

The background is a blurred photograph of a coastal town, likely Vis, Croatia, featuring a prominent red-tiled roof and lush greenery. A semi-transparent grid is overlaid on the entire image, and numerous realistic water droplets of various sizes are scattered across the surface, giving it a wet, artistic feel.

Art Meets Conviviality :
Permaculture Water Management Design,
Island Vis, Croatia
Matko Šišak

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Vukomerić, September 2025



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S + T + ARTS



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Island School of
Social Autonomy

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INDEX

INTRODUCTION	6
HARVEST PHASE	8
CLOUD COLLECTOR	8
STONE SLATE DRAIN	8
ROOF DRAIN	9
STORAGE PHASE	10
CISTERN	10
IBC TANKS	11
CONSUMPTION PHASE	12
OUTDOOR KITCHEN, FILTERING & SINK	12
PASSIVE SOLAR SHOWER	13
COMPOST TOILET / SINK	13
FILTERING PHASE	14
FILTERS	14
MEDITERRANEAN FOREST	15
GARDEN & BIOTECHTURE	15
PHASES SUMMARY	16
ARTIST IN RESIDENCE - MATKO ŠIŠAK	17
SOURCES	17

INTRODUCTION

This publication presents a year of work on the project Art Meets Conviviality – Permaculture Water Management Design, aimed at developing sustainable solutions for collecting, storing, purifying, and managing rainwater on the property of the ISSA Association.

The project focused on integrating permaculture design and sustainable water management with traditional knowledge and heritage in a warm, dry Mediterranean climate. Permaculture design is a holistic approach to creating sustainable human habitats by mimicking patterns in natural ecosystems. It applies a set of design principles and ethics to harmonise human activities with the natural world, resulting in productive, resilient, and self-sustaining systems.

In our work, these functional needs were complemented by artistic techniques and interventions, maintaining both aesthetic value and cultural significance. The local host of the residency, ISSA – the Island School of Social Autonomy – places strong emphasis on education and community engagement.

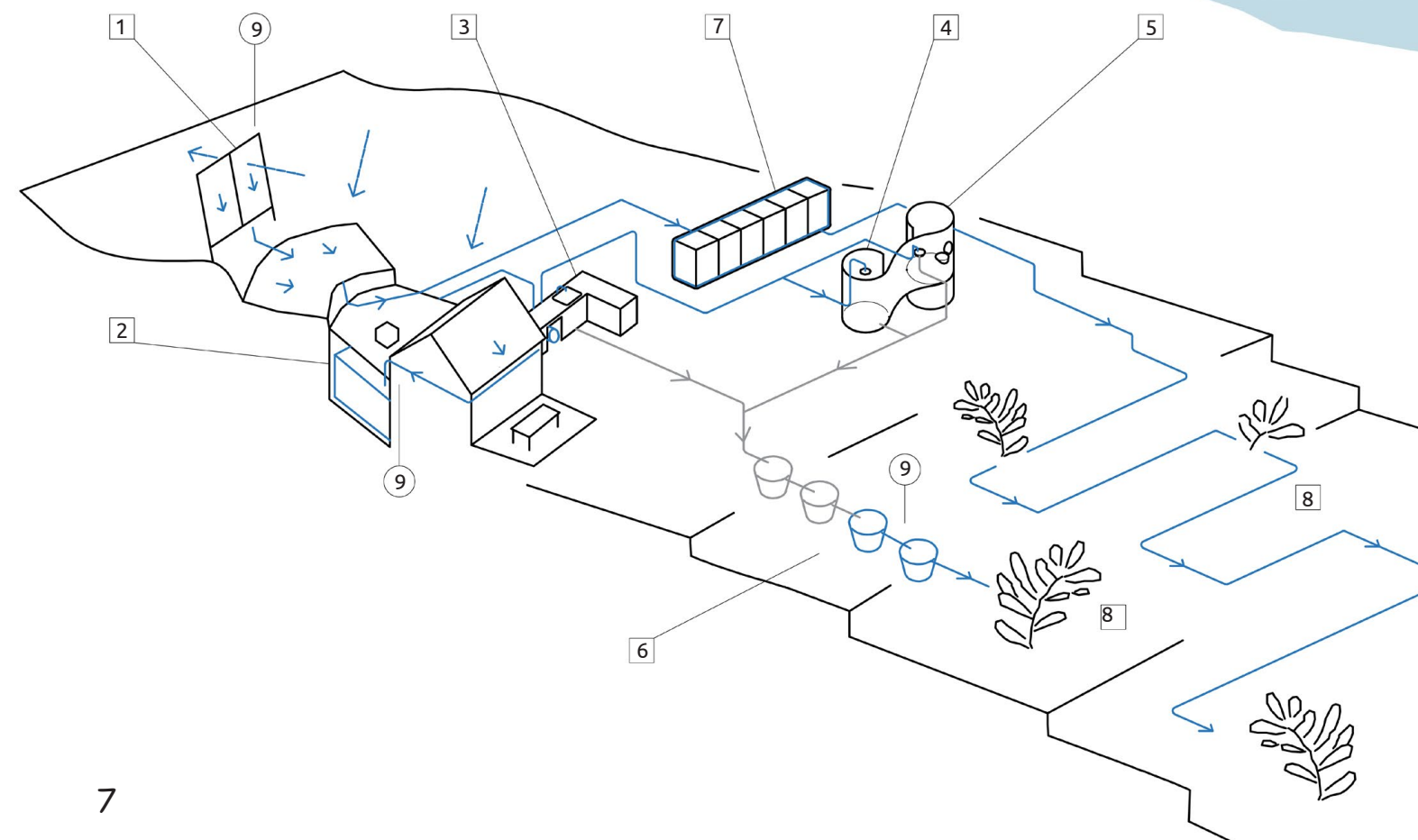
Our work has ensured the smooth operation of the ISSA project – Island School of Social Autonomy – and we hope it will serve as inspiration for other Mediterranean communities facing similar challenges, particularly those without access to piped water or wells. A promotional video about the project can be found at the following link: <https://vimeo.com/drugomore/art-meets-conviviality>

