



# LISGREEN - Renatura Fast Forests for Lisbon

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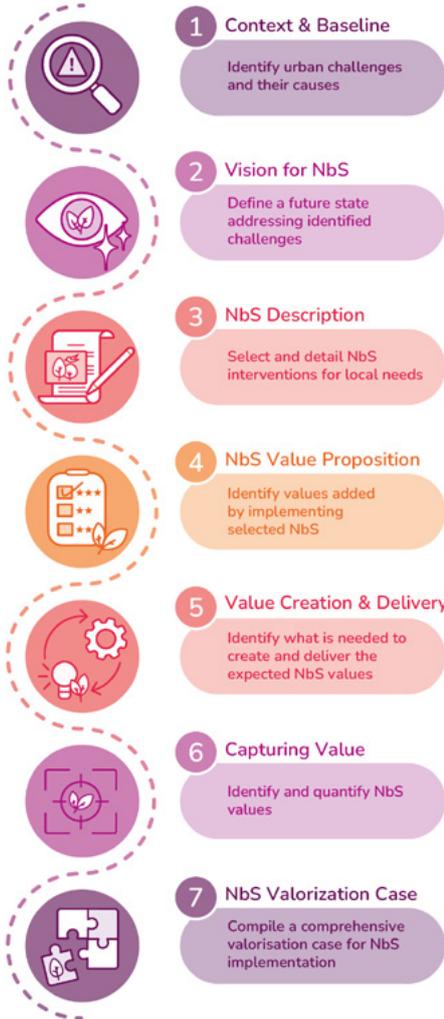
Task: **T5.3**

Location: **Lisbon, Portugal**



## Steps

## Aim



## Background (Step 1)

Since 2000, Lisbon prioritised its climate change adaptation and mitigation strategy and joined international initiatives, like the New Covenant of Mayors, EUROCITIES, ICLEI, and the C40 network. These sustainability efforts helped Lisbon to earn recognition as the European Green Capital in 2020. The Climate Action Plan 2030 (PAC2030) was approved with the aim to make Lisbon a neutral, resilient, and inclusive city and Lisbon committed to climate neutrality by 2030 through the European Mission for Smart and Climate Neutral Cities. In 2023, Lisbon became a mentor city in the Intelligent Cities Challenge, supporting green and digital transitions. Today Lisbon has the Climate City Contract 2030 approved by EC with the Mission Label. In a very summarized way, over the next few pages we present the key points to understand the context in which the natural-based solution is intended to be implemented.



### Long-Term Trends:

- **Climate Change:** Projections indicate fewer precipitation days and increased intense precipitation events, accompanied by strong winds. Rising temperatures and more frequent heatwaves are expected. Sea level rise is other expected scenario with impacts along the Tagus riverfront.
- **Urbanization:** Rapid growth impacts on green spaces and biodiversity.
- **Socioeconomic Disparities:** Economic and cultural inequalities hinder community engagement.

### Institutional and Economic Structures:

- **Municipality of Lisbon:** Central to urban planning and environmental policies.
- **Environmental Agencies:** Enforce regulations and safeguard natural resources at a national scale.
- **Parishes:** Play a crucial, sharing with the Municipality of Lisbon the responsibilities for Lisbon's development.

### Cultural Dynamics and Social Cohesion:

- **Environmental NGOs and Citizens' Groups:** Vital for community engagement.
- **Trust and Participation:** A key factor now is to build trust between residents and authorities.
- **Cultural Diversity:** Enriches neighborhoods but poses important challenges.

### Emerging Sustainable Initiatives in Lisbon:

- Sustainable mobility, urban agriculture, circular economy practices, and nature-based solutions.



### SWOT Analysis:

- **Strengths:** Image change, revitalization, and adaptation to climate change.
- **Weaknesses:** Low acceptance of nature-based solutions (NbS), mental shifts needed.
- **Threats:** Space maintenance, partnership difficulties.
- **Opportunities:** Community awareness, synergies, social inclusion, and healthier lifestyles.

### Geographic and Climatic Factors:

- Geographic and Climatic Factors:
  - Lisbon is situated on the right bank of the Tagus River estuary, influenced by both Atlantic and Mediterranean climates.
  - Summers are hot and dry, with most precipitation occurring between October and April.
  - Hills and valleys play a crucial role in ecological performance and water resources.
- Urban Climate and Urban Heat Island (UHI):
  - Urban morphology affects local climate.
  - The UHI effect impacts comfort, health, energy use, and air quality.
- Demographic and Socioeconomic Dynamics:
  - Lisbon covers 100 sq km, with a high population density.
  - Aging population (23.4% aged 65+) and growing foreign residents.
  - Unemployment concentrates in specific city centre parishes.
  - Economy relies on services and tourism.



