

WHAT:

AL.FI.E is a rainwater and greywater harvesting system: it provides a purification of these waters for reuse on-site, especially for toilet flush, indoor heating, washing machine, dishwasher and garden irrigation.

Moreover this system produce biomass, useful source of energy, in order to have a self-sustainable building. This solution has been patented by Politecnico di Torino

WHO:

Our Team will work in the following months in order to have a technical and economical feasibility study of the invention. The inventors of Politecnico di Torino have been involved in the project as well as MISE, the owner of the challenge (water scarcity in Smartcities) and Green Build Council.

HOW:

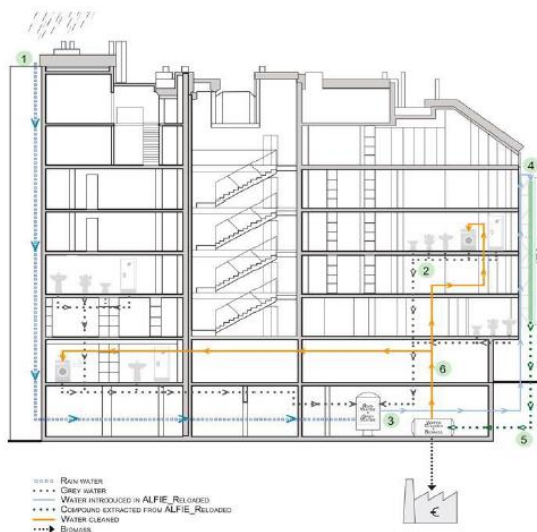


Figure1.

Greywater and rainwater are collected in a preliminary tank (Figure 1 - number 3) where microalgae are mixed. To this tank is linked a tube system, where water and microalgae are pumped outside the building, especially in the facade in specific photobioreactors (see Figure 2). In these photobioreactors microalgae purify water, produce O₂ and at the same time grow up. When photobioreactor is full, all the solution (water + algae) is collected in a second tank (Figure 1 - Number 6) where purified water is separated from algae: purified water can be reused inside the building, while algae biomass can be treated in order to produce biofuel, animal feed or pharmaceutical products.



Figure 2

WHEN:

In the following 6 month we are preparing an economic and technical feasibility study

WHY:

Water recycling system are very high potential growing markets:

Water Recycling Market with natural product is currently 3B \$, but in the following 5 years will have a CAGR of 25%.

Moreover this system can have a huge impact on water consumption (reduce the use of water - 30.000 l/person/year) and on building self-sustainability (biomass production).

The technology is patented by Politecnico of Torino and it is necessary a technical/economic feasibility study in order to take the technology to the market.