All planned water installations and management models were designed and built through artistic-technical residencies at the ISSA site, located on the summit of the island of Vis, beneath Hum Hill. The site now features:

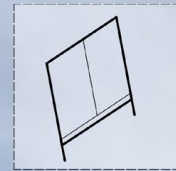
- a “cloud collector” or fog collector for capturing water vapour (1),
- a traditional stone cistern restored by ISSA (2),
- a new monolithic outdoor kitchen with integrated water filtration and distribution system (3),
- solar-powered showers (4),
- a compost toilet (5),
- a constructed wetland wastewater treatment system (6), and
- an additional rainwater storage tank system (7).

Clean water from these systems ultimately will be used for irrigating a future Mediterranean forest garden (8). All systems were designed to be functional and efficient while also serving as artistic and communicative installations.

A highlight of the project was the creation of the Water Symphony, in which the sustainable water management system is connected to sound microsensors (9). These sensors record wind, water flow, air currents, temperature differences, and other parameters, transforming them into ambient soundscapes through custom-designed software. You can listen to the sound sample at the following link: https://youtu.be/f_Cuwc_jtul

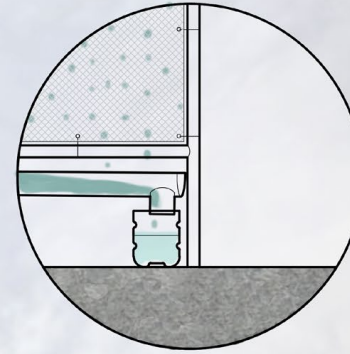


HARVEST PHASE



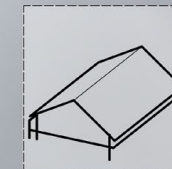
CLOUD COLLECTOR

Cloud collection involves harvesting water from fog and dew using large vertical mesh panels that cause droplets to condense and flow down into a trough below. This setup, often called a fog fence, fog collector, or fog net, works by condensation: atmospheric water vapour condenses on cool surfaces into liquid droplets. The phenomenon is easily observed on thin, exposed objects such as leaves and blades of grass. As surfaces cool by radiating heat to the sky, moisture condenses faster than it can evaporate, creating droplets. In our system, water condenses on an array of parallel wires, flows down, and is collected at the bottom. The process requires no external energy and relies on natural temperature changes, making it an ideal solution for remote or resource-limited areas.



