

FLOATING WETLAND ISLANDS FOR CROP PRODUCTION



Valentina Carrillo¹, Sofia Pereira²; Cristina S. C. Calheiros¹

- 1. CIIMAR/CIMAR LA, Interdisciplinary Centre of Marine and Environmental Research, University of Porto, Terminal de Cruzeiros do Porto de Leixões, 4450-208 Matosinhos, Portugal; vcarrillo@ciimar.up.pt; ccalheiros@ciimar.up.pt
- 2. Universidade Católica Portuguesa, CBQF – Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Rua Diogo Botelho, 1327, 4169-005 Porto, Portugal; sapereira@ucp.pt

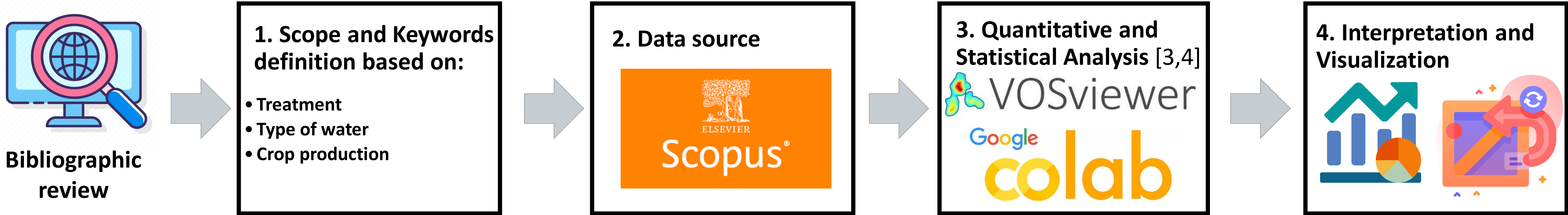
BACKGROUND

Floating wetland islands (FWI) are artificial structures designed to float on water bodies such as lakes, ponds, and canals. These systems typically consist of a buoyant matrix, made from materials like polyethylene foam or recycled plastics, that supports aquatic or semi-aquatic plants. The roots of these plants hang into the water, acting as natural biofilters by absorbing nutrients and pollutants. Recently, FWI have evolved to incorporate edible crops such as rice, lettuce, spinach, mint, and taro, which can thrive in nutrient-rich aquatic environments. This dual functionality, combining environmental remediation with food production, positions FWI as promising **Nature-based Solutions (Nbs)** for sustainable development [1,2].

AIM

The aim of this study is to identify research trends and knowledge gaps related to the use of FWI for crop production in runoff waters, through a systematic review and bibliometric analysis.

