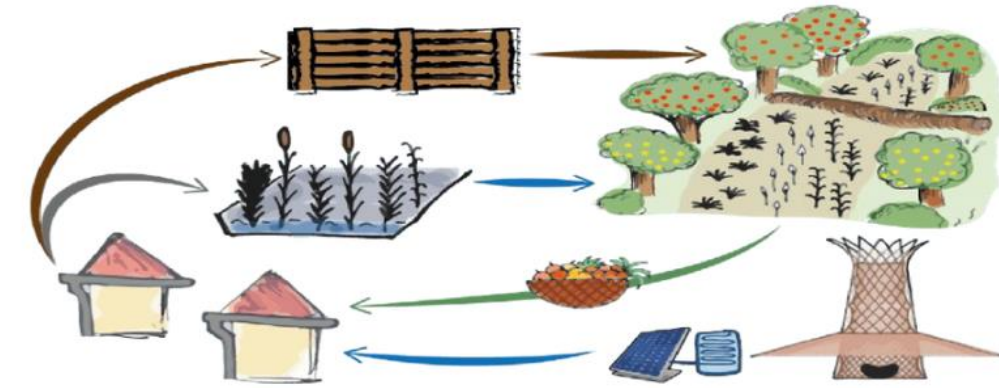




HYDRO 6

Tinos Ecolodge - Water loops in an ecotourist facility
 Moving towards water, energy and food self-sufficiency



System Description

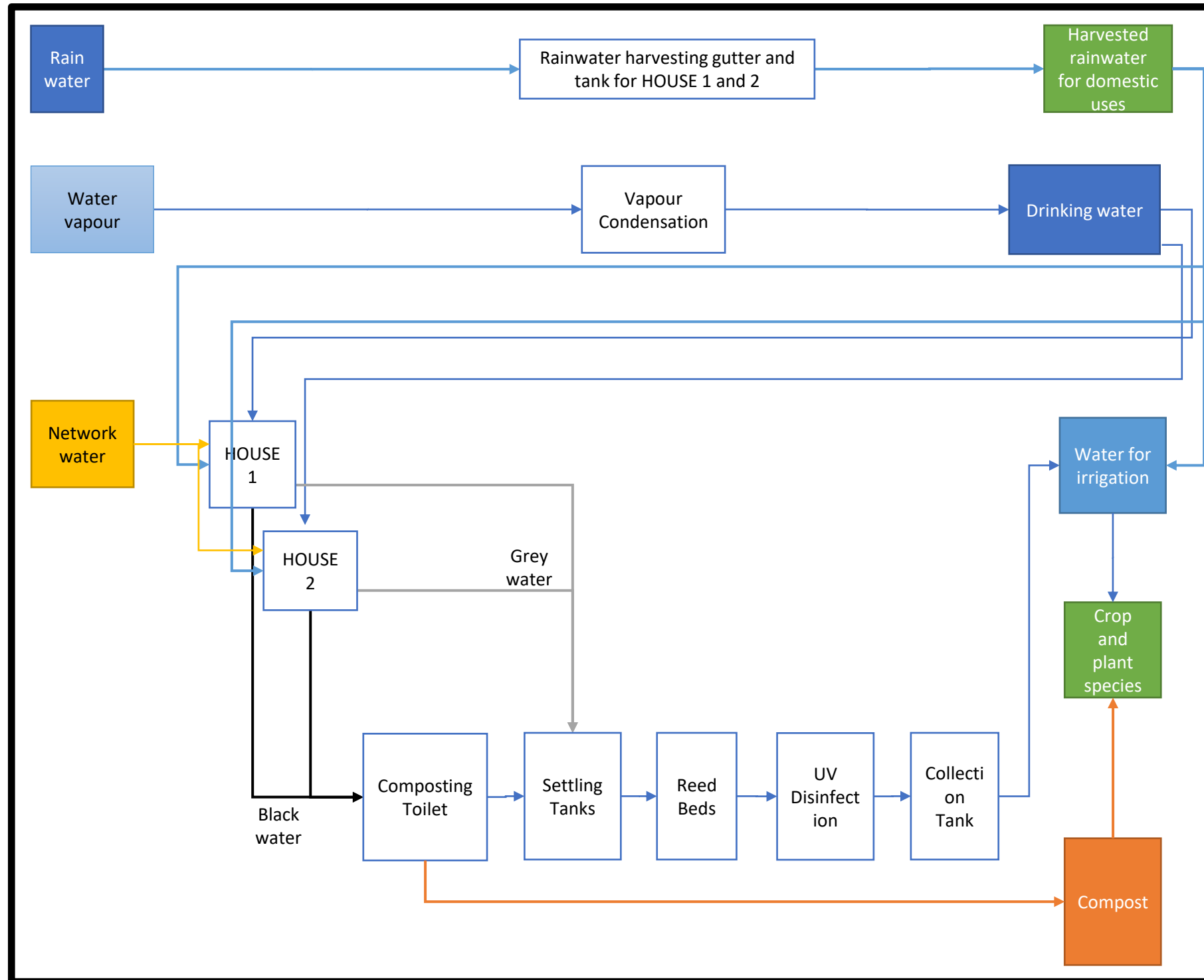
HYDRO6 consists of an eco-tourist resort at Tinos (ELT) where the principles of water, energy and food self-sufficiently are demonstrated at a local level. The eco-tourist facility implements rainwater and vapour water recovery systems as well as wastewater reclamation systems. A closed cistern was developed to collect rainwater from the roof of an existing stable, which has been transformed into a small lodge.

