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 **uPcycle**

# Community of Practice on Lake Restoration

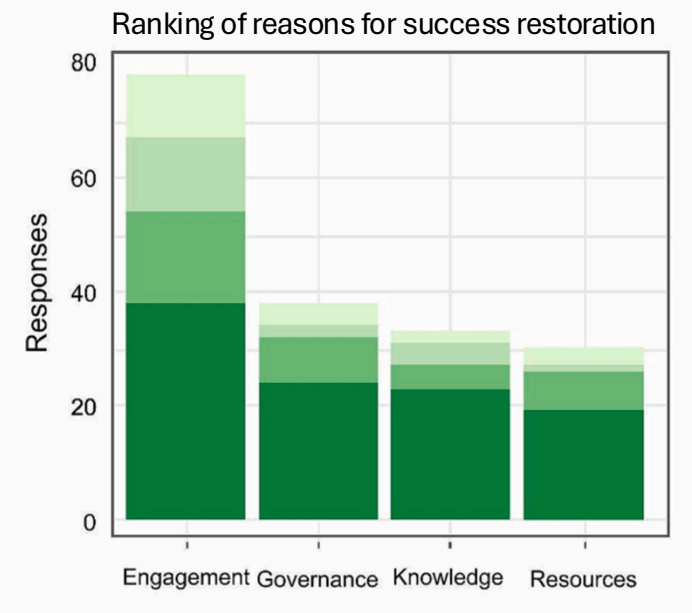
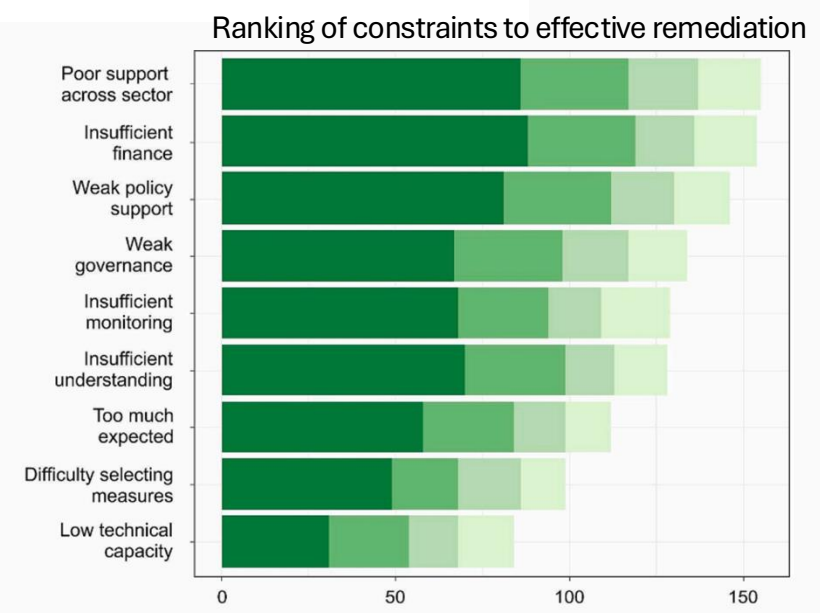
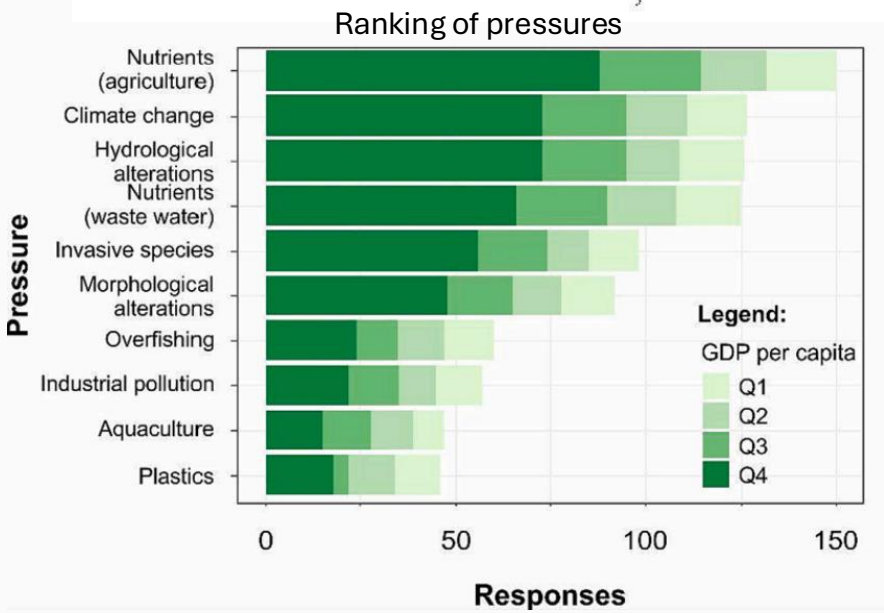
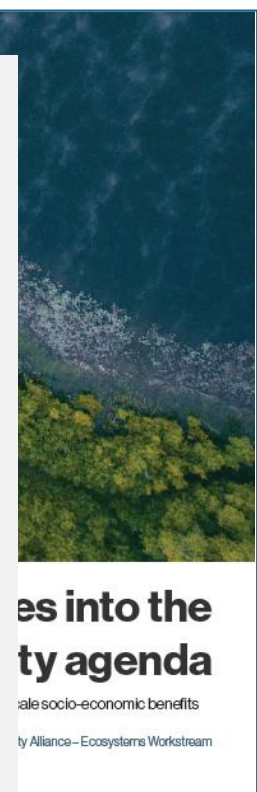
Maíra Mucci, Bryan Spears and Miquel Lürling