METHODOLOGY



RESULTS AND DISCUSSION

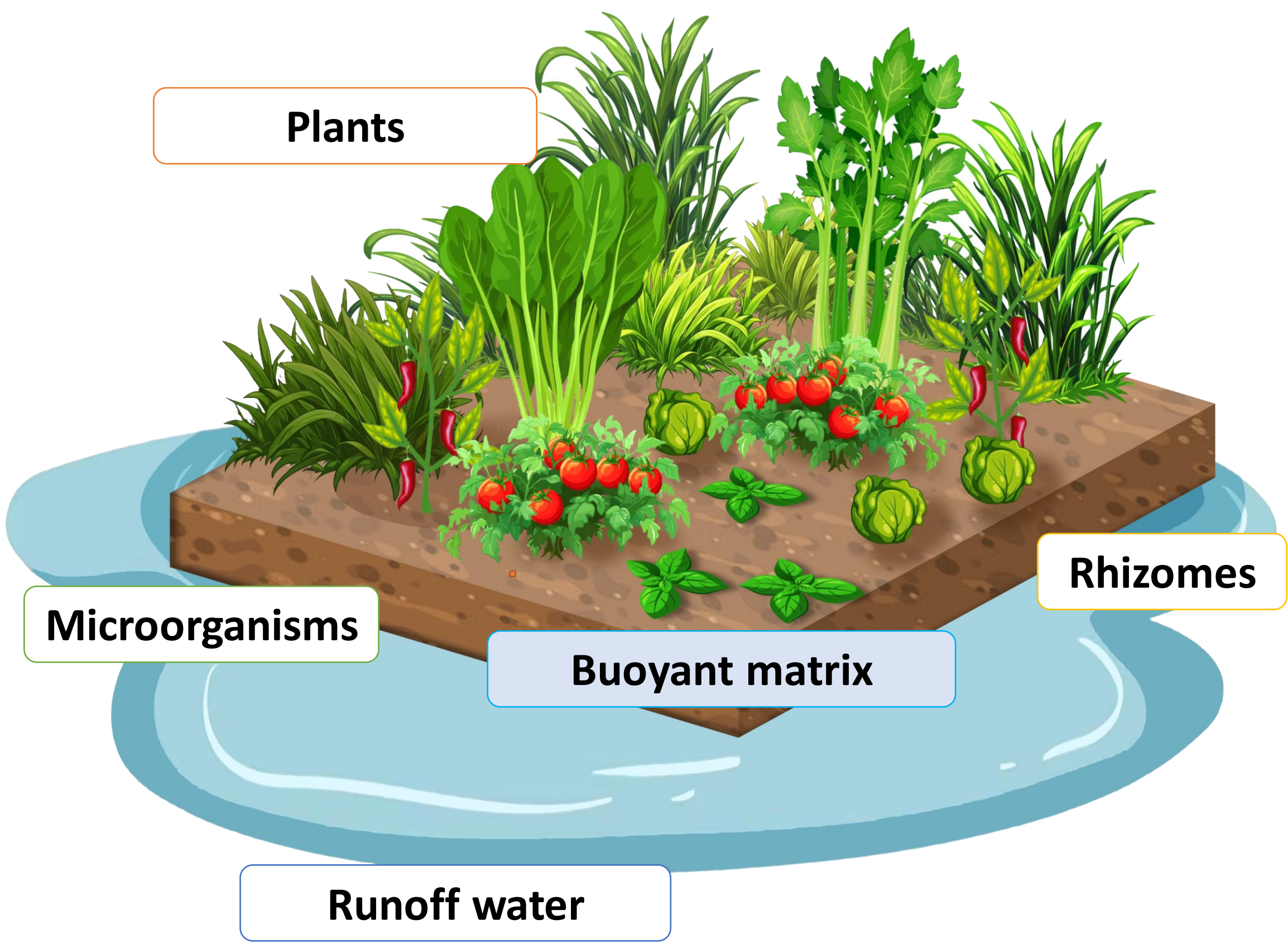