Water Symphony microsensor

ROOF DRAIN

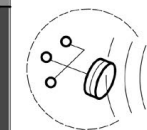
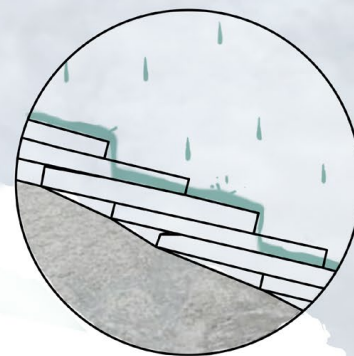


We also utilised 48 m² of roof area to collect rainwater for the cistern. Water is caught at the eaves in metal gutters, collected, and directed via downpipes into the storage system.



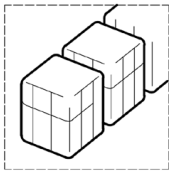
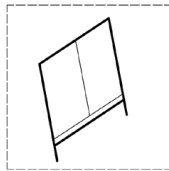
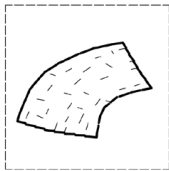
STONE SLATE DRAIN

All cisterns require clean catchment surfaces to collect and direct rainwater. Traditionally in the Mediterranean, amphitheatre-shaped surfaces were built atop slopes, paved with stone slabs, allowing rainwater to flow naturally into the cistern. These surfaces are called *naplovi* and form an important part of traditional architectural heritage, securing household water supplies. At our site, we restored one such surface using traditional paving methods, creating a 40 m² rainwater catchment feeding directly into the cistern.



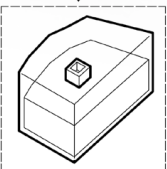
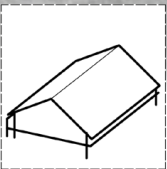
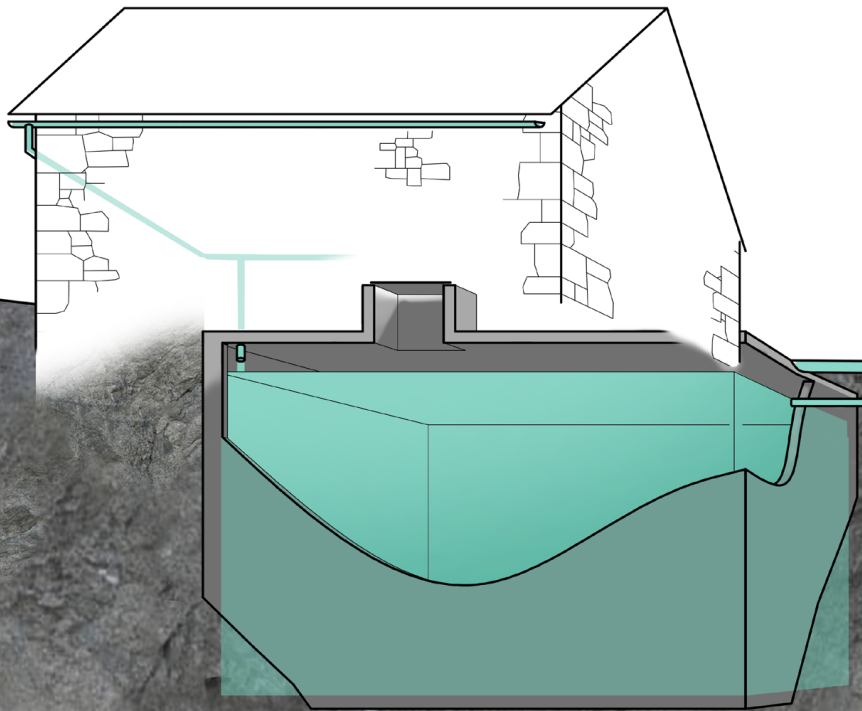
Water Symphony microsensor

STORAGE PHASE



IBC TANKS

For technical water storage, we used IBC tanks. These receive water from the cistern overflow and, to a lesser extent, from the stone slate drain. Each tank holds 1,000 litres, and we connected five in a gravity-fed overflow system. The tanks are shaded to prevent algae growth, which can occur when plastic containers are exposed to direct sunlight. The 5,000 litres stored are used for maintaining small agricultural plots and the Mediterranean forest garden.