**WAGENINGEN**  
UNIVERSITY & RESEARCH



The survey also revealed that the current approach to lake, reservoir and pond management is generally inadequate, as management responses remain fragmented, under-resourced, and undervalued at local, regional, and global scales. Fragmentation applies to the world of practice, too, where in different regions restoration may be addressed differently, or wheels are being reinvented.



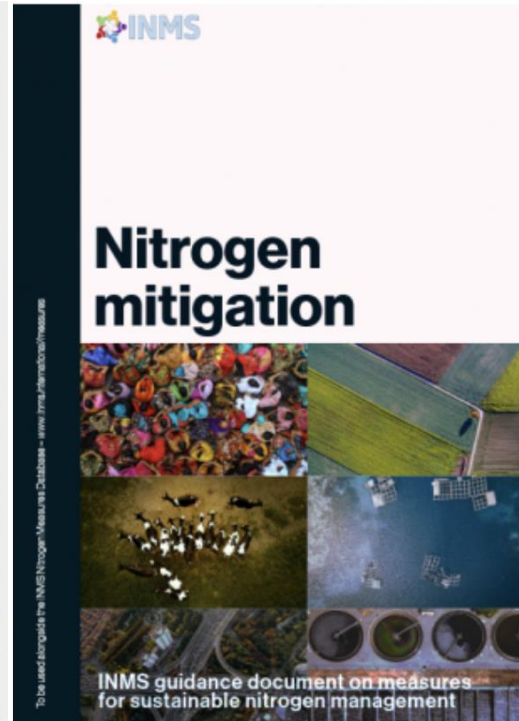
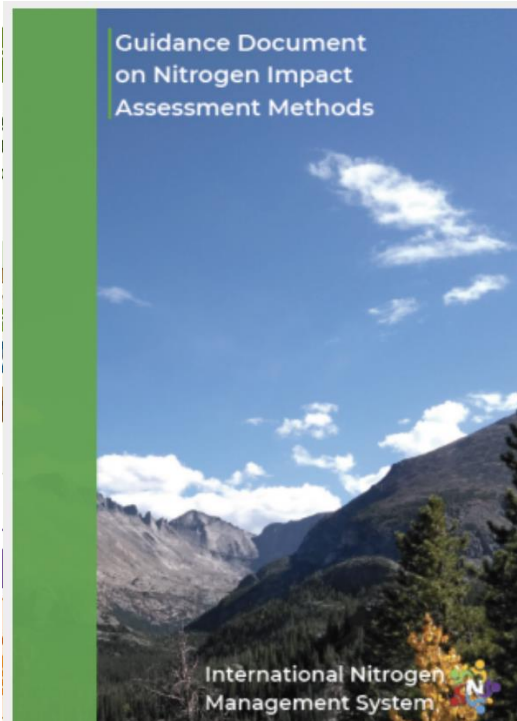
# Community of Practice (CoP) on lake, reservoir and pond restoration

**uPcycle** Aims to guide action towards a sustainable Phosphorus future to protect freshwater and coastal ecosystems

Financed by Implemented by



Executed by



Nitrogen: [www.inms.international](http://www.inms.international)



## Ten key actions

Brownlie et al., 2022

Ten key actions across sectors are proposed to improve sustainable phosphorus management globally. Among these actions, priorities and preferred solutions can be expected to differ nationally and between regions.

1. Increase the use of recycled phosphorus in fertiliser and other chemical industries, as an alternative or supplement to phosphate rock.
2. Optimise phosphorus inputs to agricultural soils and maximise crop uptake to minimise losses.
3. Optimise animal diets and the use of supplements to reduce phosphorus excretion.
4. Increase appropriate application of manures, other phosphorus-rich residues, and recycled fertilisers to soils, to complement appropriate mineral fertiliser use.
5. Improve global reporting and assessments of phosphorus emissions and their impacts on freshwater and coastal ecosystems.
6. Implement integrated approaches for freshwater and coastal ecosystem restoration and protection at catchment, national and transboundary scales.
7. Implement national to global strategies to increase recovery and recycling of phosphorus from solid and liquid residue streams.
8. Ensure sufficient access to affordable phosphorus fertilisers (mineral, organic and recycled) for all farmers.
9. Promote a global shift to healthy and nutritious diets with low phosphorus footprints.
10. Reduce the amounts of phosphorus lost as food waste in food processing, retail, and domestic consumption.

