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Basic Project Info

Title: **Demonstration of water loops with innovative regenerative business models for the Mediterranean region**

Acronym: **HYDROUSA**

CIRC-02-2016-2017: **Water in the context of the circular economy**

Innovation Action

Total budget: €12,015,448.75; EC contribution: €9,958,706.88

Duration: **54 months**

Start date: **01/07/2018**

Number of partners: **27**

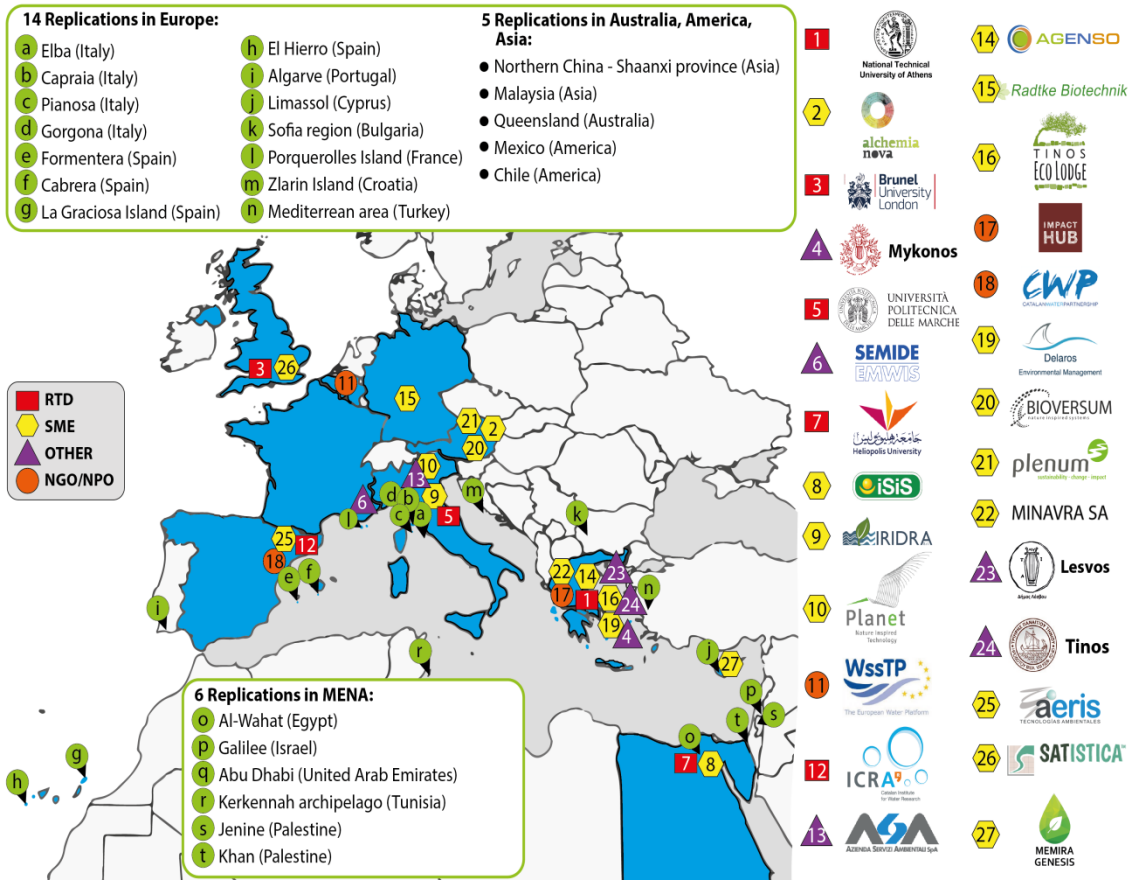

***Figure 1**. Country map of participants*

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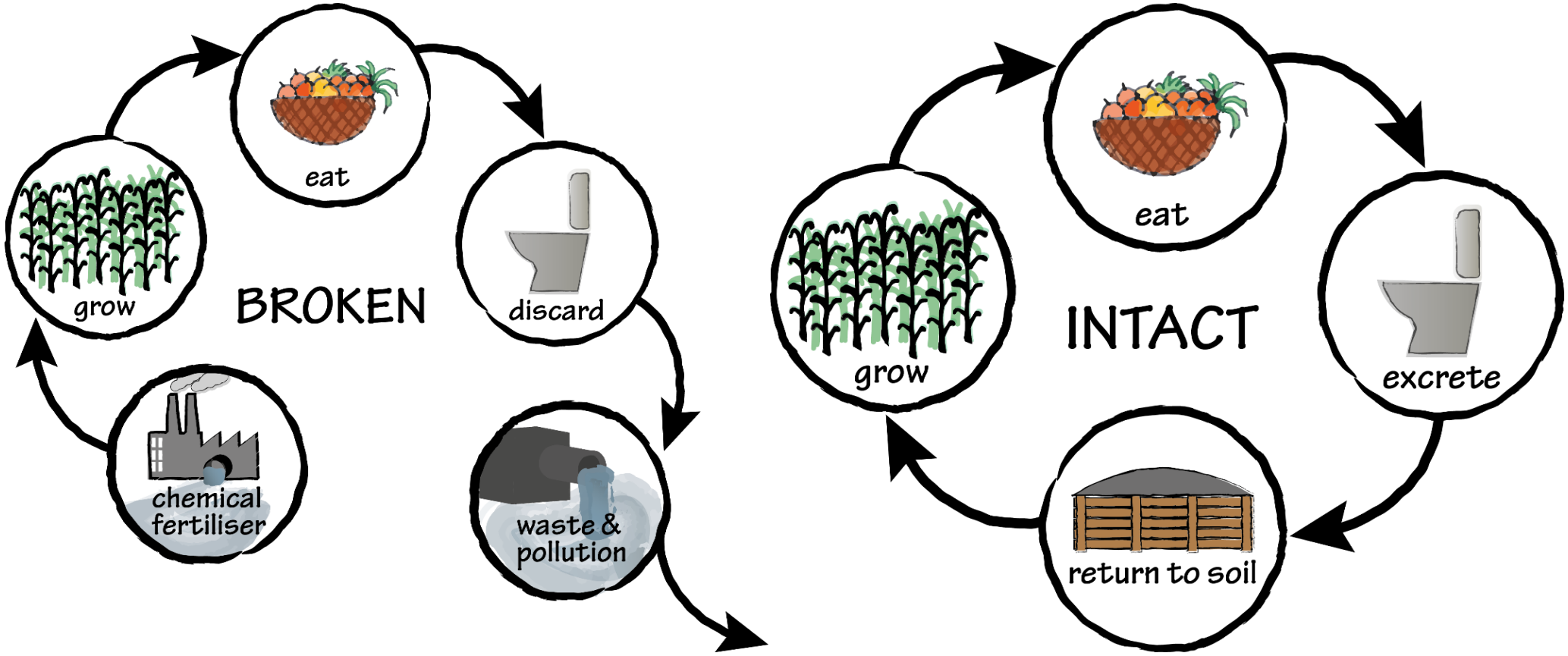
Existing versus HYDROUSA chains