CISTERN

Stone-built rainwater cisterns are among the oldest technological solutions in Mediterranean towns, where water scarcity was a constant challenge. Before their construction, water was sourced from springs, wells, or ponds.

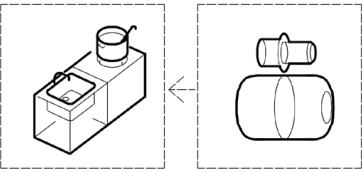
Large-scale cistern building in rural Dalmatia began only in the 19th century. These cisterns were dug into the ground or partially hewn into bedrock. Interior walls were lined with dressed stone set in lime-and-sand mortar, then plastered with lime mortar and whitewashed with slaked lime – both to seal the structure and to disinfect the stored water.

At our site, such a cistern using traditional methods was reconstructed by ISSA while we connected it to the circular water system.



CONSUMPTION PHASE

OUTDOOR KITCHEN, FILTERING & SINK

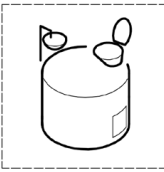
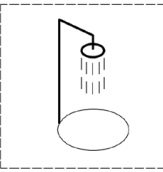


As part of the distribution system, we built a stone-and-concrete outdoor kitchen element with a deep sink. Beneath the sink is a small plant room – the heart of the estate’s water distribution network.

Water is pumped from the cistern via a hydrophore system with an integrated pump and pressure tank, powered by electricity from the solar plant. After passing through a sediment trap or pre-filter, the water is pressurised and filtered through standard mechanical filters (string-wound and activated carbon). If necessary, a UV filter can be added to neutralise microorganisms.

Filtered water is distributed under pressure to all outlets – heaters, taps, and showers.