- NBS' s implementation Area: Bela Vista Park:
  - Located in Lisbon's Eastern Green Corridor.
  - Bela Vista Park is underutilized and lacks tree shade.
  - This green corridor connects the inner city with denser areas to vast green areas, and already emphasizes NBS.

#### Stakeholders:

- Key Decision-Makers:
  - **CML - Lisbon Municipality:** Coordinates the project and oversees the Green Structure Department.
  - **ICS - University of Lisbon:**
  - **LIFE LUNGS / CML:** present already in the Pilot 1 area.
  - **URBEM (Civil Society Organization):** Co-manages the "Tiny Forest" project with expertise from the Faculty of Science (University of Lisbon).
  - **Society:** all citizens who visit, circulate along the pilot area and others who contribute with ideas, interventions, replications.
- Beneficiaries:
  - **Local Citizens:** Benefit from improved green spaces, enhanced biodiversity, and increased social activation.
  - **Areeiro, Marvila, and Arroios Parishes:** Involved in community engagement and area development.
  - **URBEM (Civil Society Organization):** Receives support and knowledge from the Lisbon Municipality.
- Stakeholders Who Might Experience Drawbacks:
  - **Local Citizens:** Depending on project implementation, residents may face gentrification or changes in neighbourhood dynamics.



- Influence and Interest Levels:
  - High Interest:
    - **CML:** Significantly interested due to alignment with environmental strategy.
    - **Parishes:** High interest in community engagement and development.
  - Moderate Interest:
    - **LIFE LUNGS / CML:** Municipal structure with other priorities.
    - **GEBALIS and SRU:** Manage housing regeneration, moderately interested in green infrastructure.
    - **Projets, programs, and networks:** interest in contributing, disseminating, replicating.
  - Low Interest:
    - **QUERCUS and REGADOR:** Interested in specific aspects but limited overall involvement.
    - **Expert advisers and consultants:** Provide expertise with varying direct involvement.

**Potential Risks:**

- **Gentrification:** Combined green infrastructure and housing regeneration may displace existing residents.
- **Social Disruption:** Changes in neighbourhood dynamics could disrupt social structures.
- **Environmental Impact:** Poorly managed projects may affect biodiversity and ecosystem services.

## Core Vision Statement (Step 2)

**The Municipality of Lisbon aims to be a greener, healthier, and cooler urban environment in 10 years to tackle climate change impacts**, which adds pressure to existing urban challenges and social inequalities. In addition, the city wants to be a role model where communities take care of, protect, and restore urban nature.

The focus is on developing a catalog of nature-based solutions (NbS) and implementing pilot interventions through an inclusive and community-driven approach. To increase and protect biodiversity in Lisbon by August 2024, one NbS pilot intervention uses the fast forest Miyawaki method that promotes the rapid growth of forests.

These forests, packed with native plants, will be dense and diverse, enhancing ecological resilience, and will involve everyone, from local communities to city residents and visitors, municipal services, and environmental experts. The NbS development brings together public and private sectors, the Municipality of Lisbon, parishes, environmental agencies, non-profits, and civil society.

While advocating for nature-based thinking and social inclusion, we want to create a new channel of governance that promotes collaboration between all the actors involved, namely the population impacted by climate change and the local government structures.