**Urgent need for a coordinated recovery plan for freshwater systems, with P management as a central element**

# Our commitments

01

## Provide clarity on global phosphorus emissions

We commit to publishing a global phosphorus dashboard providing clarity on emissions, drivers and impacts. In doing so, we will foster new cross-sector synergies to reduce ecosystem impacts and build capacity to predict the effects of future mitigation and environmental change scenarios.

02

## Mobilise the global community behind the uPcycle Framework

We commit to establishing a 'Global Net Zero Phosphorus Expert Group' to collaborate with the [Global Community of Restoration Practitioners](#) to develop, test, and operationalise the uPcycle Framework into a Monitoring and Assessment Approach.

03

## Demonstrate our Monitoring and Assessment Approach in Chile

Led by the Chilean Ministry of Environment, we commit to demonstrating the Framework through the existing Lake Villarrica recovery plan and assessing opportunities for up-scaling sustainable phosphorus management within national and transboundary policy contexts.



# offers a great opportunity to build a **Global Community of Lake Restoration Practitioners**



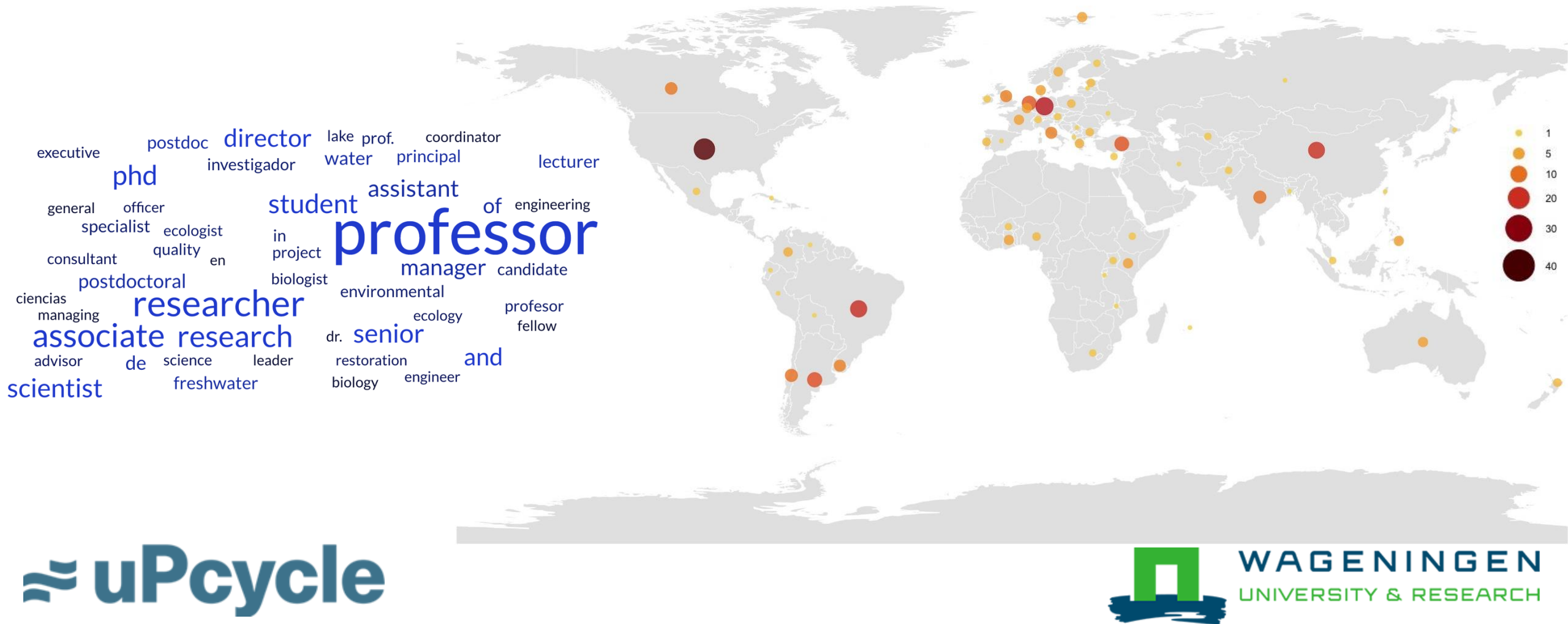
"Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly." <sup>1</sup>

<sup>1</sup>Wenger-Trayner, E. and Wenger-Trayner, B. (2015) *An introduction to communities of practice: a brief overview of the concept and its uses*. <https://www.wenger-trayner.com/introduction-to-communities-of-practice>.

Vision: Gather a diverse group of practitioners – including government officials, scientists, consultants, lake managers, and others – from around the world to collaboratively share knowledge, experiences, insights, and ideas, and learn from one another. The goal is to build this together in a flexible and inclusive way.

