



The WeTreat Project: Advancing Wetland-Based Solutions for Micropollutant Removal in Wastewater Treatment

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INTRODUCTION

Micropollutants (MPs), including pharmaceuticals, pesticides, and industrial chemicals, are emerging contaminants that persist in aquatic ecosystems, posing risks to biodiversity and human health. Conventional wastewater treatment plants (WWTPs) often fail to effectively remove these compounds, leading to their accumulation in water bodies. Constructed wetlands (CWs) offer a promising, nature-based alternative by harnessing plant-microbe interactions to degrade and sequester pollutants. However, optimizing CW efficiency requires selecting plant species with high MP uptake and metabolic transformation capacities.



Fig. 1. Constructed wetlands for the post-treatment of WWTP effluent: 1) Bufferditch; 2) Distribution ditch; 3) Surface flow constructed wetland with common reed; 4) Swamp Forest; 5) Surface flow constructed wetland without plants; 6) Stream restoration.

OBJECTIVES

- Optimising in vitro Propagation While Preserving Genetic Diversity for MP Bioremediation
- Detailed Plant Health Impact Studies
- In-depth Metabolism Analysis
- Enhanced MP Removal from Treated WWTP Effluent
- Mitigation of MP discharge to Aquatic Ecosystems
- Stakeholder-Centric Technological Advancements Knowledge Sharing and Training
- Economic and Social Impact of MP Removal

CONSORTIUM

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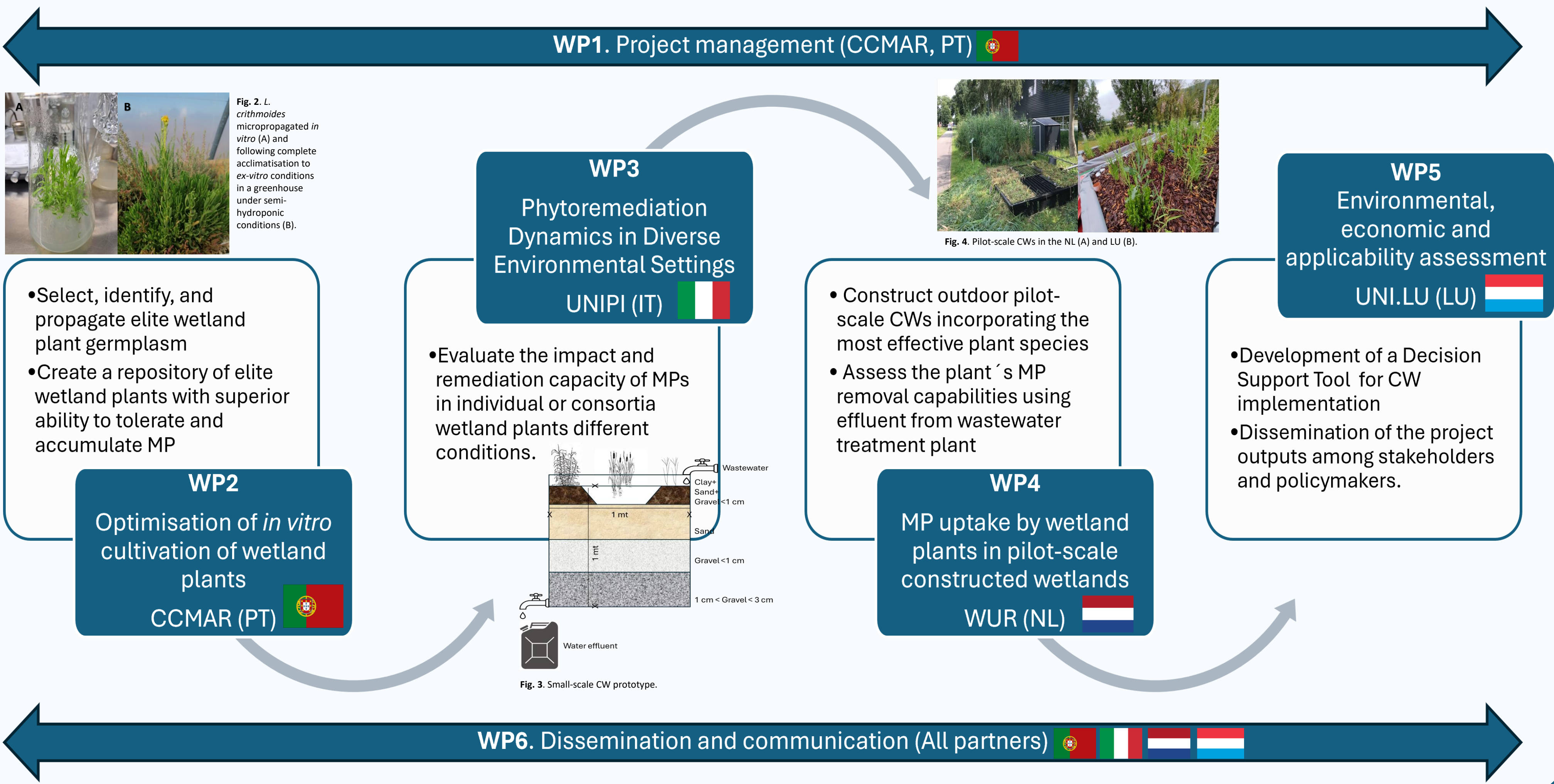
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EXPECTED IMPACT

- Efficient Propagation of Elite Wetland Plant Varieties
- Comprehensive Understanding of Micropollutant Uptake and Effects on Plant Health
- Optimised Constructed Wetland Systems Using Native Plants
- Development of Sustainable and Environmentally Friendly Micropollutant Treatment Solutions
- Promote Ecological and Environmental Health
- Enhanced Information Dissemination and Capacity Building
- Socioeconomic Impact Assessment of Optimized Systems

WORK PACKAGES



CONCLUSIONS

By advancing plant-based phytoremediation strategies, WeTreat contributes to the development of sustainable wastewater treatment solutions that improve water quality, mitigate MP pollution, and support biodiversity conservation. Our findings will inform best practices for CW implementation, providing a cost-effective and environmentally friendly approach to water purification while enhancing climate resilience in aquatic environments.



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