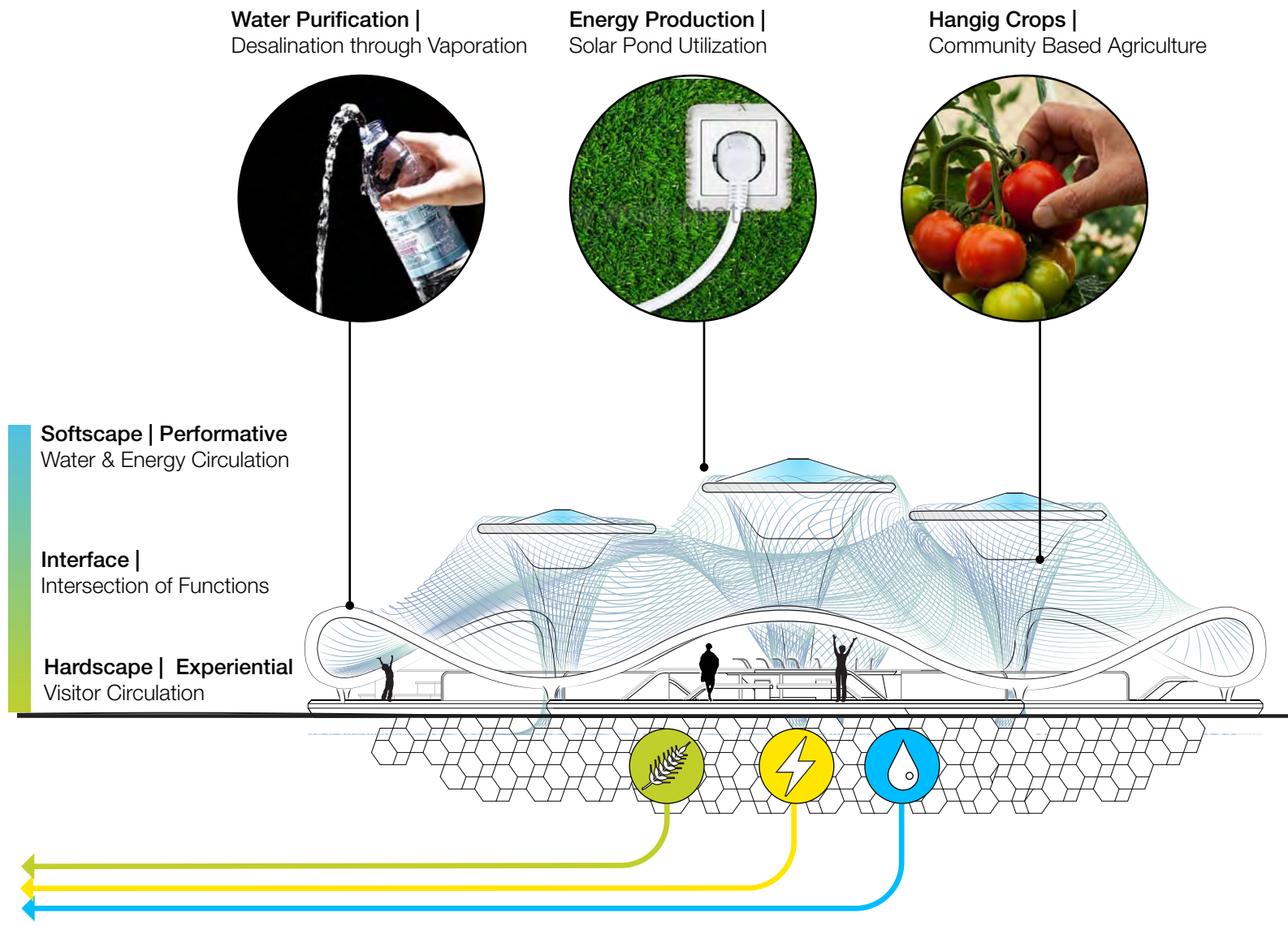
03. Waterway Access



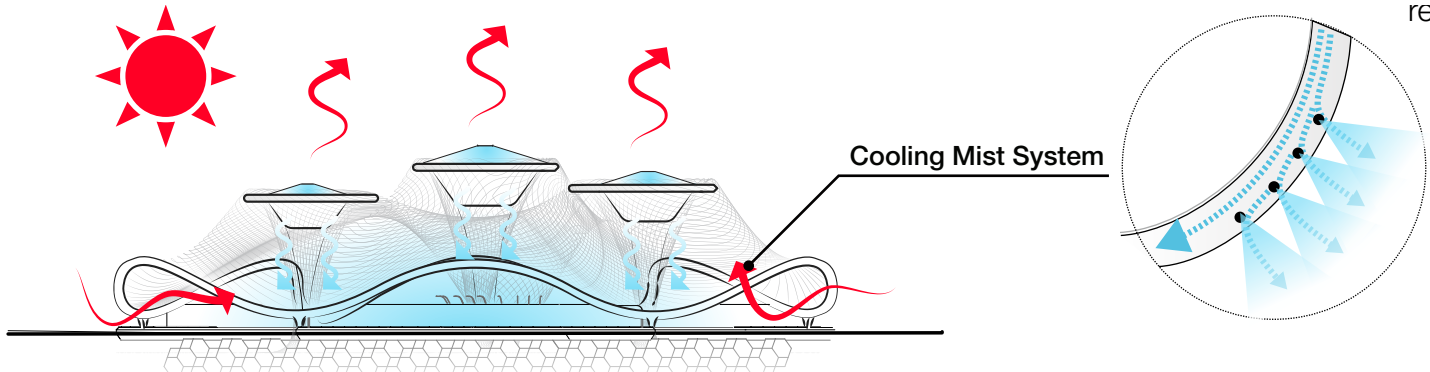
04. Amphibious Pavilion Tentscape



PUBLIC LANDMARK | URBAN POINT OF ATTRACTION



SOCIAL INFRASTRUCTURE | GIVING BACK TO THE COMMUNITY



TEMPERATURE | CREATION OF MICROCLIMATE THROUGH SOLAR CHIMNEYS