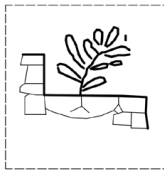
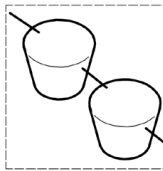
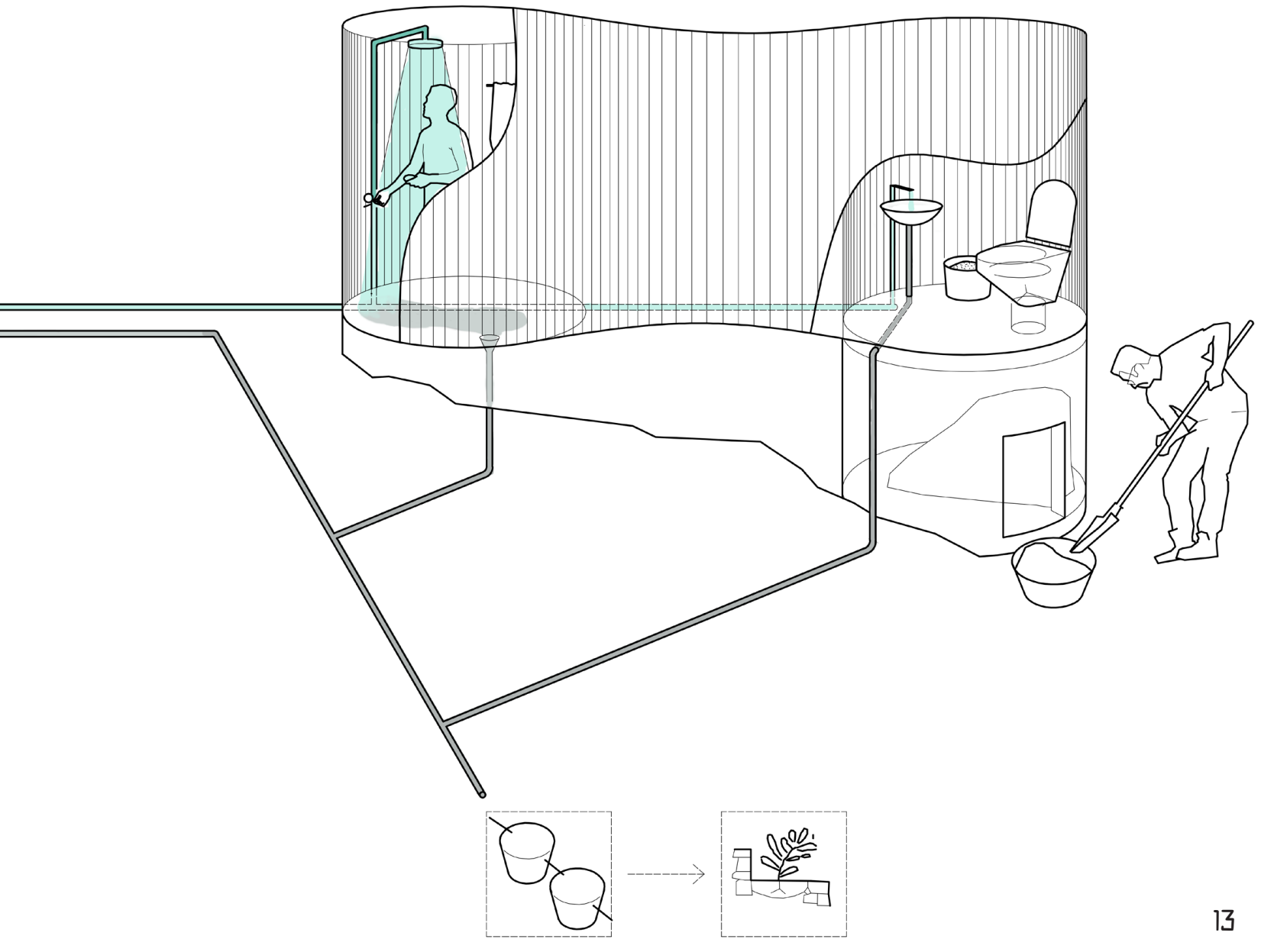
