

## Concept solutions for TRANSfarm: New applications for rainwater

### Aim:

TRANSfarm wants to explore the possibilities to use its recovered rainwater for various applications on a small scale at its pilot facility. Together with PIO and industrial partners, TRANSfarm wants to look for a good synergy between local energy production combined with maximum recovery and use of rainwater for several applications (food production, aquaculture, biomass production, innovative technologies ...) as a demonstration.

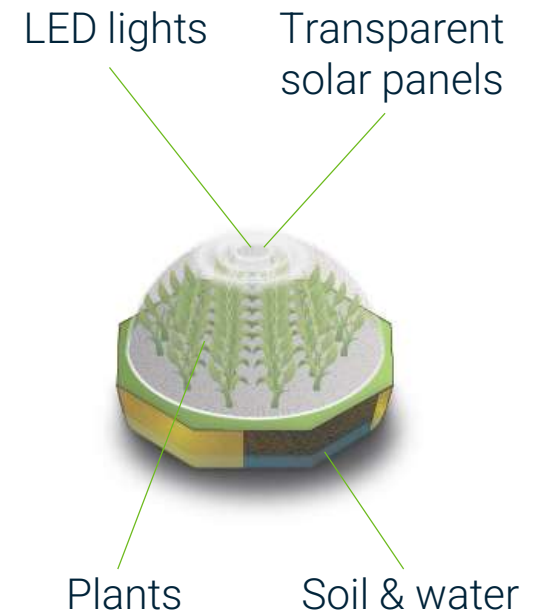
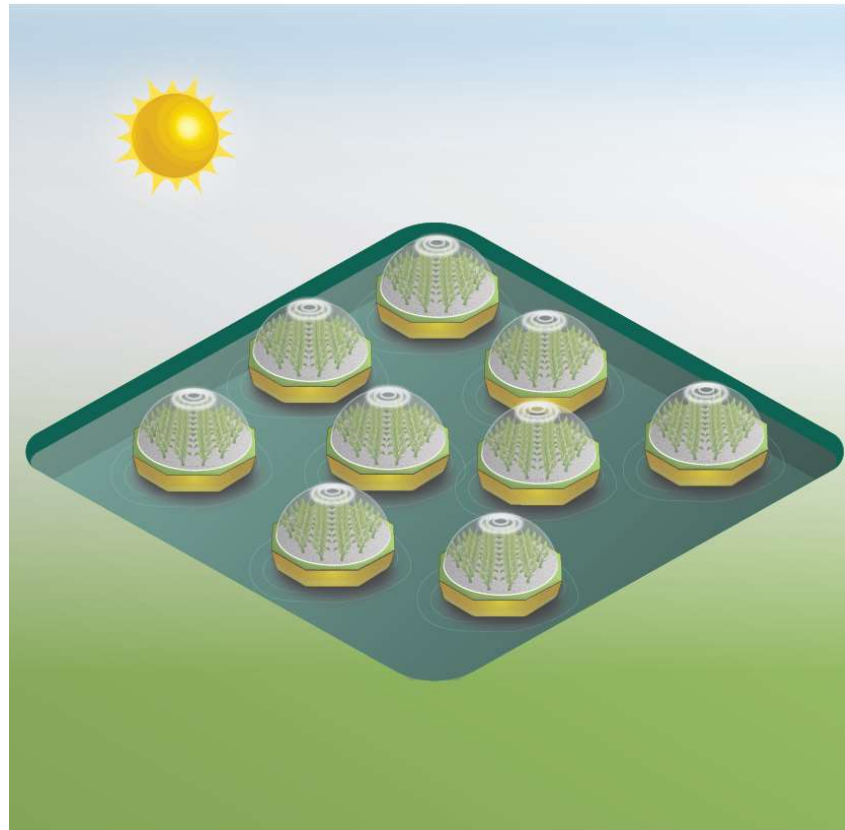
### Content:

This document gives an overview of the concepts that will be validated on the market consultation on 23/02/2022 with companies, consultants and research groups with knowledge and experience on technological agriculture, water remediation/purification, innovative water technology, PV (Photo Voltaic) industry.