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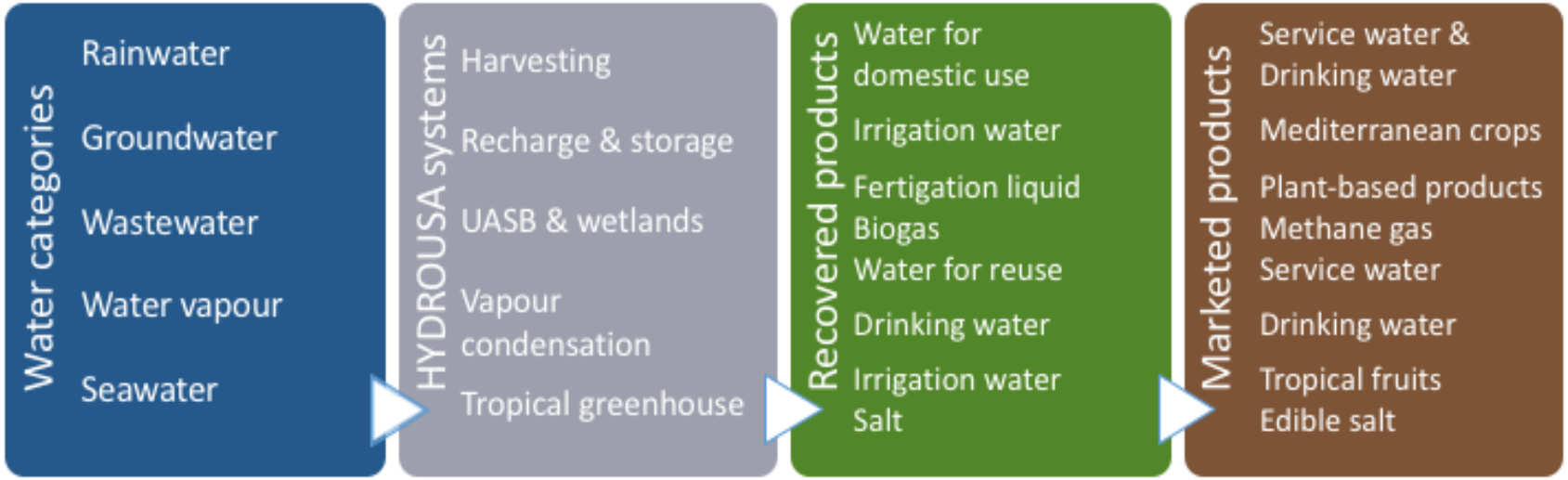
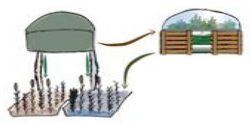
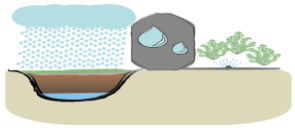
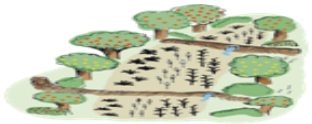
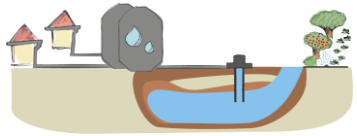
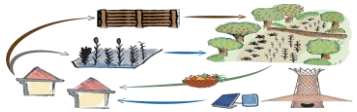
HYDROUSA Concept



- Demonstrate the feasibility of **innovative, nature based technologies** to **recover** and **preserve** valuable materials and energy from different types of water
- Demonstrate innovative supply chain within the concept of the circular economy
- **Decrease water acquisition cost**

- Applicability in **coastal areas** and in **islands,** particularly suitable for medium-small and decentralized regions
- Integrating within the supply chain **citizen and farmer** based **activities**
- Promote **novel agricultural practices and precision irrigation** within the water-food-energy nexus

Nature-based solutions for Smart water management in MED areas

Site	Scheme	Specification	Issue Solved
HYDRO1, Lesvos		Anaerobic treatment & sludge composting, water reuse, biogas production	No wastewater discharge in the sea; cheaper production of reclaimed water; increasing water supply; recycling nutrients
HYDRO2, Lesvos		Irrigation of agroforestry system with nutrient-rich reclaimed water	Wastewater use for fertigation; no fertilizer import; product diversity; creating resilient ecosystems
HYDRO3, Mykonos		Remote rainwater harvesting system and irrigation of oregano	Cheap water supply in remote areas; create business case with little input
HYDRO4, Mykonos		Domestic rainwater harvesting, aquifer storage and watering of local crops	Increase water supply; production of drinking water; aquifer recharge to reduce saltwater intrusion
HYDRO5, Tinos		Seawater and brine treatment to recover salt and water, produce tropical fruits	Produce sweet water from saltwater/brine; decrease import of tropical fruits; salt production
HYDRO6, Tinos		Water loops in eco-tourist facility	Ecotourist facilities which are self sufficient in terms of water, energy and food production