## NBS details (Step 3)

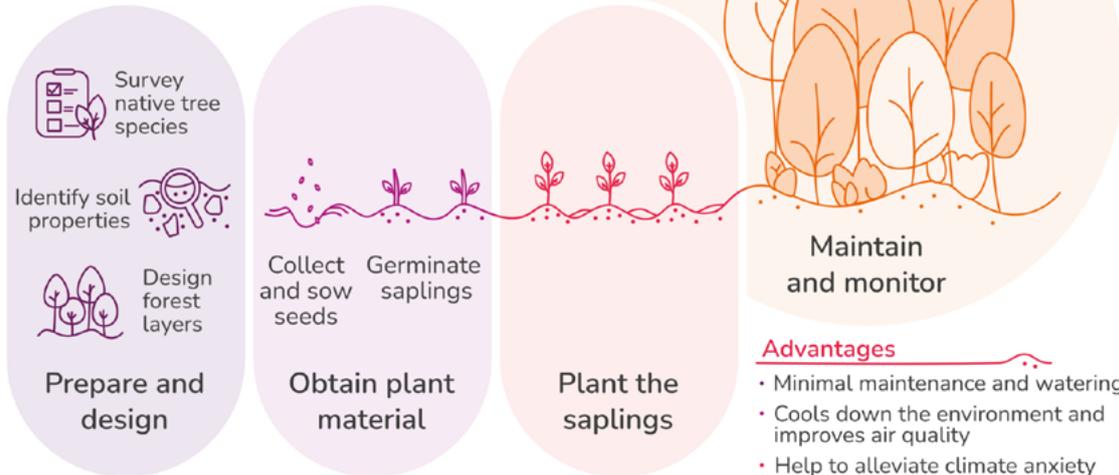
The proposed Nbs, Fast Forest was presented to the CONEXUS team by Urbem, an environmental non-governmental organisation (NGO) established by local citizens.

The proposal was evaluated for alignment with existing solutions in the East Green Corridor, adherence to CONEXUS project specifications, capacity to address site challenges, feasibility within the program timeframe, and the expertise of the proposing team.

In addition, there was consensus among the stakeholders regarding roles and guidelines.

The Miyawaki method, inspired by Japanese botanist Akira Miyawaki, involves planting diverse native species together to create resilient ecosystems. These urban forests have proven to be effective NbS with the ability to create dense forests in communities in little time, making them more resilient to the present climate challenges.

## The Miyawaki Fast Forest



### Some key factors:

#### Synergies to Enhance:

- Increased green spaces improve environmental and social well-being, benefiting the community.
- Enhancing biodiversity through the tiny forest provides ecosystem services like pollination and soil fertility.

#### Value Trade-Offs to Manage:

- Balancing green space with other land uses requires careful planning to avoid conflicts.
- Social inclusive access by different user groups (residents, visitors, wildlife enthusiasts) must be considered.

#### Disvalues to Manage:

- Monitor potential negative impacts on existing ecosystems and wildlife habitats.
- Address risks from introducing non-native species or invasive plants.

#### Potential Values Lost:

- Implementing the fast forest may remove existing vegetation or land use, affecting ecosystem services and cultural values.
- Displacement of existing uses or activities due to the tiny forest may require social and economic adjustments.

## Business Model Canvas (Step 4-5-6)

### Value Proposition • **Environmental Value Proposition:**

The Fast Forest helps absorb rainwater and mitigates runoff, while the increased tree cover reduces air pollution by absorbing carbon dioxide and other pollutants. Planting trees combats the heat island effect by providing shade and cooling the surrounding area.

### • **Social Value Proposition:**

The Fast Forest creates a new accessible green space for residents, fostering recreation, relaxation, and connection with nature, contributing to a healthier and happier community. It serves as a gathering place for community events, promoting social interaction, and cohesion.

### • **Health Value Proposition:**

Spending time in nature reduces stress and improves mental well-being. The Fast Forest encourages outdoor activities, promoting physical health, while the planted trees improve air quality, which benefits respiratory health.

### • **Economic Value Proposition:**

A greener neighborhood attracts businesses and investment, supporting local economic development. At the same time, the presence of a Fast Forest enhances property values.

### Key Activities

- Meticulous planning, execution, and ongoing management and monitoring of the Fast Forest.
- The proper selection and procurement of local plant species, soil preparation, planting, watering, and short-term and long-term maintenance to ensure the forest's viability.
- Community engagement and collaboration to guarantee a sense of ownership and sustainability of the project.
- Effective communication and marketing strategies for disseminating information about the project's benefits and garnering support from diverse stakeholders.

### Key Resources

- Securing suitable land is foundational.
- Expertise in forestry, landscaping, and ecological restoration is indispensable for proficient project execution.
- Adequate financial resources are vital for initial investments and sustained management of the Fast Forest.
- Good communication between all stakeholders, including local authorities, NGOs, residents, city's population, and experts.
- Access to water in the first three years

### Key Partners

- CML - Lisbon Municipality: Department of Environment, Energy, and Climate Change/ Municipal Directorate for Green Structure, Climate, and Energy; Green Structure Department; Financial Department; Communication Department; Transportation Division; International Relations Department;
- URBEM, ONG;
- Civil society - residents, volunteers