# Community of Practice (CoP) on lake, reservoir and pond restoration

379 people have registered interest



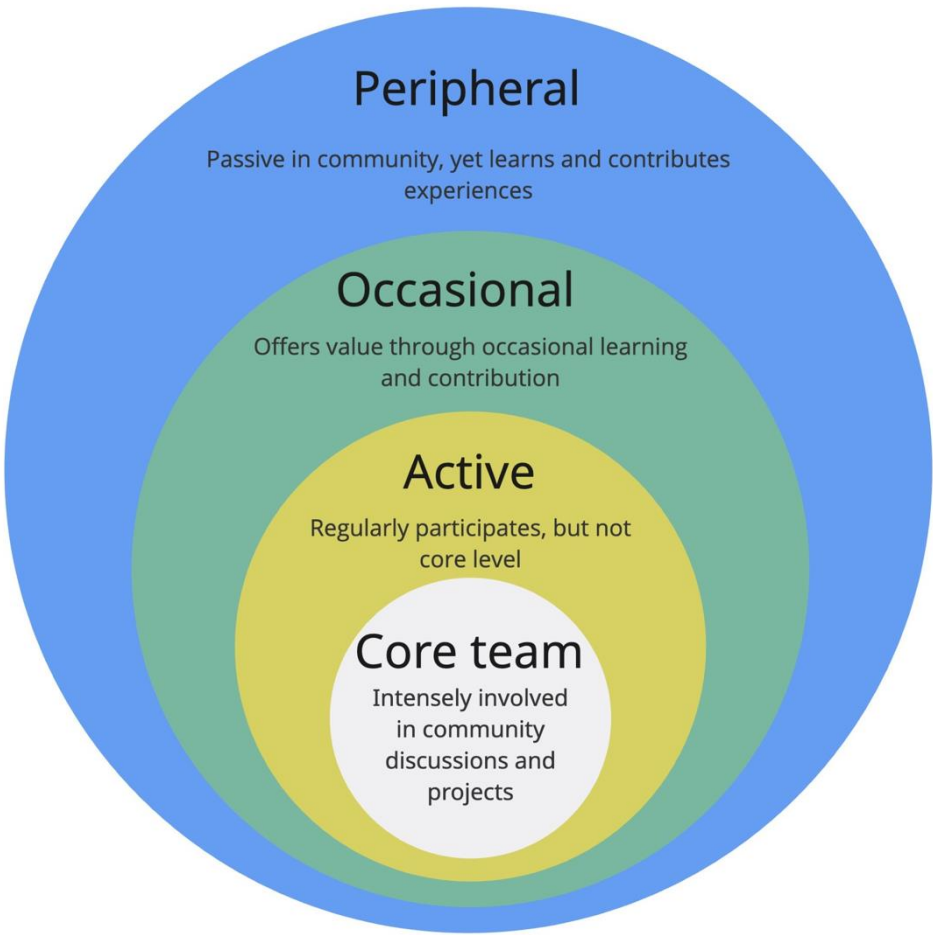
# Community of Practice (CoP) on lake, reservoir and pond restoration

105 people from European institute/organization



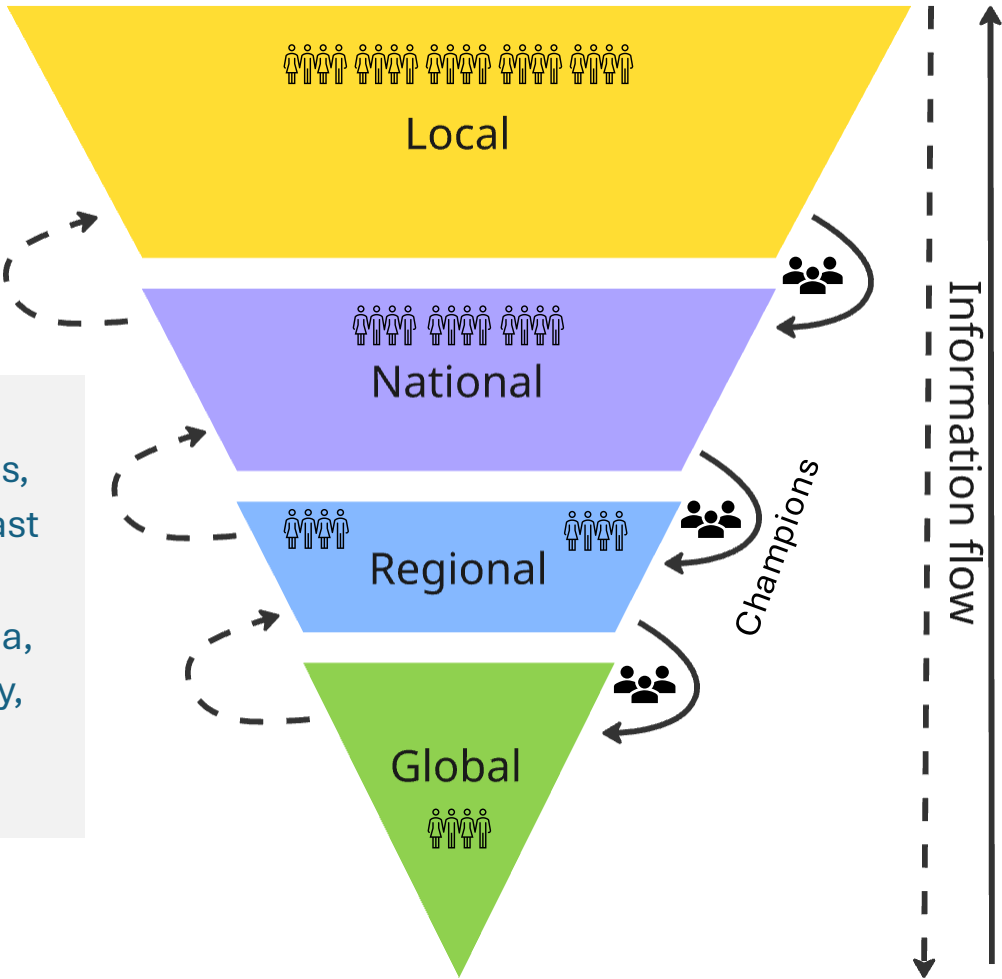
# Community of Practice (CoP) on lake, reservoir and pond restoration