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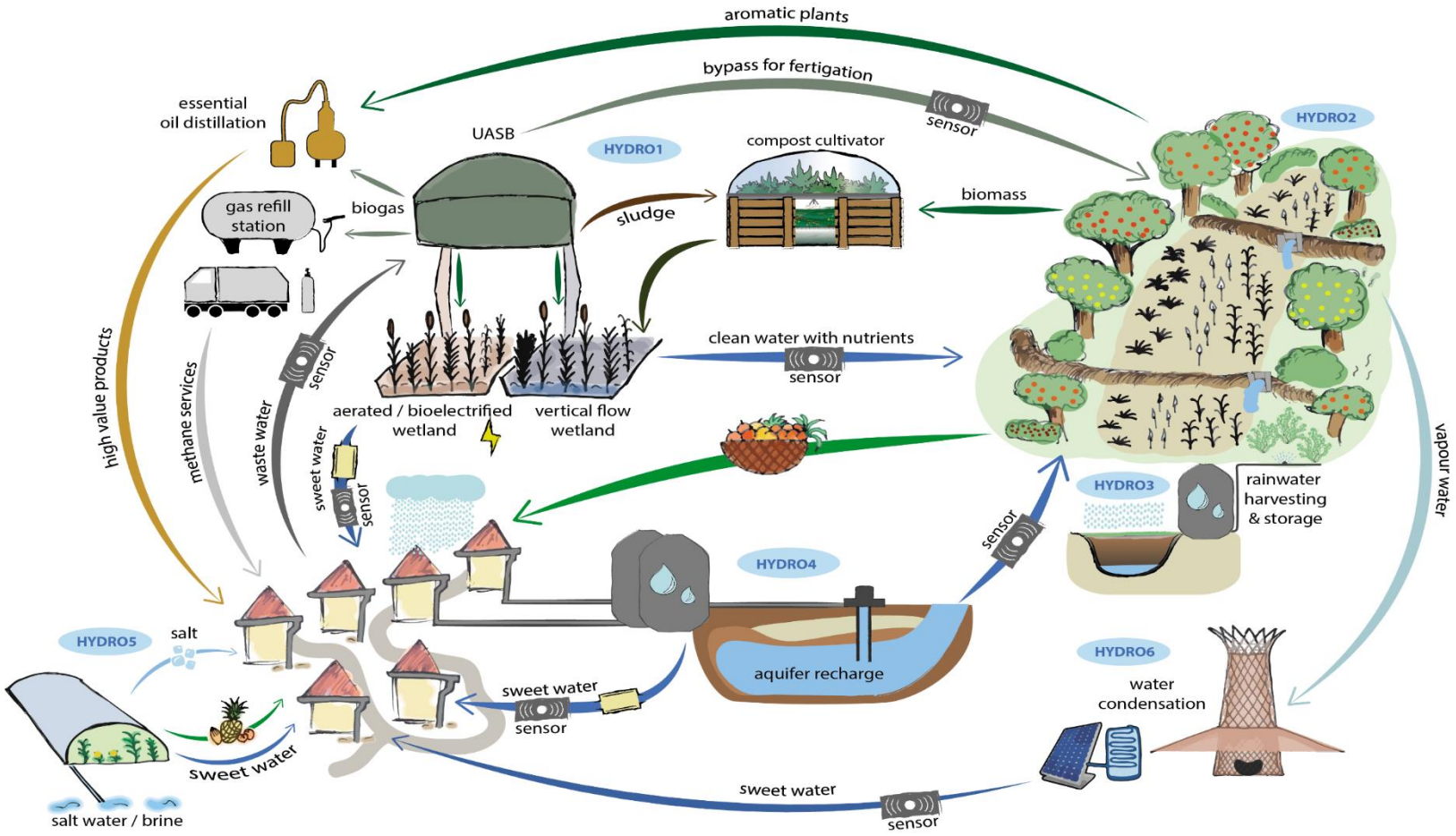
Closing all water loops within the project