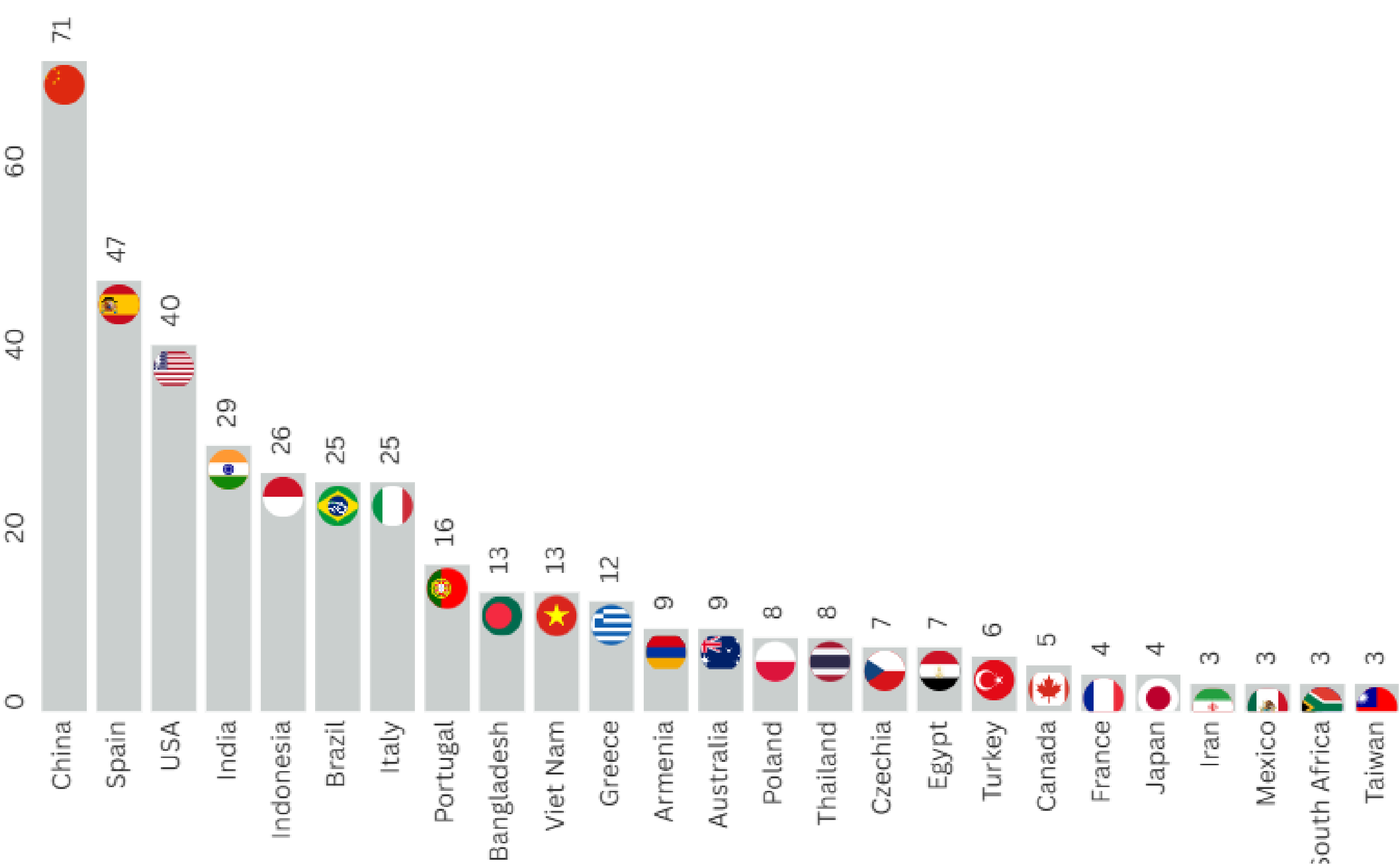
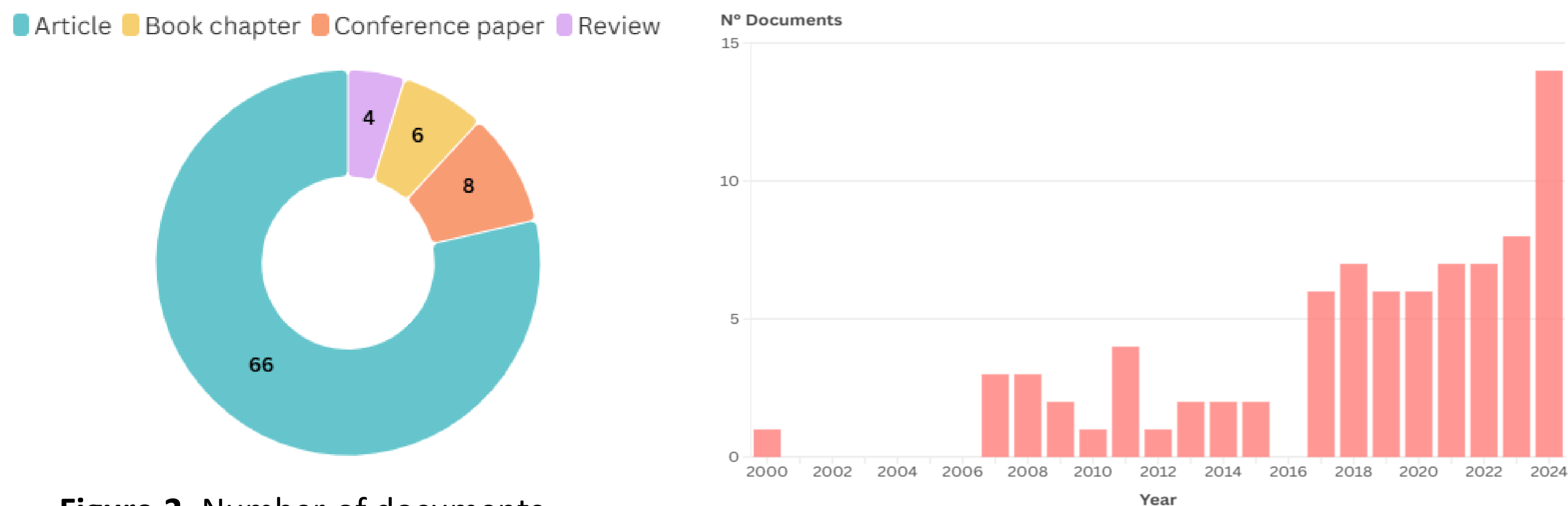


