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Poster · September 2023

DOI: 10.13140/RG.2.2.12685.10724

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NATURELAB approach to Nature Based Solutions & Resilient Communities



Ana Estela Barbosa
aestela@lnec.pt



Margarida Rebelo
mrebelo@lnec.pt

Introduction

The NATURELAB project started in June 2023 and has a total of 54 months of duration. It proposes an **integrative and innovative approach to contribute to resilient communities with a focus on health and care prevention**. The project **enhances and expands the green and blue area's benefits** – as resilience to climate change, the promotion of biodiversity and urban water management – **and links all to Health and Societal Pillars** (cf. Fig 1). The consortium **closely works with key stakeholders** (medical, healthcare, social and educational sectors, municipalities, NGOs) **and communities, providing solutions to improve health and well-being and promoting the protection of biodiversity and sustainability of rural, coastal, and urban regions**.

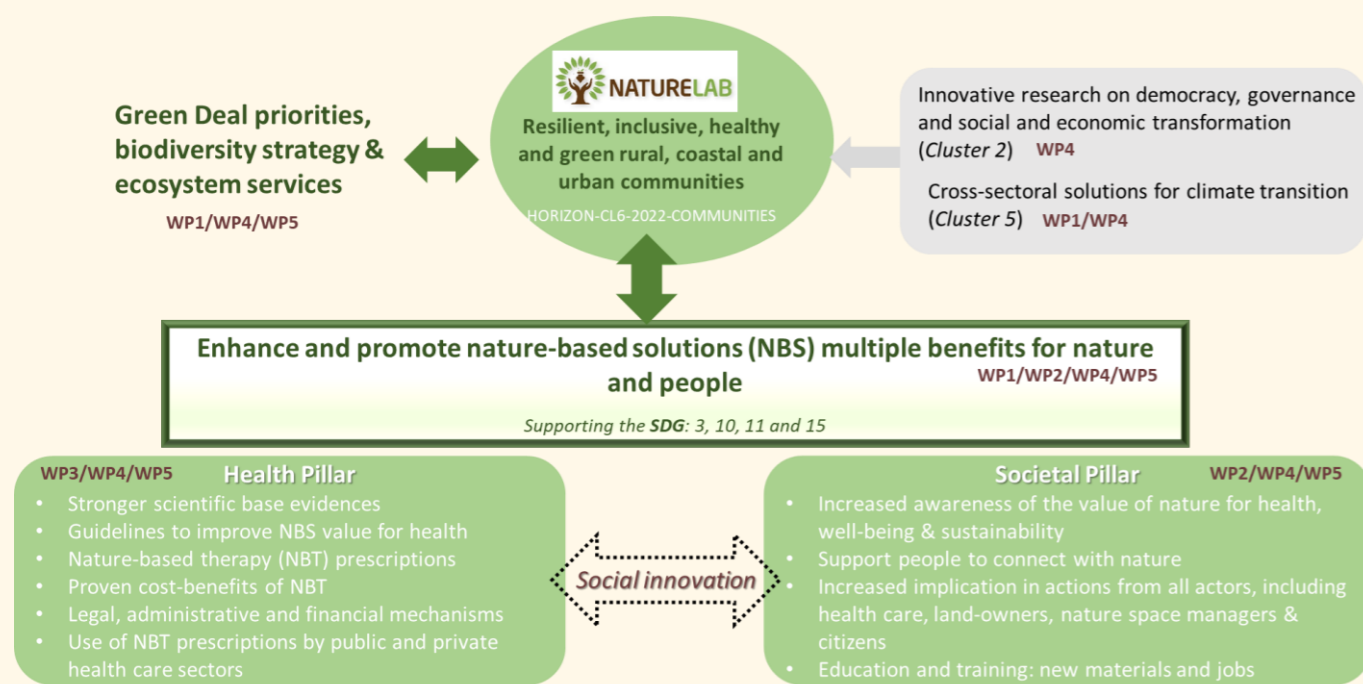


Figure 1 – NATURELAB context and pillars to support global benefits of NBS for nature and human beings.