Conventional systems	HYDROUSA approach
➢**Water extraction** from ground or surface water resources	✓**Wastewater** use as **valuable water source**; **water stored in aquifers**; **rainwater harvested and used**; **vapour water captured and used**
➢**Fertiliser imports** from non-European countries for use in agriculture	✓**Nutrients** in wastewater used in **fertigation regime**
➢**Fresh water production** in isolated areas often with **energy-intensive reverse osmosis**	✓**Solar desalination**, water condensation **from air humidity, tropical fruit** and **salt production**
➢**Storm water** needs to be **drained away from sealed surfaces**	✓**Storm water** after treatment used as **freshwater** or stored as groundwater
➢**Conventional WWTPs** have **high energy footprint** due to aeration requirements	✓Take advantage of plants to depollute wastewater through engineering CWs; **implement anaerobic treatment solutions**
➢**Supply chain** in water industry **involves many intermediates** decreasing the profit margin	✓**Create local circular supply chain** minimising the number of intermediates
➢**Exploitation** is targeted towards maximising benefits for **large companies** in **centralised systems**	✓**Dual exploitation** of untapped resources benefits **water companies, local organisations** and **SMEs** through **decentralisation**

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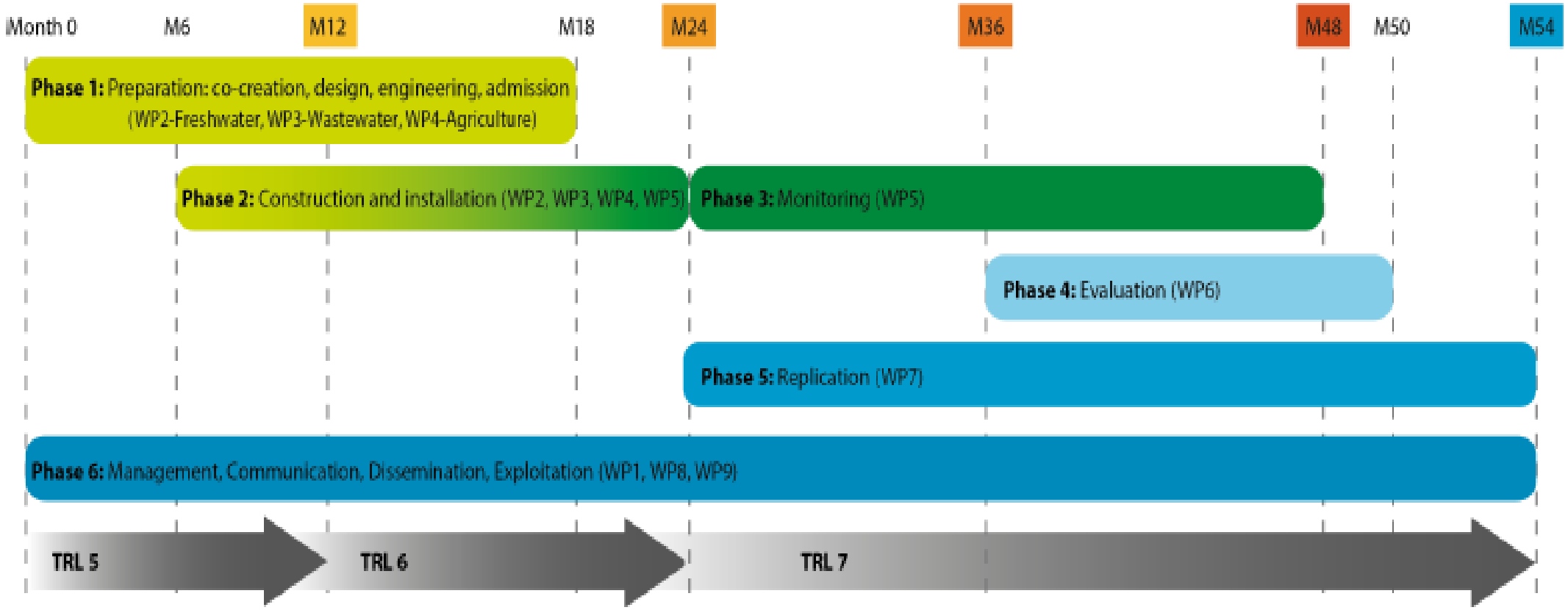
How it will be achieved?



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After that?

Build a Water-Resilient Economy

- Create Jobs
- Build Green Infrastructures
- Market Development

Mitigate Climate Change

- Sequester Carbon
- Rebuild Flourishing Ecosystems
- Turn a Problem into a Solution

Reimagine the Food System

- Rearrange Local Food Production
- Zero km Farming
- Establish Diversity as Commons