# 1. FLOATING TANK

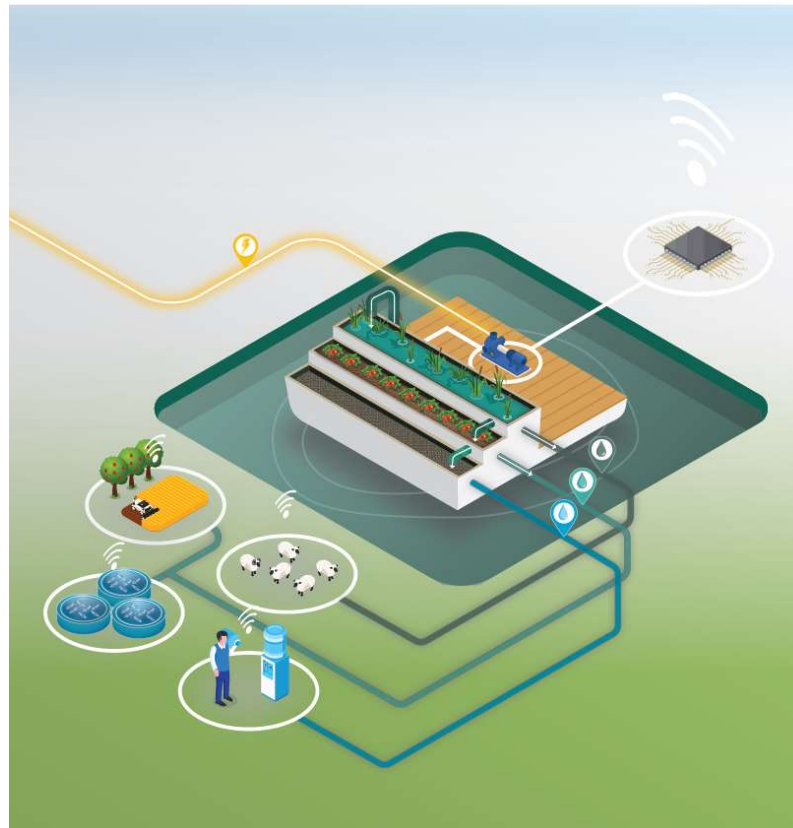
The floating tank is a closed ecosystem where plants are grown. The tank is semi-self-sufficient. For example, transparent solar panels are provided in the structure to control the LED lighting. The bed consists of substrate/compost and water (absorption), which provide nutrients to the plants.



## 2. STEPPED FILTER TOWARDS DRINKING WATER

With the stepped filter, the water is naturally purified/filtered while being used as a raw material for production. A pump will pump the water from the basin up to the top 'filter', a biobed. The water flows gravitationally to the following filters. At each filter one obtains more purified water that can be used for higher-grade applications. A smart system will control and distribute the quality of the water. Ideally, the water will eventually be purified to the quality standard of potable water. The types of natural filters can be specified by layer, and can be adapted by researchers within certain research projects. For example, we are thinking of:

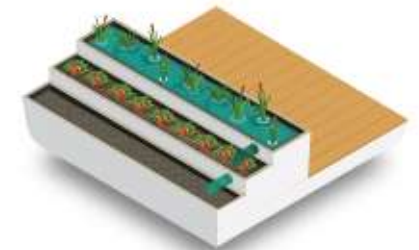
- Filter 1: reeds (~ biomass production)
- Filter 2: strawberries (~ food production)
- Filter 3: membrane (~ functional filter towards drinking water)



Smart sensor



Water pump



Stepped filter

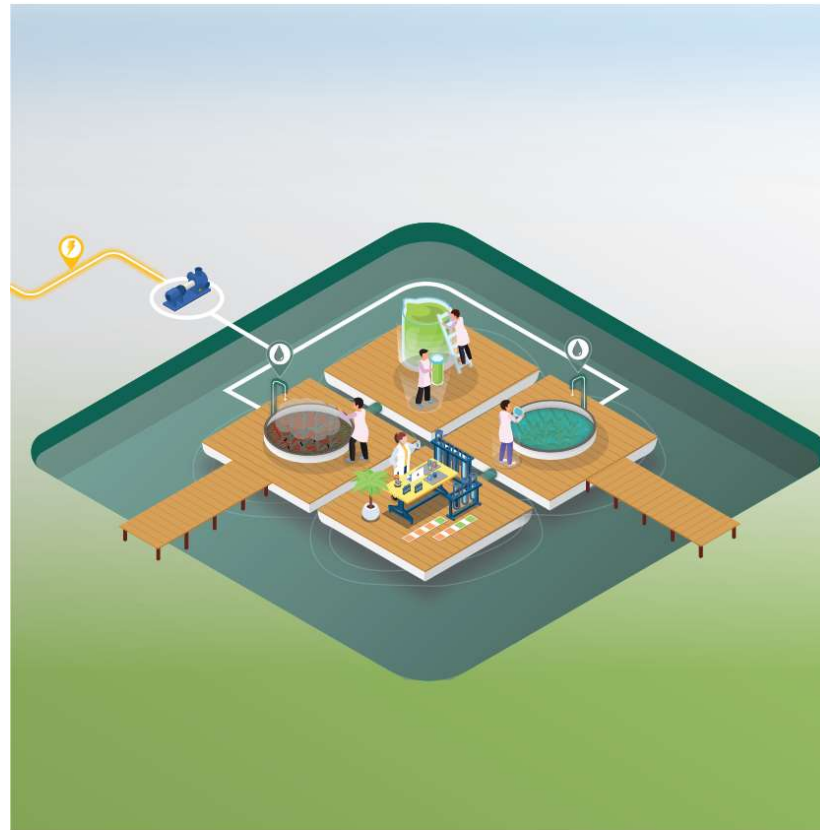


Drinking water

### 3. FLOATING NON-TECH

Floating, or pile-supported, platforms where different option for water-related valorization and research projects are investigated (e.g.: biochar, algae cultivation, energy extraction or purification with algae ...). The water of the water basin is circulated by a pump. The research projects are free to fill in and short-cycle, making them an interesting set-up for thesis and doctoral students.

Basic requirements will be needed like water, power supply, sanitary, etc.



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