

JELLYFISH BARGE

MODULAR FLOATING GREENHOUSE FOR INTENSIVE CULTIVATION

By Kim Assaël

One of the innovations presented in the Italia Pavilion at Expo 2015 is the [Jellyfish Barge](#).

Designed to become a spin-off of the University of Florence, the Jellyfish Barge is a modular floating greenhouse for intensive cultivation, able to purify salt and polluted water by using solar energy. Merging design, science and biology it provides food security, access to water and guarantees the resilience of communities to environmental changes.

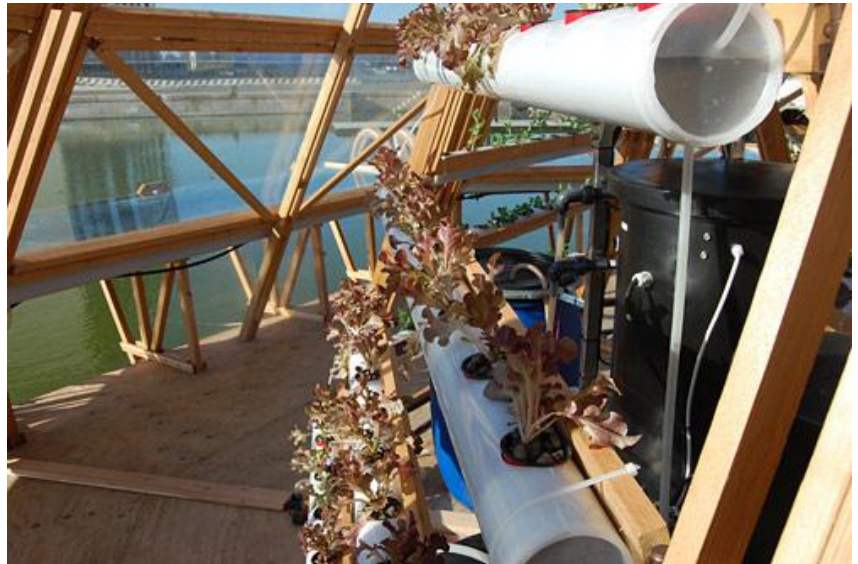
It consists of a wooden base floating on recycled plastic drums, supporting a glass greenhouse with solar panels, which provide the low energy required to power the fans and pumps.

This system represents a solution for producing food next to the final consumer without consuming land, energy and fresh water.

Jellyfish Barge was awarded the second prize of [UNECE Ideas for Change Award](#), focused to valorise innovative ideas for sustainable development and green economy. [UNECE is the Economic Commission of United Nations for Europe](#).

Jellyfish Barge incorporates an innovative hydroponic system, able to purify salt, brackish or polluted water using solar energy. It is built with low-cost technologies and simple materials; the recycled objects become an autonomous living organism, also appropriate to the self-construction paradigm internationally. It consists of a wooden base of about 70 square meters that floats on recycled plastic drums and supports a glass greenhouse for crop cultivation, capable of supporting about two families, thus easy to build even in conditions of economic constraints.

Inside the greenhouse, a high-efficiency hydroponic cultivation method provides up to 70% of water savings compared to traditional hydroponic systems. The Jellyfish Barge has in fact an innovative automated system with remote monitoring and control.



The Italian start-up [SOLWA](#), awarded as UNIDO *Innovative idea and technology on agribusiness on August 26 at EXPO*, has contributed to its system design living the availability of its solar innovative technologies for the desalination process; the required water is supplied by 7 solar desalination units arranged around the perimeter that are able to produce up to 150 liters per day of clean fresh water from salt, brackish, or polluted water. Solar distillation is a natural phenomenon: in the seas, the sun's energy evaporates water, which then falls as rain water, sucking in moist air and forcing it to condense within the drums in contact with the cold surface of the sea.

The low energy required to power fans and pumps is provided by solar panels, mini wind turbines and an innovative system that exploits waves to produce electricity.

The new barge is modular, so a single element is completely autonomous, while various flanked barges can guarantee food security for the whole community. The octagonal shape of the platform allows combining different modules by connecting them with square floating bases, which may also become markets and meeting places of a small water community.

The small size of Jellyfish barge and the modular structure make it fitting for canals, small rivers, and water areas by of big cities by the costs. The Mayor of New York has already endorsed the innovation for the Hudson River.

To know more

[Presentation in pnat.net](#)

[UNECE Prize](#)

[Università degli Studi di Firenze website](#)

[Article in archdaily.com](#)

[Article in diregiovani.it](#)

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[UNIDO Italy website](#)

[Aricle in corriereinnovazione.it](#)

[Article in 6sqft.com](#)

[Article in linv.org](#)