Figure 1. Schematic description of floating wetlands islands.

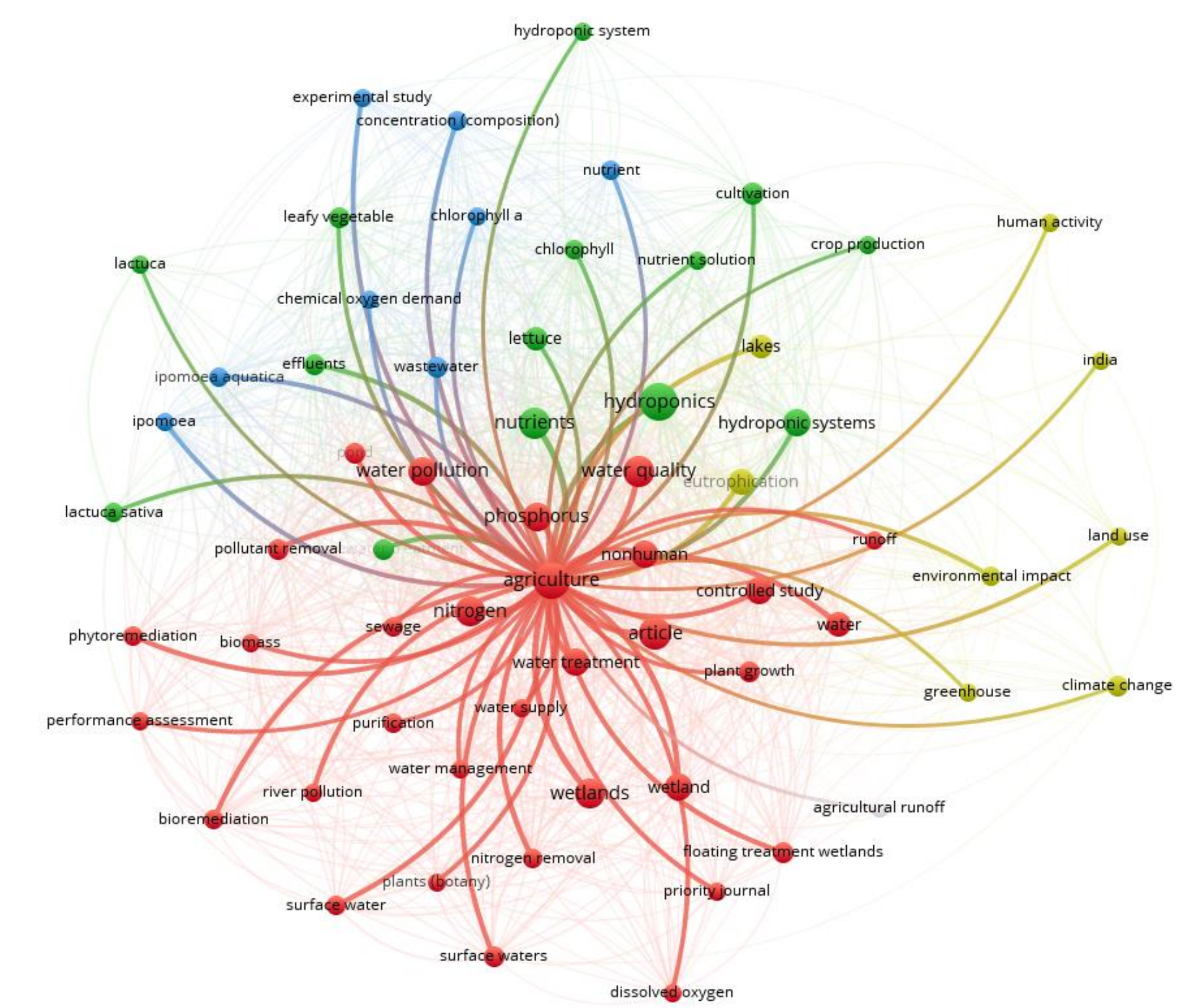


Figure 5. Co-occurrence network visualization of keywords plus.

FINAL CONSIDERATIONS

FWI systems integrate hydroponic cultivation, ecological engineering, and water quality management, demonstrating their multifunctionality and offering solutions for both ecosystem restoration and sustainable agriculture.

References

- [1]: <https://doi.org/10.1007/s11273-025-10042-7>
- [2]: <https://doi.org/10.1016/j.envres.2016.01.007>
- [3]: <https://doi.org/10.1108/DTA-08-2023-0461>
- [4]: <https://doi.org/10.1007/s11192-009-0146-3>



ACKNOWLEDGEMENTS

VC gratefully acknowledges support from ANID/POSTDOCTORADO BECAS CHILE /2024- 74240040. The authors would like to thank the Fundação para a Ciência e Tecnologia for the projects UIDB/04423/2020, UIDP/04423/2020, LA/P/0101/2020 and UIDB/50016/2020.