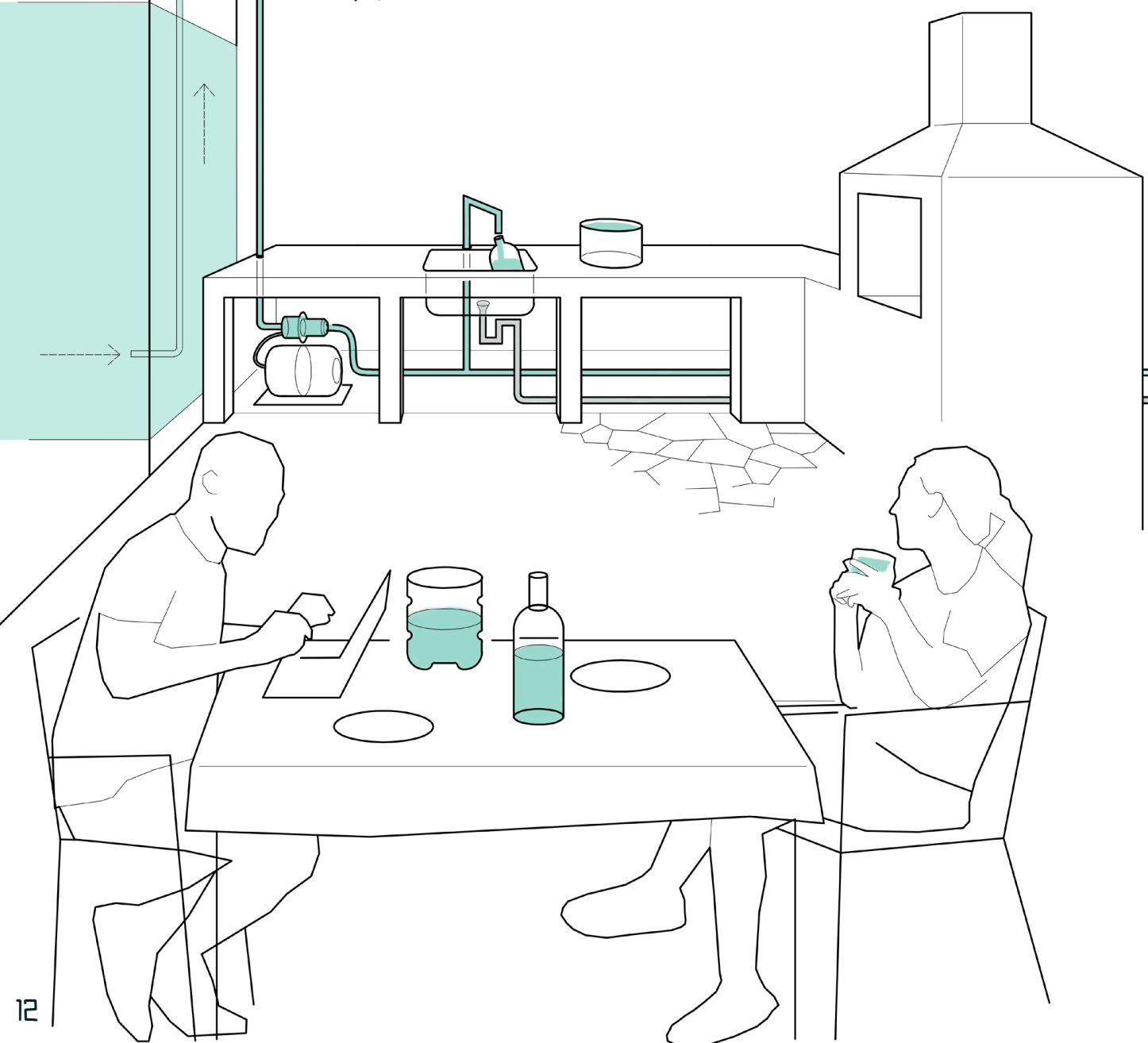
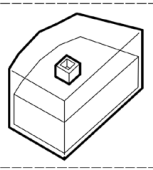
PASSIVE SOLAR SHOWER / SINK