Level of participation:



Structure:

21 local champions from New Zealand, Netherlands, Chile, Brazil, US, South East Europe, Portugal, China, Kenya, West Africa, Nigeria, Turkey, Argentina, Uruguay, Philippines, India, Uzbekistan



Champions can assist in recruiting participants, joining global meetings and discussions when possible, and organizing separate meetings at the national/local/regional levels.

# Community of Practice (CoP) on lake, reservoir and pond restoration - Organization

The screenshot displays the uPcycle Community of Practice (CoP) interface. The left sidebar lists navigation channels: Member Introductions, Question and Discussions, Activity Calendar (highlighted), Resources and Materials, and regional groups (Africa, Asia, Europe, Latin America and Caribbean, Local champions, North America, Oceania). The main area shows a discussion titled "Ground/Soil for Lake Restoration" by Van Nieuwenhuyze Wim, dated 31/03 10:23. The post discusses lake restoration in East Flanders (Belgium) and mentions a Psenner analysis. A reply by Lurling, Miquel, dated 31/03 18:39, thanks Wim and provides additional information about phosphorus availability. The right sidebar shows a "g Projects" section with a table of modified items.

**uPcycle - Global Community of Pr...**

- Main Channels
  - Member Introductions
  - Question and Discussions
  - Activity Calendar**
  - Resources and Materials
- Africa
- Asia
- Europe
- Latin America and Caribbean
- Local champions
- North America
- Oceania
- Term of reference - CoP
- Working Group for Global survey

**Question and Discussions**

**Ground/Soil for Lake Restoration**

Within the Province of East Flanders (Belgium) we have a couple of recreational lakes that consider lake restoration and where the construction of gradually sloping banks is one of the items on their list. A recurring question is which ground/soil can be used for this purpose and whether threshold values exist to determine whether the ground/soil can be added to a lake without deteriorating the nutrient status. We have recreational lakes where lake restoration will happen within a well-defined long-term plan but we have recreational lakes where lake restoration will be dependent on opportunities as well. Such opportunities for them would be the use of surplus ground/soil from within their domain from other projects. We have only one lake where a Psenner analysis took place on the lake sediments and where a Psenner analysis of the surplus ground could eventually be compared with. We are often advised to determine total P, Fe and S content and calculate P/Fe and Fe-S/P ratio's which would give an idea about possible release of P from the ground/soil in water. A terrestrial expert said they look at Olsen P, organic material, P/Fe/Al oxalate extractable, phosphate saturation [see more](#)

**Lurling, Miquel** 31/03 18:39

Dear Wim, thanks for your question. In sediments and soils, only a fraction of the total phosphorus pool will be available for biota. It is this fraction that requires attention when bringing soil into a lake, and it includes more than the easily releasable P determined by the Olsen method using NaHCO<sub>3</sub>, which was originally designed to estimate terrestrial plant growth potential. It [see more](#)

**Social science approaches to stakeholder engagement**

Has anyone worked with surveying stakeholders before and after chemical treatments?

