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NATURE BASED SOLUTIONS SUMMIT URBAN EDITION

MAY 23rd-24th 2024 - SUPER BOCK ARENA
PORTO - PORTUGAL

Book of abstracts of Nature Based Solutions Summit - Urban Edition 2024

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CONTENT

THE CONFERENCE	6
NBS SUMMIT ORGANIZATION	9
MESSAGE FROM THE VICE-PRESIDENT OF THE PORTO CITY COUNCIL	11
MESSAGE FROM THE PRESIDENT OF GREENROOFS® INNOVATED BY ASSOCIAÇÃO NACIONAL DE COBERTURAS VERDES	14
EVENT PARTNERS	17
SCIENTIFIC COMMITTEE	19
ABSTRACTS	23
Microbial consortia selection for the development of an innovative Nature-based solution for air pollutants remediation.....	24
Using the WIEH Walkability Index to make a city greener and health-oriented: a case study in São Roque da Lameira, Porto	25
Antibiotic resistance and organic micropollutants monitoring in municipal full-scale constructed wetlands systems	26
Urban heat island mitigation: a computational approach for NBS modelling.....	27
Ectomycorrhizal fungi as a green solution to improve urban trees' health and preserve urban ecosystem biodiversity.....	28
Constructed wetland for the treatment of olive mill wastewater.....	29
Roof rainwater harvesting and aquifer recharge in an urban environment: Dry and wet infiltration wells comparison	30
Small-scale Ecological Sewage Treatment Plant: TEWetland, an innovative system.....	31
InsectScan: Preserving Nature's Architects in Urban Landscapes.....	32
Promoting sustainability in green facades with Cork-based panels and drought-tolerant Portuguese native species	33
Evaluating the Contribution of Green Roofs/Walls for cities' Biodiversity with the support of Citizen Science	34
Nature Based Solutions in the rehabilitation of the Leça River.....	35
Green walls for greywater treatment to increase water circularity in urban areas	36
Towards Climate-Ready Cities: Nature-Based Solutions in Peruvian Urban Drainage Reconstruction ..	37

ÍA.Porto: an environmental qualification instrument for urban operation	38
Singapore’s Jungle Of Glass: In The Search For A Certain Topia	39
Land Cover Classification and Change in Porto, Portugal: Spatial Analysis for Urban Vegetation and Green Roof Adoption	40
Nature-based solutions for sustainable marine antifouling applications.....	41
Nature-based Solutions in urban areas: how to fit into the New European Bauhaus framework	42
Benefits from Nature Based Solutions in Industrial Parks, evidences from the INDNATUR Project.....	43
Building-Integrated Greenery. Collaborative xeriscaping-based maintenance and monitoring in Mediterranean cities (BIG4LIFE)	44
Mangroves as a nature-based solution for a sustainable city: Macao SAR as a Case Study	45
Streambank Stabilization In River Póvoa, Loures, Portugal.....	46
The estimation of the ecosystem services in the urban forest of Vila Real - a tool to evaluate and monitor nature-based solutions in the city.....	47
Bio Ilhas Project: Blending Research with scientific and educational dissemination	48
Blended Intensive Programme (BIP) in Nature-based Solutions for resilient, sustainable and equitable cities	49
Assessment of green roofs ecosystem services: the Falcão School case study.....	50
GREENFUTURE Platform: A Portuguese website gathering technical and scientific knowledge on green roofs and facades	51
Rainwater harvesting with conventional or green roofs?	52
Electricity production in plant-microbial fuel cells – A new green infrastructure ecosystem service....	53
Assessing Sustainable Urban Stormwater Management: A Comparative Study of Green Roofs and Detention Basins Strategies in Three U.S. Cities.....	54
Integrating Green and Purple Roofs into Smart Cities for Sustainable Urban Development	55
City Nature-based Solutions Integration to Local Urban Infrastructure Protection for a Climate Resilient Society – NBSINFRA	56
Treatment of organic compounds in floating plant root mat.....	57
Exploring Challenges and Opportunities of Nature-Based Solutions for Urban Agriculture within Buildings.....	58
Nature-Based Urban Planning: up-scaling NBS for sustainable urban transitions	59
A wildlife refuge and educational field laboratory in the city: a case study of the Granja stream in Porto	60

Rainwater harvesting with conventional or green roofs?

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The present approach aims to evaluate the technical and financial feasibility of a rainwater harvesting system for an industrial building in Northeast Portugal, considering the existing conventional roof (scenario 1) and the adaptation of a green roof to the existing roof (scenario 2). In this evaluation, the impact of the two scenarios on the water savings of the building was considered. The expected water savings were 64.47% and 59.43% for scenarios 1 and 2, respectively. Therefore, the expected reduction in the annual water bill was €3867.07 + VAT (scenario 1) and €3564.63 + VAT (scenario 2). For scenario 1, considering a reservoir of 70 m³ for non-potable purposes, such as washing the floor of the building and use in industrial machinery, and an initial investment of 41,109.13 € + VAT, the single payback is 11.29 years. The single payback for Scenario 2 largely exceeded the lifetime of the green roof. However, financial incentives could be proposed to implement green roofs in this building typology, as they are considered interesting solutions to reduce the negative externalities of industrial settlements.

Keywords: rainwater harvesting, conventional roofs, green roofs, technical and financial feasibility, industrial building