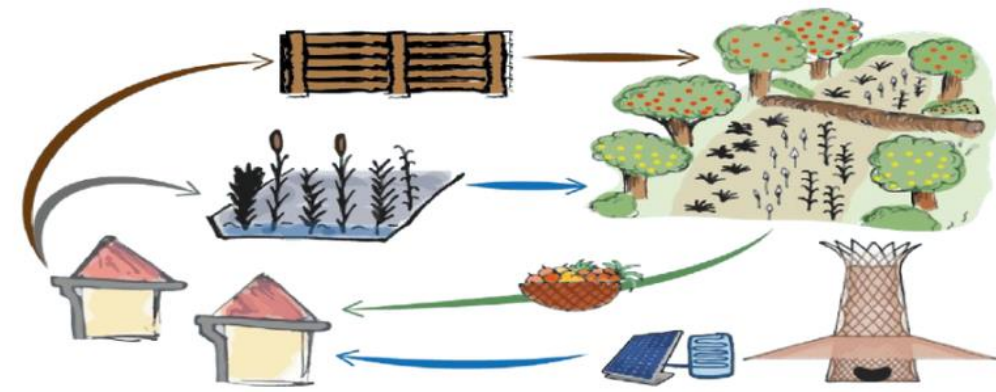
A 60 m² greenhouse was built to increase productivity for a variety of crops. The expected rainwater to be harvested is about 50 m³/year. To increase water recovery, low-energy vapour condensation systems will be installed to condense water from air.

Also, solar-driven vapour condensation units, which work with absorption and condensation chambers will be installed to recover drinking water from water vapour to compare the systems.

Grey Wastewater from the Ecolodge will be treated by means of settling tanks, reed beds and UV disinfection to produce reclaimed water for the irrigation of 0.15 ha of local crops.

Further compost will be produced in a composting toilet system in order to produce a valuable fertilizer for the cultivation of plants and crops. The ecolodge is completely energy autonomous and all activities are powered by PV panels.





Water Management Loops in an Ecotourist Unit accommodating approximately 8-10 persons/day consisting of

- Rainwater harvesting
- Condensed Vapor Water Catchment
- Wastewater Treatment and Reclamation
- Solids Waste Composting

Benefits

- Ecotourist facilities are self-sufficient in terms of water, energy and food production
- Rainwater harvesting > 50 m³/day
- Water recovery from condensed water vapor to sustain domestic water needs, >20 m³ /year
- Reclaimed water production (20 – 30m³ /year) to irrigate 0.15ha of crops for food production.
- Payback period around 5 years (based on Tinos demo site)