Objectives

The location of the Experimental Sites (ES) was chosen to represent diverse climate and geographic settings, biodiversity and socio-cultural contexts. NATURELAB established a framework of nature and nature-based activities that are more likely to be used by urban populations and have a high potential to support health and well-being. **NATURELAB will specifically focus on nature exposure** and people's experiences in nature designed to enhance and promote the global opportunities offered by nature-based solutions (NBS) provided by:

- i) Forests and protected areas
- ii) Urban parks and;
- iii) Horticulture and gardening contexts

The research activities are implemented in five countries - Portugal, Greece, The Netherlands, Germany, and Peru (cf. Fig 2). The evaluation of the nature sites, the therapeutic programme and the assessment model (e.g., instruments and measures, experimental procedure) are tested at a total of 15 Experimental Sites (ES) (cf. Table 1).

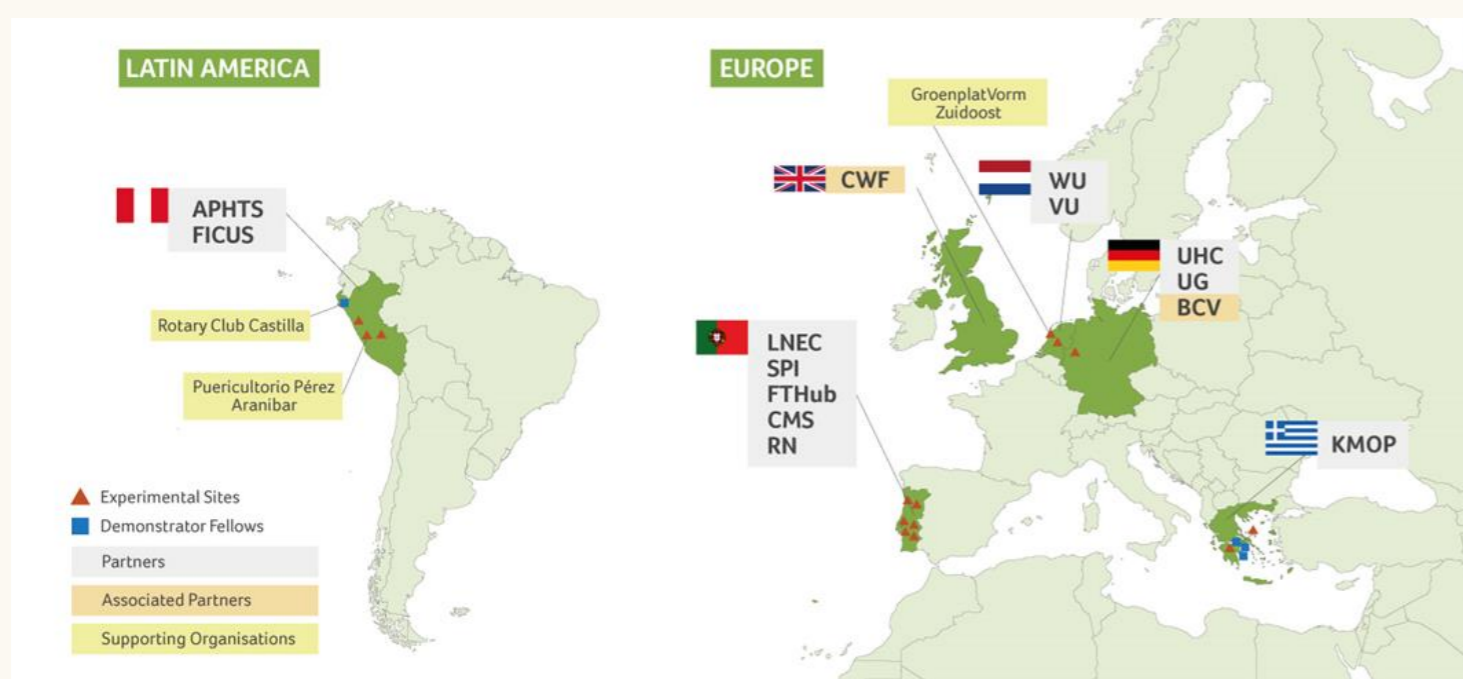


Figure 2 – NATURELAB consortium partners and locations.

