

NBSINFRA



Innovating Smart Cities Resilience through Research and Best Practices: Panel 1 “Foundations of Smart City Security”

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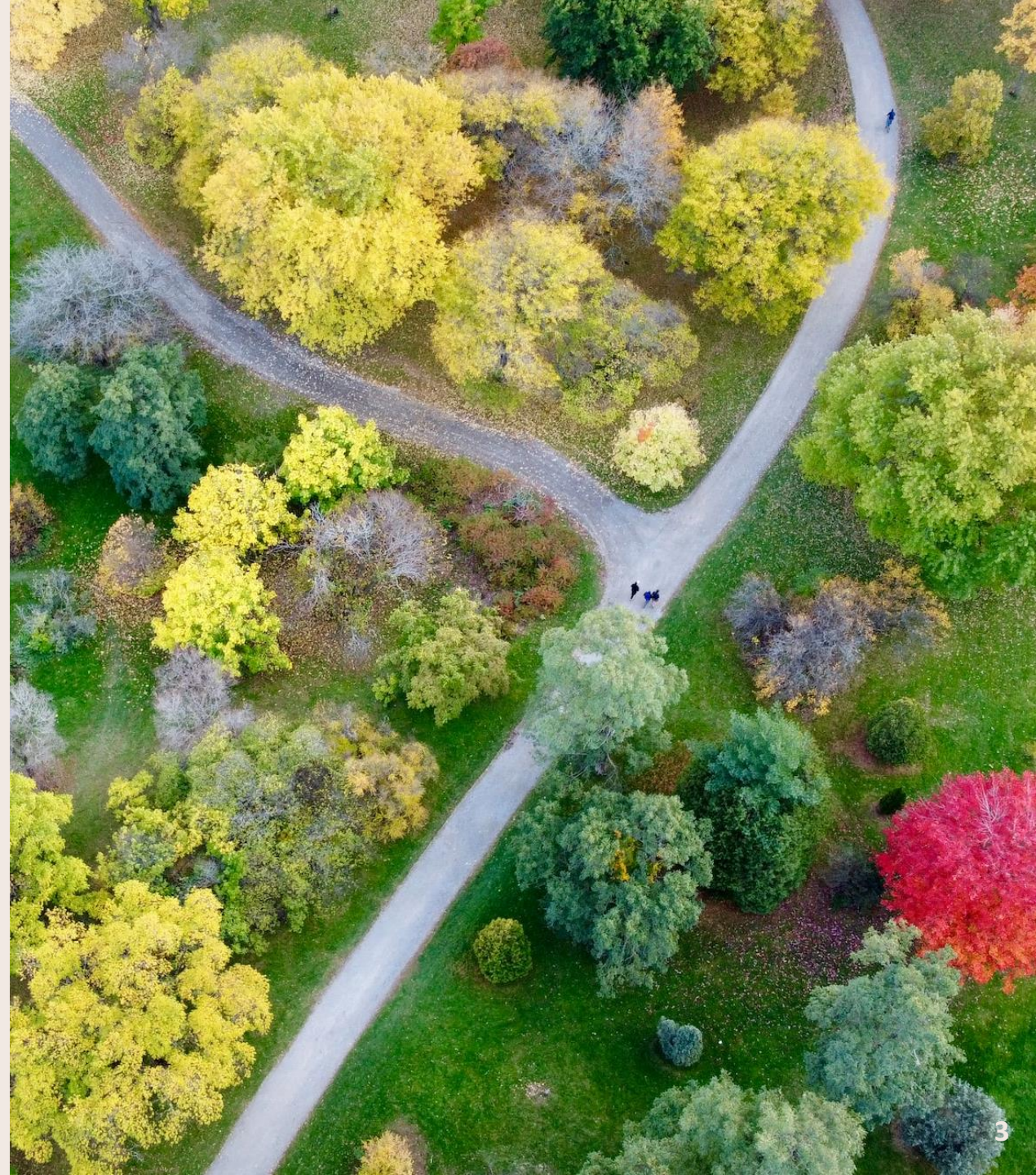
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Future-Proofing Cities: **NBSINFRA's**
Nature-Based Solutions for a Secure
Tomorrow


NBSINFRA is a pioneering initiative funded by the EU, focused on advancing **nature-based solutions (NBS)** to safeguard critical urban infrastructure against both natural and human-induced hazard.