**Modified By**

|         |                   |
|---------|-------------------|
| 4, 2025 | Mucci, Maira      |
|         | Lurling, Miquel   |
| 4, 2025 | Mucci, Maira      |
|         | Mucci, Maira      |
| 4, 2025 | Mucci, Maira      |
|         | Chris Klein-Höing |

We encourage everyone to share resources/materials and events on the topic that may be useful to the community

Let us know if you are missing any channel or space in the CoP. Let's build this together

# Community of Practice (CoP) on lake, reservoir and pond restoration

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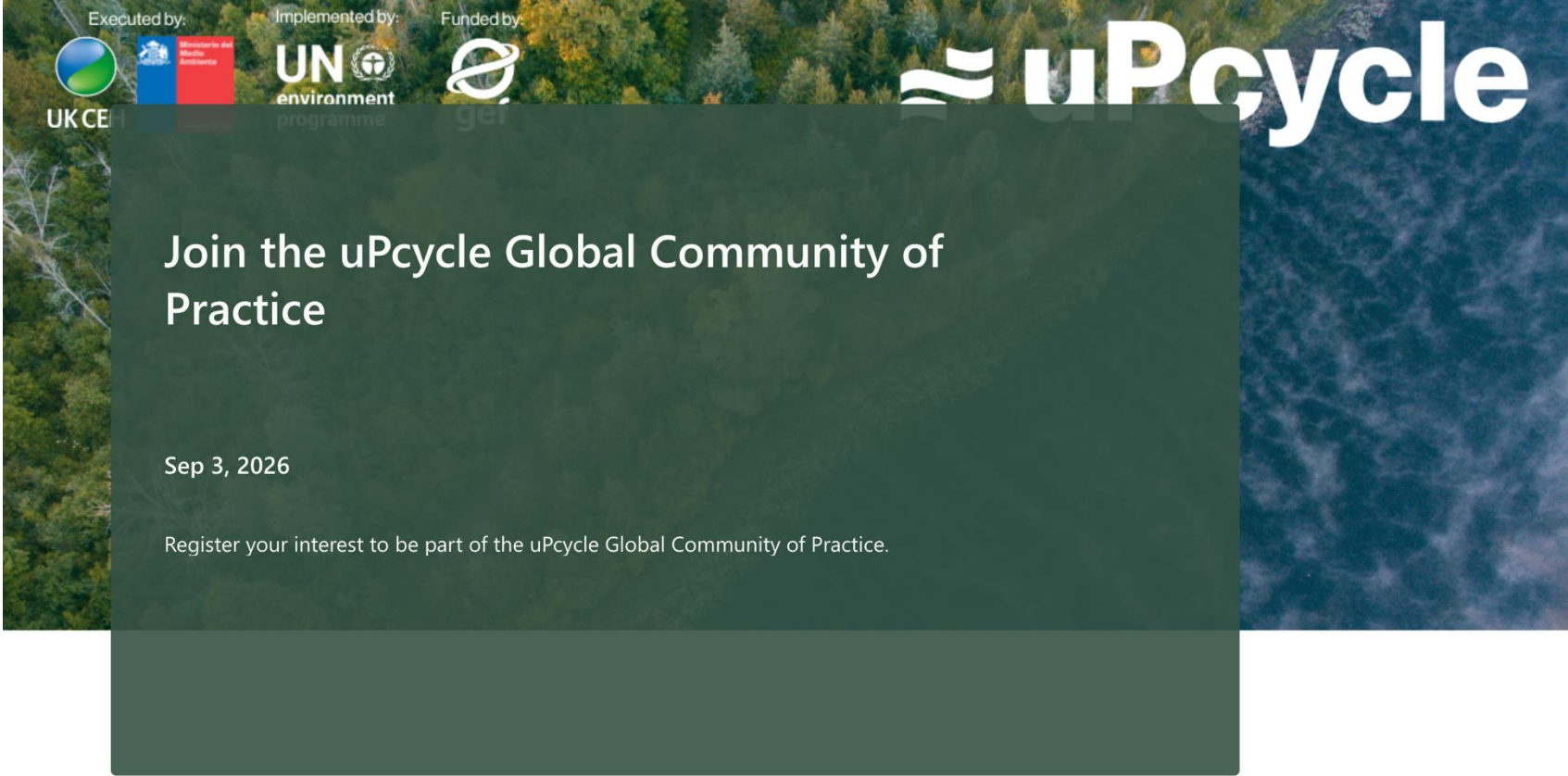
## - Activities

- Online regular meetings: Dec 25, Feb, April 26 and June 26: 107 to 51 people
- Next regular meeting in September (23 and 24)
- In-person meetings: in Brazil (UFJF, UFRJ, UERJ, UFRN) and in Chile – LATAM chapter
- LakeLine article (North America Lake Management Society)
- International Society Limnology (SIL) news
- Brazilian Limnology meeting (round table discussion on freshwater restoration and protection)
  - Government, scientists, and indigenous community
- EU CyanoAction WG3 Training School
- Global assessment on Sustainable Phosphorus Management in freshwater

# Not registered yet ?



[www.upcyclelakes.org/get-involved](http://www.upcyclelakes.org/get-involved)

A promotional banner for the uPcycle Global Community of Practice. The background is a composite image of a lush green forest on the left and a blue, textured surface resembling water or a sky on the right. The uPcycle logo is prominently displayed in the top right corner. At the top, there are three logos: UKCE (UK Centre for Environment), the Spanish Ministry of the Environment (Ministerio del Medio Ambiente), and the UN Environment Programme (UNEP). The text 'Join the uPcycle Global Community of Practice' is centered in a white font. Below this, the date 'Sep 3, 2026' is shown. At the bottom, a line of text encourages registration: 'Register your interest to be part of the uPcycle Global Community of Practice.'