A passive solar shower heats water using only solar energy, relying on natural convection for circulation, without pumps or mechanical components.

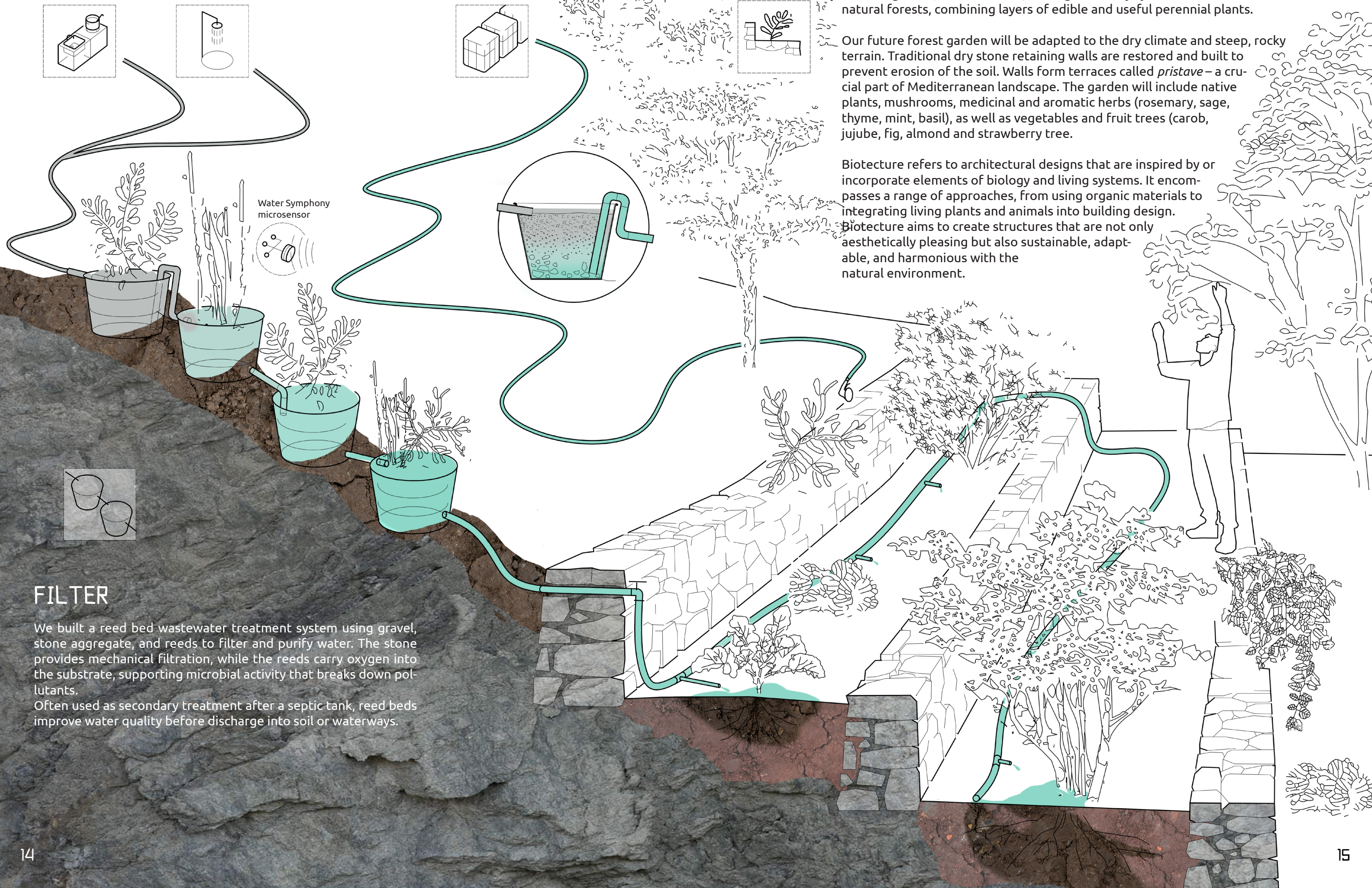
Our dry composting toilet processes waste through natural aerobic decomposition, producing a humus-like material. Maintaining a proper carbon-to-nitrogen ratio is essential, with sawdust providing the carbon component.

The toilet features drainage, ventilation, and a humus culture to speed decomposition. Some models separate urine; ours does not. Composting toilets save water, require no sewage connection, and produce no wastewater.



FILTERING PHASE

MEDITERRANEAN FOREST GARDEN & BIOTECHTURE



A forest garden, or food forest, is an agroforestry system modelled after natural forests, combining layers of edible and useful perennial plants.

Our future forest garden will be adapted to the dry climate and steep, rocky terrain. Traditional dry stone retaining walls are restored and built to prevent erosion of the soil. Walls form terraces called *pristave* – a crucial part of Mediterranean landscape. The garden will include native plants, mushrooms, medicinal and aromatic herbs (rosemary, sage, thyme, mint, basil), as well as vegetables and fruit trees (carob, jujube, fig, almond and strawberry tree).

Biotechture refers to architectural designs that are inspired by or incorporate elements of biology and living systems. It encompasses a range of approaches, from using organic materials to integrating living plants and animals into building design.