### Key Beneficiaries

- CML gains valuable insights and learnings from its experience of co-management and co-planning of a green area with a civil society organization.
- Residents derive tangible benefits from the improved environmental quality, aesthetics, and recreational opportunities the Fast Forest offers.
- Wildlife and ecosystems within and adjacent to the Fast Forest benefit from habitat restoration, increased biodiversity, and ecosystem services, contributing to overall ecological integrity and resilience.
- Future generations inherit a legacy of a healthier, more resilient urban environment, fostering intergenerational equity and stewardship.
- Environmental organizations and NGOs gain from successfully implementing the NbS, furthering their sustainability and biodiversity conservation mission.
- Community and followers

### Governance

Considering the CML's siloed structure, the co-design and co-management of an NbS with a partner from civil society needs a collaborative governance approach.

At the start, actors' responsibilities must be defined, and a transparent and fast decision-making mechanism must be set up

The governance approach requires collaboration, co-decision and flexibility, multi-sectoral engagement, polycentric decision-making, and adaptability.

Ideally, this collaborative governance would start with a fundamental shift in mindset and organizational culture, transitioning from siloed decision-making to more horizontal and polycentric decision making involving civil society organizations, private sector entities, academic institutions, and community groups, with each actor contributing with their unique expertise.

The sustainability of a project like the co-design and co-management of this kind of NbS with an NGO requires an adaptive governance, allowing adjustments to NbS strategies over time in response to evolving urban ecosystems and social needs.

**Cost Structure**

- The **Planning Costs** included: soil quality assessment, biodiversity survey, topographical analysis, community meetings, workshops, and campaigns to involve residents.
- The **Capital Investment Costs** included: soil preparation (clearing the area and preparing the soil for planting trees and vegetation), tree planting (procuring saplings or seeds transportation, planting and ensuring proper conditions for optimal growth), watering and irrigation systems, especially during the establishment phase.
- The **Operation Costs** included: regular maintenance activities, such as watering, weeding, pruning, and pest control; hiring and training staff responsible for ongoing maintenance tasks, community engagement, and monitoring activities and implementing monitoring mechanisms to assess the performance and impact of the Fast Forest over time, including tracking biodiversity, air quality, and community satisfaction.
- The **Monitoring Costs** included: measurement of the intervention using specific KPIs (key performance indicators)

**Cost Reduction**

Highlight the importance of public health and environment, Social Inclusion, Democracy and Cultural Impact, resources efficiency and the importance of the ecosystem services and the guarantee of local biodiversity.

**Capturing Value**

Guarantee identity, value and maintain the continuity of the ecosystem. Reduce the carbon footprint.



## Lessons Learned:

### The valorization guide presents an extensive catalog of methods and tools for each step.

For us, it was essential to carefully read the task checklist for each step and adapt it to our context/ case (e.g., human resources for each phase; location).

Drawing a scheme with each step and chosen methods and tools at the project start would permit to make the most of each type of instrument, methodology, and meeting while avoid repetition of the proposed tools. Moreover, the maximum amount of information from each analysis for more than one phase when applicable could be extracted.

### Lesson with pilots:

The implementation phase requires the involvement of various local key actors: municipality, local population, decision-makers, and others.

This case study applies the valorization framework outlined in the guide "Capturing the Values and Making the Business Case for Nature-Based Solutions" (Konijnendijk et al., 2024). Tested in Turin, Barcelona, Lisbon, Lima, and Buenos Aires, the methodology provides a systematic approach to assess, communicate, and leverage the environmental, economic, social, and health benefits of NbS, ultimately supporting their implementation.

#### Reference:

Konijnendijk, C., Di Cagno, F., Borelli, S., Wild, T. (2024). Capturing the Values and Making the Business Case for Nature-Based Solutions: A Step-by-Step Guide. Deliverable 5.3, H2020 CONEXUS project.



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Once the challenge has been defined, maintenance and monitoring need to be ensured as well as communication on the NbS intervention, why, and how they can contribute to the success of the implementation.

The two different case studies, selected by Lisbon municipality, a consolidated urban area and a green space in consolidation, allow testing and implementing solutions, promoting participation, training and the replication and scalability of new solutions, with the identification of the methodology to follow, barriers to overcome, and strengths to leverage.

### All lessons learned should be part of a catalog of solutions, which should include a regulation and a partnership proposal to ensure continuity, replication and scalability agreements.

A successful policy and strategy requires that all lessons learned associated with case studies are aligned with each other to ensure cities' leadership in combating climate change or any other disruptive event.



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