Our mission extends to creating **resilient urban environments** capable of withstanding the challenges posed by climate change.



“ What are the foundations of Smart City ? ”

Empower, Enhance, Protect: **NBSINFRA**
Paving the Way for Resilient Urban Futures



Boost local infrastructure resilience against hazards by collaboratively designing, monitoring, and creating nature-based solutions, paving the way to a sustainable and resilient society – the foundation of Smart City

Evaluation of Urban Resilience

Five city labs across Europe to assess how cities can handle different challenges and stay resilient

Fingal, Ireland



Cologne, Germany



Ruse, Bulgaria



Aveiro, Portugal



Prague, Czechia



- City Labs are case studies representing different local urban scenarios in Europe that are affected by specific threats and are scalable to other similar scenarios on a global scale as well.
- Develop a methodology to quantify the effectiveness of existing or proposed NBS for local infrastructure protection and urban resilience.
- Mapping the effectiveness of NBS on risk protection and reduction when dealing with new material and solutions
- Provide an indicators-based dynamic framework for the concurrent measurement of Resilience and Sustainability of infrastructure systems including NBS, CbM methodology and Risk Prevention Dashboard Structure.

NBSINFRA toolkit

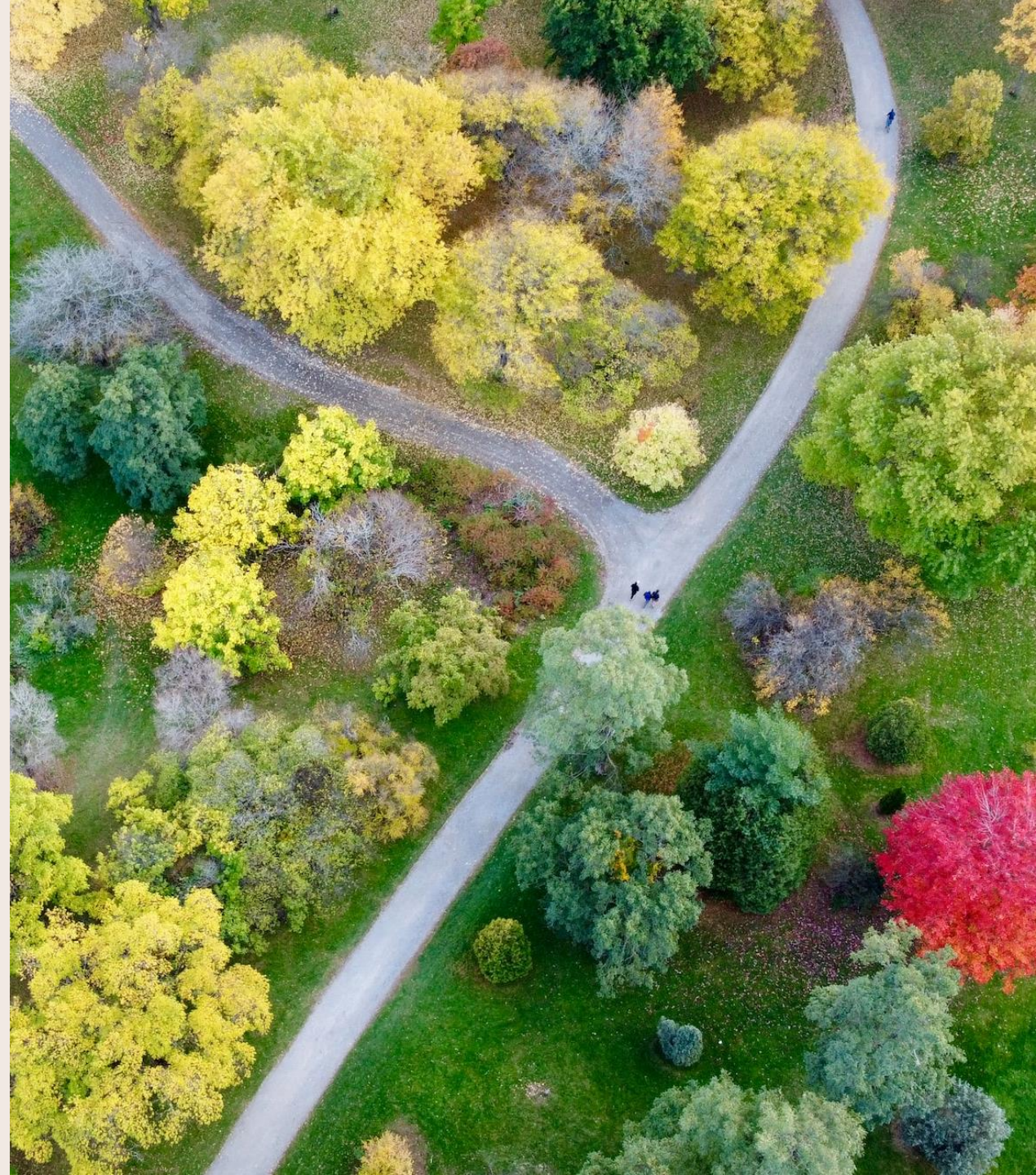
- Boost community empowerment and enhance critical infrastructure acceptance and protection by employing NBS at multiple levels.
- This includes developing, testing and monitoring a dynamic and up to date toolkit for community engagement and the co-creation of NBS, and using new technologies that fosters community involvement, participation and empowerment, at different levels, and times:
 - Develop a toolkit for community engagement, co-creation and adoption of NBS.
 - Combine the well-established Geodesign and Citizens' Assemblies approaches in a framework for informed co-creation specific to NBS projects.
 - Develop web and text mining, video neuroanalytics and multi-criterion intelligent decision support systems for critical infrastructure protection through NBS for achieving deep understanding of the complexity of human and social variables that influence both engagement, participation and adherence.
 - Enable the interoperability of a range of existing NBS citizen engagement digital tools by developing a new open application programming interface (API).
 - Develop Mass Customized Affective Computing Game Subsystem to encourage collaboration, expose stereotypes and assess solutions, and promote behavior change (from the gender, equity, diversity, and inclusion (GEDI) perspective) .

