Nature-based solutions for resilient landscapes

Research expertise, living labs and advanced analytical infrastructure for HORIZON-NATURE-2027-01-01

Czech University of Life Sciences Prague (CZU) is seeking an active coordinator and consortium for HORIZON-NATURE-2027-01-01.

CZU brings an integrated offer spanning nature-based water treatment, urban green infrastructure, agro-ecosystems, contaminant fate, PFAS analytics, field validation and environmental monitoring.

OUR EXPERTISE FOR THE PROJECT

WETLANDS & WATER

Constructed wetlands for wastewater treatment; natural wetlands for nutrient cycling; ecosystem services and biodiversity. Expertise is available through the Wetland Group led by Professor Jan Vymazal.

URBAN GREEN INFRASTRUCTURE

Green roofs and green walls, including ecosystem services, biodiversity, water retention and performance monitoring in real operating conditions.

AGRO-ECOSYSTEMS

Conventional and experimental agro-ecosystems suitable for testing nature-based solutions, landscape measures and interactions among soil, water, plants and management.

CONTAMINANTS & PFAS

Fate of organic micropollutants in full-scale systems and experimental models, complemented by advanced PFAS analysis in water, plants and solid matrices.

HOW CZU CAN CONTRIBUTE

CO-DESIGN

Scientific leadership or task leadership in work packages on nature-based solutions, water quality, biodiversity and contaminant monitoring.

DEMONSTRATE

Pilot implementation and validation across campus, farm and operational wetland environments, from controlled models to full-scale systems.

MEASURE IMPACT

Integrated assessment of treatment performance, micropollutants, PFAS, greenhouse-gas emissions, ecosystem services and biodiversity.

CZU RESEARCH INFRASTRUCTURE READY FOR PILOTS

LIVING LABS AND FIELD INFRASTRUCTURE

CZU CAMPUS LIVING LAB	Pavilion of Environmental Sciences with green roofs and green walls, greywater and rainwater recycling, and a permeable green parking area with water collection tanks for reuse. The systems are sensor-equipped and frequently monitored for water quality, including PFAS. View infrastructure profile
AMÁLIE PILOT FARM	A major off-campus research and agricultural site operated by CZU as a real-world testing ground for the Smart Landscape concept. View infrastructure profile
FULL-SCALE CONSTRUCTED WETLANDS	Access to operational constructed wetlands treating municipal wastewater and agricultural drainage, with regular monitoring and opportunities for field-based validation.

ANALYTICAL AND MONITORING CAPABILITIES

PFAS: LC-MS/MS	More than 50 analytes, including linear and branched isomers and short-chain substances such as TFA.
PFAS: complementary methods	GC-MS/MS for volatile PFAS; total oxidizable precursor assay (TOP assay); adsorbable organic fluorine (AOF) by combustion ion chromatography (CIC).
Wastewater characterization	Complete standard physicochemical analysis for wastewater and treatment-performance assessment.
Greenhouse-gas emissions	In-situ greenhouse-gas measurements using portable gas analyzers.

WHY PARTNER WITH CZU

- **Integrated research chain:** laboratory and experimental models, living labs, pilot farm and full-scale operational systems.
- **Strong project fit:** nature-based solutions, water and nutrient cycles, urban greening, agro-ecosystems, biodiversity and pollution monitoring.
- **Implementation focus:** capacity to generate comparable evidence on performance, environmental impacts and replication potential across European sites.

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Consortium contribution can be tailored to the final topic scope, work-package structure and pilot-site needs.