Executed by:  UKCE

Implemented by:   UN environment programme

Funded by:  GEF

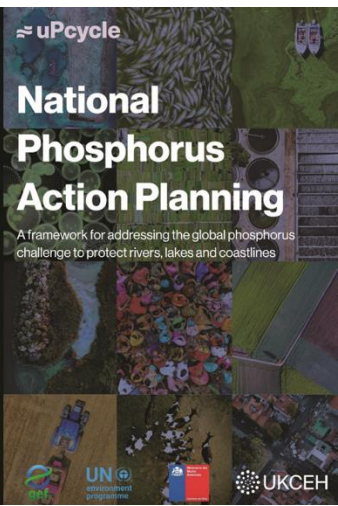
 uPcycle

## Join the uPcycle Global Community of Practice

Sep 3, 2026

Register your interest to be part of the uPcycle Global Community of Practice.

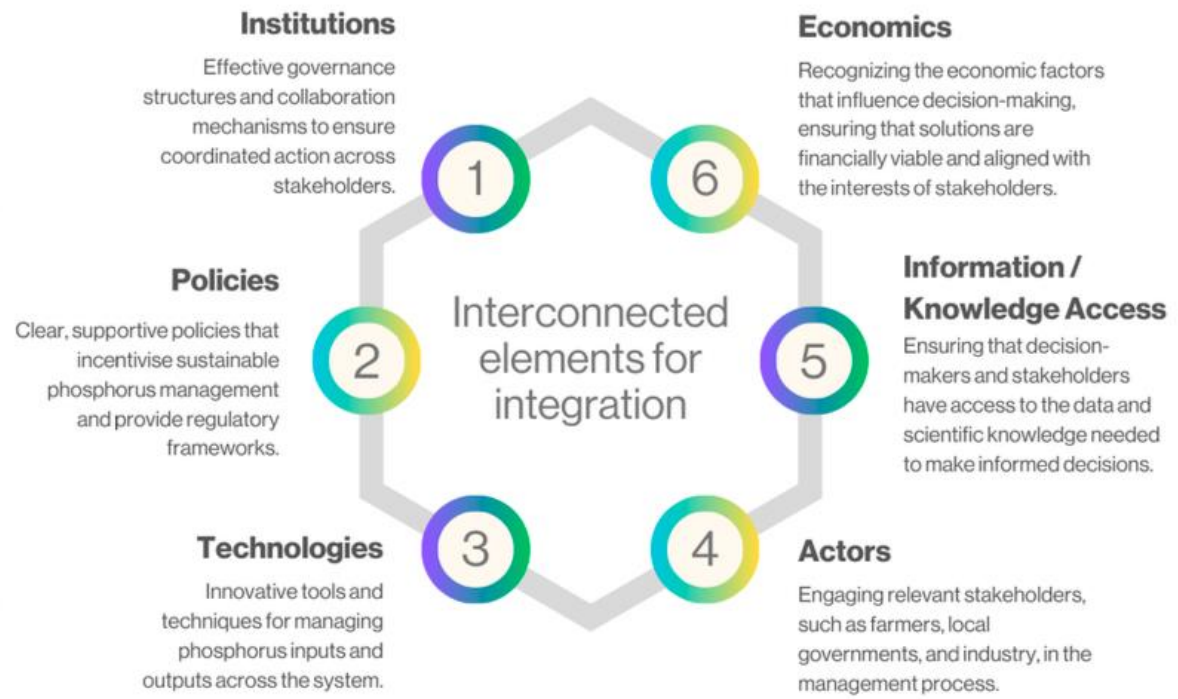
# Global assessment on Sustainable Phosphorus Management in freshwater



Four **process levels** that guide the systematic, integrated approach to phosphorus management

