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ACCELERATING CLIMATE ACTION

A JUST TRANSITION IN A POST-COVID ERA

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ORAL

A smart monitoring to manage and safeguard the vegetation component of historic gardens from climate change: The EFFORT approach

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Keywords: Climate change; historic garden; plant monitoring; precision agriculture; monumental tree

An historic garden, identified by artistic and predominant plant components, provides, as any other green urban area, important services (e.g. recreational, water regulation, biodiversity, pollution removal) with additional values (e.g. monumental, aesthetic, historical, economic). However, the current state of conservation of the plant component of some historic gardens is often precarious, because historic gardens were created in a climate that is now historic itself. Specifically, in the recent decades, the natural senescence processes of the plant component have been accentuated by various types of biotic and abiotic stressors, often related to climatic extreme events associated with global warming (e.g. prolonged periods of drought, waterlogging and intense wind storms) mainly affecting old specimens. Such process is becoming a critical issue for those entities involved in the management and conservation of these heritages, often causing safety problems for humans and architectural artefacts. To support the conservation, restoration, and management of those places, ad hoc guidelines for managers to face environmental changes are thus needed. On this basis, a smart monitoring approach, developed within EFFORT project (co-funded by Tuscany Region and Cassa di Risparmio di Firenze, Italy), is hereby presented so as to combine innovative technologies to support the multidisciplinary segments of two historical gardens, namely: the Medicean gardens of Villa di Castello and Villa la Petraia, in Florence, Italy. The monitoring, started in March 2020, is applied both at garden and single plant level by using remote sensing (high resolution cameras, Sentinel2 images and LIDAR), image analysis techniques and ecophysiological sensors. Preliminary results, demonstrating to be effective in monitoring the vegetation and architectural segments of the garden at high spatial and temporal scale, will be used to establish guidelines and measures to drive gardens in a process of adaptation to the new climatic conditions. Finally, the

assessment of effectiveness of the smart monitoring approach will leverage the possibility of its replicability in any historic garden as well as the development of guidelines for garden managers to face environmental changes.

ORAL

Innovative methodologies to review and conduct climate risk assessments in urban contexts. Results and opportunities from the Milan case study

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Keywords: Resilience ; climate risk assessment; urban risks; climate change; floods; heatwaves; disaster risk; Copernicus

"The Battle for sustainability will be won or lost in cities", this is the main remark by Amina J. Mohammed, UN Deputy Secretary-General at the high-level General Assembly meeting on the New Urban Agenda and UN-Habitat (New York, September 2017). Now more relevant than ever, this simple statement highlights the need of clear, immediate action towards a more sustainable and resilient future designed and driven by local actors.

Cities are the hotspots where the effects of climate change are the most amplified and evident. The increase in population and the recent rapid urbanisation, often not adequately regulated and not informed by present and future risk scenarios, have inexorably exacerbated cities' intrinsic vulnerabilities. Urban disaster risk is constantly rising, costing a growing number of lives, and causing long-lasting economic impacts and social inequalities. On the other hand, cities demonstrate the ability to become excellent hubs to experiment policies that are more dynamic and innovative compared to the ones at national and regional levels . Innovative districts attract different and multi-sectorial actors with expertise in the urban-specific socioeconomic context, and who have the potential of triggering systemic, innovative and just resilience, by reducing disasters and fostering climate adaptation plans.

In this context, a preliminary requirement for the definition of effective disaster risk reduction and climate adaptation strategies is the implementation at local level of a comprehensive risk assessment in a climate perspective.

This work presents two new methodologies to review and conduct risk assessments and their application to the Municipality of Milan, which was chosen as a pilot case study.

The first methodology aims to carry out a comprehensive review of the risk assessment documents at municipality level, conducting the analysis across six key aspects: legislative and procedural