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**BOOK OF
ABSTRACTS**

THE IMPACT OF GREEN ROOFS (GR) RUNOFF IN STORM WATER QUALITY AND QUANTITY

KEYWORDS

Green Roofs; Stormwater management; Rainwater retention; Rainwater quality

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ABSTRACT

Nature-based solutions are being worldwide implemented in highly impermeabilized city centres, due to the environmental benefits they generate and their contribution to urban sustainability and resilience, especially regarding stormwater management issues. The impact of Nature-based Solutions in the surrounding environment where they are set up, considering all the environmental aspects they have an effect on, with a special focus on stormwater management, is a fundamental aspect that must be addressed before promoting their large-scale implementation. In this scope, this study intended to address the influence of Green Roofs (GR) on rainwater quality and quantity, based on scientific experimental studies published worldwide. The compiled results show that GR dimensions, GR composition of the different layers and plant species used, amongst other characteristics, have a major influence on the quality and quantity of the rainwater downstream. In some reported cases, the quality of the drained rainwater resulted worst and for some conditions, the effect on rainwater retention was minimal, contrary to what was expected. The factors that resulted in these inconveniences are well defined and must be minimized in future GR construction and maintenance. GR are key elements to make resilient cities and thus, a clear understanding of their operation is fundamental to avoid water degradation and minimize potential impacts of malfunctioning of these structures. Furthermore, it is essential to choose the best combination of GR materials regarding water retention, to set GR systems adapted to local climate conditions and the present climate change scenario, with high performance in water management, to help urban areas dealing with extreme precipitation events, avoiding thus the consequent floods and economic damages that arise.