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Editorial

Water and Circular Cities

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In the core part of the Special Issue, the COST Action Circular City presents its framework for addressing Urban Circularity Challenges (UCCs) with nature-based solutions (NBSs) [1]. The framework comprises a catalogue of technologies for providing/recovering resources with NBS and the analysis of input and output resource streams required for NBS units and interventions. The catalogue comprises a set of 39 NBS units, 12 NBS interventions, and 10 supporting units. The framework was analyzed by experts from various urban sectors, which refer to different fields of activities for circular management of resources in cities. The urban sectors relate to the Action's Working Groups and comprise the built environment [2], urban water management [3], resource recovery [4], and urban farming [5]. In the final paper related to the framework [6], main findings from the sector analyses are presented, different sector perspectives are discussed, and ways to overcome identified differences are shown. Additionally, it is concluded that experts from various disciplines can engage in a cross-sectoral exchange and identify the full potential of NBSs to recover resources in circular cities and provide secondary benefits to improve the livelihood for locals.

Additionally, to evaluate the level of circularity of resources' management in cities, appropriate indicators are proposed by the COST Action and presented in this Special Issue [7]. Other papers included in the Special Issue focus on several aspects of using NBS for creating circular economies in cities, i.e., green roofs and vertical greenery systems [8,9]; production of food in cities [10,11], vacuum toilets generating blackwater [12] as well as biogas plants [13].

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References

1. Langergraber, G.; Castellar, J.A.C.; Pucher, B.; Baganz, G.F.M.; Milosevic, D.; Andreucci, M.B.; Kearney, K.; Pineda-Martos, R.; Atanasova, N. A Framework for Addressing Circularity Challenges in Cities with Nature-based Solutions. *Water* **2021**, *13*, 2355. [CrossRef]
2. Pearlmutter, D.; Pucher, B.; Calheiros, C.S.C.; Hoffmann, K.A.; Aicher, A.; Pinho, P.; Stracqualursi, A.; Korolova, A.; Pobric, A.; Galvão, A.; et al. Closing water cycles in the built environment through nature-based solutions: The contribution of vertical greening systems and green roofs. *Water* **2021**, *13*, 2165. [CrossRef]
3. Oral, H.V.; Radinja, M.; Rizzo, A.; Kearney, K.; Andersen, T.R.; Krzeminski, P.; Buttiglieri, G.; Cınar, D.A.; Comas, J.; Gajewska, M.; et al. Management of urban waters with nature-based solutions in circular cities. *Water* **2021**, *13*, 3334. [CrossRef]
4. Van Hullebusch, E.D.; Zeeman, G.; Kisser, J.; Vaccari, M.; Di Lonardo, S.; van Eekert, M.; Griessler Bulc, T.; Bani, A.; Melita, S.; Istenič, D.; et al. Nature-based units as building blocks for resource recovery systems in cities. *Water* **2021**, *13*, 3153. [CrossRef]
5. Canet-Martí, A.; Pineda-Martos, R.; Junge, R.; Bohn, K.; Paço, T.A.; Delgado, C.; Alencikiene, G.; Skar, S.L.G.; Baganz, G.F.M. Nature-based Solutions for Agriculture in Circular Cities: Challenges, Gaps and Opportunities. *Water* **2021**, *13*, 2565. [CrossRef]
6. Langergraber, G.; Castellar, J.A.C.; Andersen, T.R.; Andreucci, M.B.; Baganz, G.F.M.; Buttiglieri, G.; Canet-Martí, A.; Carvalho, P.N.; Finger, D.C.; Griessler Bulc, T.; et al. Towards a cross-sectoral view on nature-based solutions for enabling circular cities. *Water* **2021**, *13*, 2352. [CrossRef]
7. Nika, C.-E.; Expósito, A.; Kisser, J.; Bertino, G.; Oral, H.V.; Dehghanian, K.; Vasilaki, V.; Iacovidou, E.; Fatone, F.; Atanasova, N.; et al. Validating Circular Performance Indicators: The interface between Circular Economy and Stakeholders. *Water* **2021**, *13*, 2198. [CrossRef]
8. Prenner, F.; Pucher, B.; Zluwa, I.; Pitha, U.; Langergraber, G. Rainwater use for Vertical Greenery Systems: Development of a conceptual model for a better understanding of the processes and influencing factors. *Water* **2021**, *13*, 1860. [CrossRef]
9. Hachoumi, I.; Pucher, B.; DeVito-Francesco, E.; Prenner, F.; Ertl, T.; Langergraber, G.; Fürhacker, M.; Allabashi, R. Impact of green roofs and vertical greenery systems on surface runoff quality. *Water* **2021**, *13*, 2609. [CrossRef]
10. Baganz, G.F.M.; Schrenk, M.; Körner, O.; Baganz, D.; Keesman, K.J.; Goddek, S.; Siscan, Z.; Baganz, E.; Doernberg, A.; Monsees, H.; et al. Causal Relations of Upscaled Urban Aquaponics and the Food-Water-Energy Nexus—A Berlin Case Study. *Water* **2021**, *13*, 2029. [CrossRef]
11. Mino, E.; Pueyo-Ros, J.; Škerjanec, M.; Castellar, J.A.; Viljoen, A.; Istenič, D.; Atanasova, N.; Bohn, K.; Comas, J. Tools for edible cities: A review of tools for planning and assessing edible nature-based solutions. *Water* **2021**, *13*, 2366. [CrossRef]
12. Todt, D.; Bisschops, I.; Chatzopoulos, P.; van Eekert, M.H.A. Practical performance and user acceptance of novel dual-flush vacuum toilets. *Water* **2021**, *13*, 2228. [CrossRef]
13. Llano, T.; Dosal, E.; Lindorfer, J.; Finger, D.C. Application of multi-criteria decision-making tools for assessing biogas plants: A case study in Reykjavik, Iceland. *Water* **2021**, *13*, 2150. [CrossRef]