Experimental Sites and Participants

Site	Participants	Site	Participants
#1 (PT)	Children, adults, elderly (≥ 200) Health conditions: Disabled and general population	#8 (NL)	General population (≥ 2000)
#2 (PT)	Adults, elderly (≥ 70) Health conditions: Depression, anxiety, work stress-related, and trauma	#9 (DE)	Adults (≥ 70) Health conditions: Obesity (BMI ≥ 30 kg/m ²) overweight (BMI > 28 kg/m ²)
#3 (PT)	Youngsters, adults/ families, elderly (≥ 65) Health conditions: Social isolation, and mobility issues (elderly)	#10 & #11 (EL)	Adults (≥ 50) Health conditions: mental disorders
#4 (PT)	Children attending elementary schools (≥ 80) Health conditions: attention deficit disorder, mental, and physical issues	#12 (EL)	Adults (≥ 30) Health conditions: severe mental disorders
#5 (PT)	Youngsters, elderly (≥ 60) Health conditions: several, including hypertension and depression	#13 (PE)	Institutionalized children 5-17 yrs. Old (≥ 50) Health conditions: Attention deficit disorder, hyperactivity, autism, and trauma.
#6 (PT)	Youngsters, adults, elderly (≥ 330) Health conditions: Hypertension, depression/anxiety, reduced mobility, and dementia (elderly)	#14 (PE)	Adults (≥ 30) Health conditions: Mild mental disorders
#7 (NL)	Adults, elderly, children (≥ 50) Health conditions: migrants (hope-seekers), and dementia	#15 (PE)	Adults (women), children (≥ 60) Health conditions: Bad nutrition, stress, and victims of domestic violence

Table 1 – NATURELAB Experimental sites: participants & health status.

Nature-based therapies (NBT) are scientifically validated programmes that support people to connect with nature in ways designed to respond to their specific needs and expectations.

NATURELAB was designed to gather new scientific evidence from the cross-cutting characterisation of all ES and the analyses of the impact of NBT on the health and well-being of 4,000 participants with distinct health needs. The variety of the ES allows a comprehensive analysis of the best indicators to characterise the healing potential of the blue and green nature areas.



Figure 3 – NATURELAB ES - examples of nature contexts of the Experimental Sites.

Urban Healing Gardens and Horticulture/Gardening spaces are being designed and implemented in Portugal and Peru, aiming at maximizing their potential to serve communities, providing enhanced environmental and health and well-being services. The results will allow NATURELAB to establish an appropriate design for NBS. Hence, the NATURELAB approach represents a step forward in the identification of the most relevant indicators promoting health and well-being, setting pioneering grounds for the management of nature, including NBS and protected areas.

Outcomes

NATURELAB **promotes the sustainable and safe management of water in cities** (e.g., rainfall harvesting to irrigate the garden/horticulture; *in situ* disposal and treatment of stormwater; water reuse/irrigation with reclaimed water), **increasing resilience to climate change**, providing **new sources of food, income, and wellbeing and contributing to urban resilience**.

The project will establish an **innovative portfolio**, rating and ranking nature characteristics according to their potential to contribute to the health and well-being of communities. It will also deliver **guidelines for the sustainable design and management** of healing gardens and horticulture and gardening spaces supported and illustrated by the NATURELAB showcases.

Governance will be addressed, and the results will inspire and guide public and private stakeholders to take on an innovative and comprehensive approach when designing and managing urban green spaces, bringing the concept from research to exploitation.



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