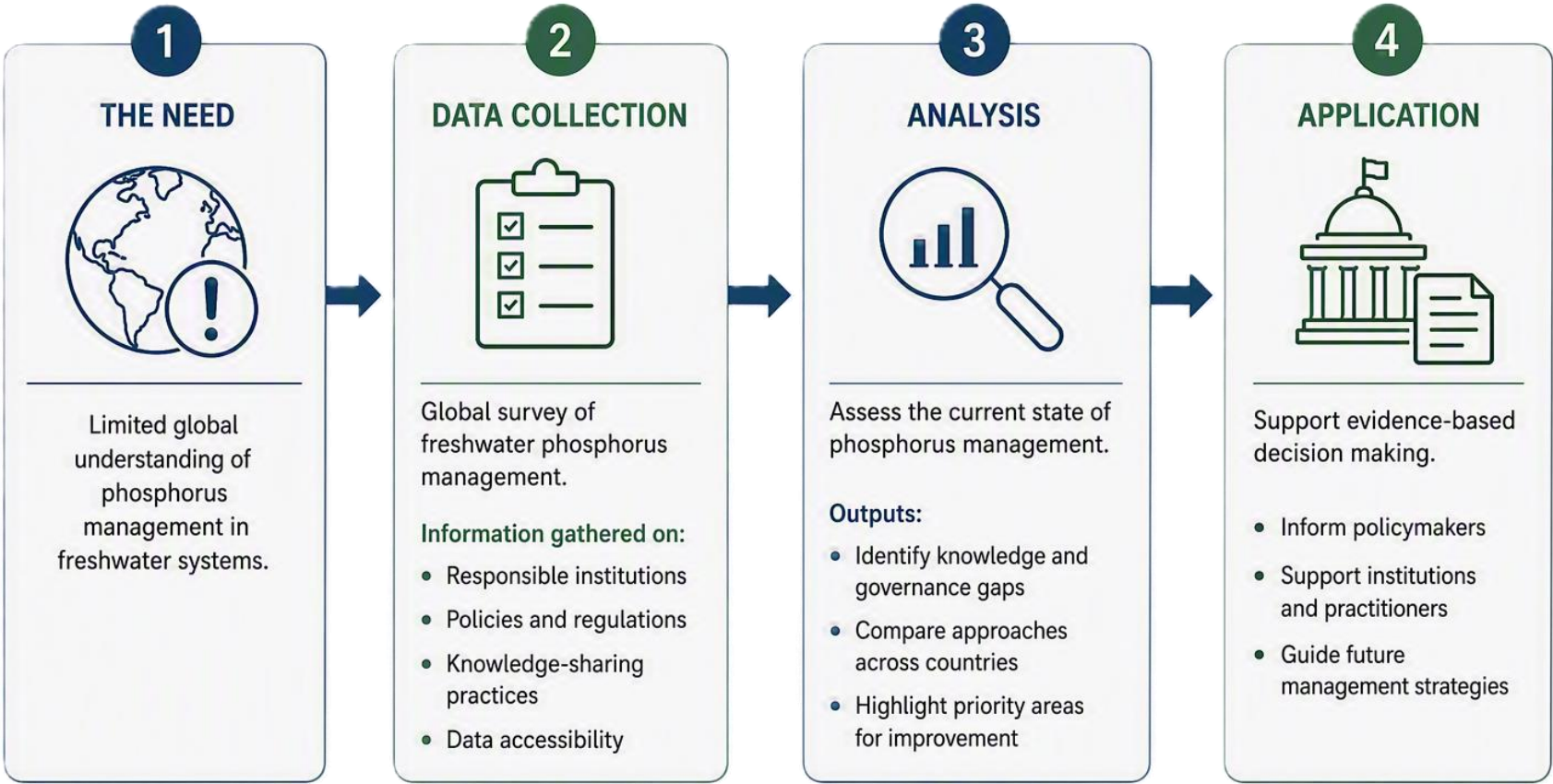
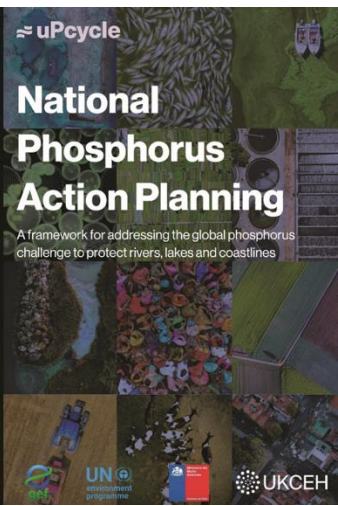


Six **interconnected elements** guide considerations at each process level



By applying this framework, a sustainable phosphorus management plan can be developed at regional or national levels.

# Global assessment on Sustainable Phosphorus Management in freshwater



**Working group:** People within the CoP: China, Netherlands, UK, South Africa, Brazil, Portugal, Uruguay, Singapore, France, Kenya

# Answer the survey and help identify gaps and improve freshwater management



<https://forms.office.com/e/Emc4S11d4R>

The image shows the landing page of a survey titled "Global survey on sustainable phosphorus management in freshwater". At the top, it lists the organizations involved: "Executed by: UK Centre for Global Change Science", "Implemented by: UN Environment Programme", and "Funded by: Global Environment Facility". A language selection dropdown menu is open on the right, showing options: "English (United States)" (selected), "Español (España, alfabetización internacional)", "Italiano", "Nederlands", "Português (Brasil)", and "中文 (简体)". The main title is prominently displayed in the center. Below it, a paragraph states: "This research aims to conduct a global survey on sustainable phosphorus management in freshwater systems. If you agree to participate, you will complete a questionnaire with closed questions. The estimated time to complete the questionnaire is between 20–30 minutes." A green "Start now" button is located in the bottom right corner.

We have the survey in English, Portuguese, Spanish, Italian and Chinese - thanks to our CoP members  
If you want to help us translate into another language, please let us know : [maira.mucci@wur.nl](mailto:maira.mucci@wur.nl)