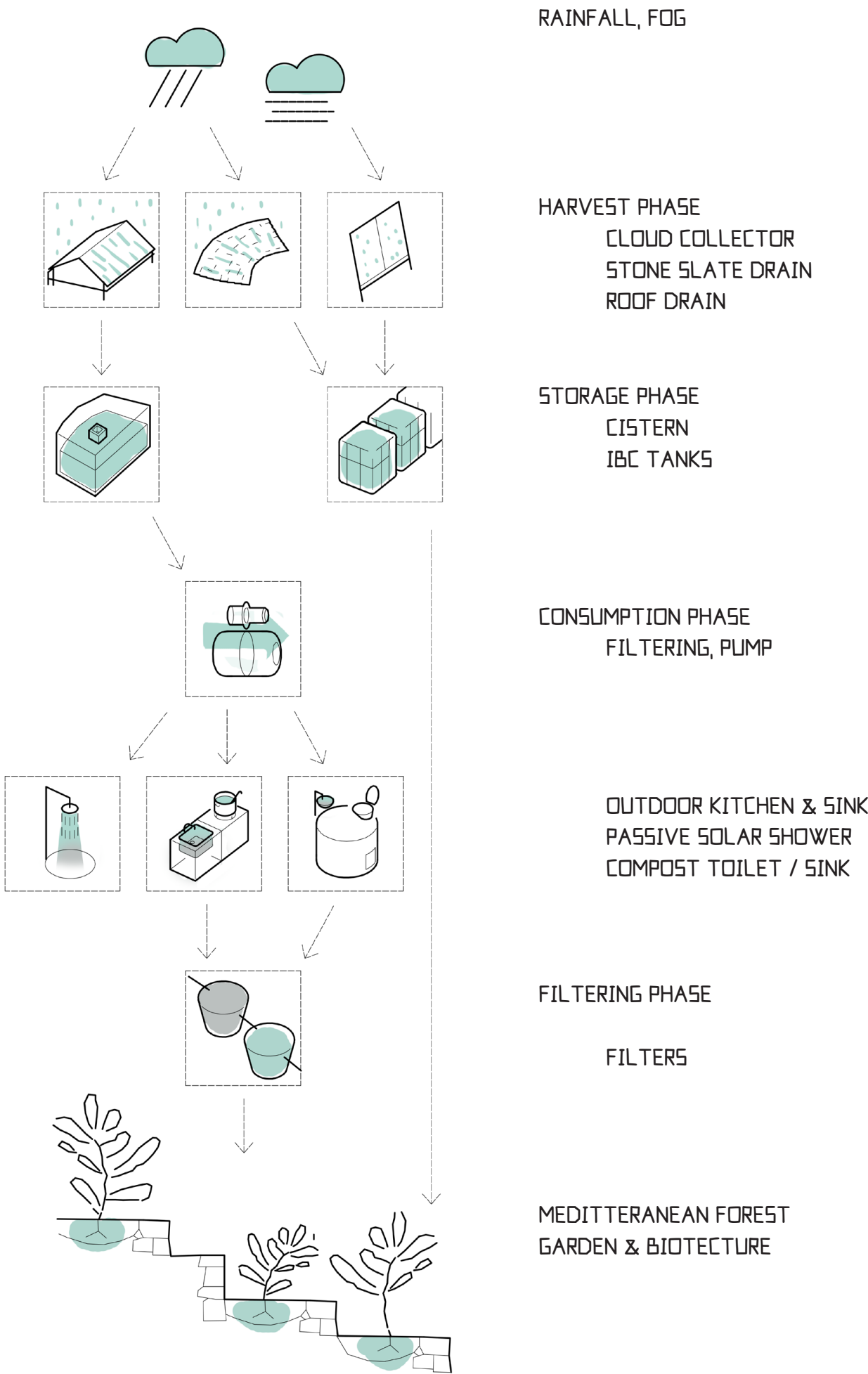
Biotechture aims to create structures that are not only aesthetically pleasing but also sustainable, adaptable, and harmonious with the natural environment.

FILTER

We built a reed bed wastewater treatment system using gravel, stone aggregate, and reeds to filter and purify water. The stone provides mechanical filtration, while the reeds carry oxygen into the substrate, supporting microbial activity that breaks down pollutants.

Often used as secondary treatment after a septic tank, reed beds improve water quality before discharge into soil or waterways.

PHASES SUMMARY



ARTIST IN RESIDENCE

Matko Šišak

Field of work: permaculture design, education, construction & land art. Builder, artist, and permaculture designer. Founder and manager of the Vu-komerić Recycled Estate and co-founder of ZMAG. For over 25 years, he has researched, practiced, and promoted ecological technologies in construction, DIY culture, land art, and permaculture. He has participated in the construction of around 50 natural buildings of various types and purposes. As an educator, advisor, and mentor, he regularly shares knowledge with both the general public and professionals. Author of several publications and editor of numerous books in the Zeleni alati series. Founder and leader of the Academy of Natural Construction and the Convention of Natural Construction. Publications: Building with Straw, Manual for Permaculture Design, Energy for the Future.

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