Efficiency of Citizens, Emergency Services, ...

An NBSINFRA toolkit will be created by using the lessons learned and observing the generated tools in the first part of the project.

The toolkit's design will involve active collaboration with end users, with a focus on ensuring social acceptance and fostering empowerment.

By combining insights from a broad perspective, together with information at a local level, NBSINFRA will provide friendly recommendations and educational material for stakeholders.



Promotion of Best Practices

- To transfer all this empirical knowledge back to the European-level tools and research conducted will be subject to constant evaluation and calibration;
- Application of most recent state-of-the-art EO and field-based monitoring methods (EC-JRC Checks by Monitoring-CbM), together with the proper land related data interoperability standards (ISO 19144-2);
- Surveys, forums, focus groups and other methods will be used for studying, and measuring social engagement and participation, in accordance with social and gender inclusiveness;
- Ensuring replication, upscale and uptake in other European regions by: identifying potential early adopters in different territories, engaging with relevant stakeholders, and defining a roadmap to facilitate the uptake of the NBSINFRA methodology and supporting toolkit.

Promotion of Best Practices

Framework for cooperation between global and EU policy makers, national and regional stakeholders, and populations by emphasizing structured forms of information exchange for mutual learning and enhancement of stakeholder capacities.

- Strengthen local and national resilience to disasters with an active engagement of all actors – governments at all levels, educational institutions, and populations, considering its social and gender diversity.
- Foster the implementation and provide additional knowledge that contributes to the concretization of expanding international frameworks, i.e., the post-2015 development agenda, Sendai Framework, Convention on Biological Diversity, and the European Green Deal, through knowledge exchange and understanding of the role of NBS in general and eco-DRR solutions.
- Mainstreaming NBS in adaptation and DRR strategies through the provision of appropriate tools, best practices and policy recommendations to assist decision makers, designers, competent authorities, planners, practitioners, enterprises, citizens and other stakeholders in adapting to climate change and sea level rise.
- Link NBSINFRA with other major global and EU initiatives related to NBS.



NBSINFRA Consortium



Universidade do Minho



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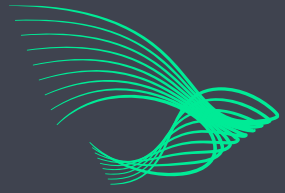
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Thank you for your attention!

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Coordinator



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