



waterfuture

Sustainable Water Future Programme

Water Solutions Lab



Water Solutions Lab initiative

Currently, many water initiatives exist and address water challenges from multiple perspectives.

Despite these various efforts, it is beyond any doubt that water-related sustainable development requires further accelerated technological, social and institutional innovation. The increasing demand for the drastic reduction of environmental burdens and the footprints of human consumption, for example, water pollution and groundwater overdraft, implies that adaptation within existing technologies is not sufficient. Instead, radical and systematic innovations – ‘regime shifts’ – are needed to meet such pressing challenges. Despite much progress in technologies over the past two decades, it is clear that the rate of technological development is not meeting the challenges of burgeoning human populations, demand for water, and increased rates of contamination.

Scientists are concerned with the understanding of water scarcity conditions, drivers and its impacts; businesses implement new strategies, technologies and products with many of these critically dependent on water; policymakers on all different levels attempt to mitigate and adapt to environmental impacts; and non-governmental organisations raise awareness and actively protect and support impacted humans and nature.

The limitation of the current approach involves an apparent disconnection between the knowledge generators and knowledge implementers, as the problems and solutions are often identified in silos. The innovation process and solutions developed by the solution identifiers often do not address the root causes of the problem that have been identified by problem identifiers.

We need a change in approach and a framework that strongly connects both problem identifiers with solutions identifiers, knowledge generators and knowledge implementers while focusing on integrated solutions. Such a solutions-oriented, integrated approach can act as an antidote to the otherwise sluggish flow of evidence-based knowledge from the water sciences, to policy formulation and ultimately to application and implementation. It may help to develop ‘knowledge-to-concrete action’ and find solutions through the co-production of knowledge, involving scientists and other stakeholders.

The three major barriers hindering the implementation of an innovative solution are apparent:

1. Lengthy diffusion time of innovation.
2. Lack of knowledge exchange between theory and practice.
3. Lack of implementation research to monitor and understand the effects of innovative solutions.

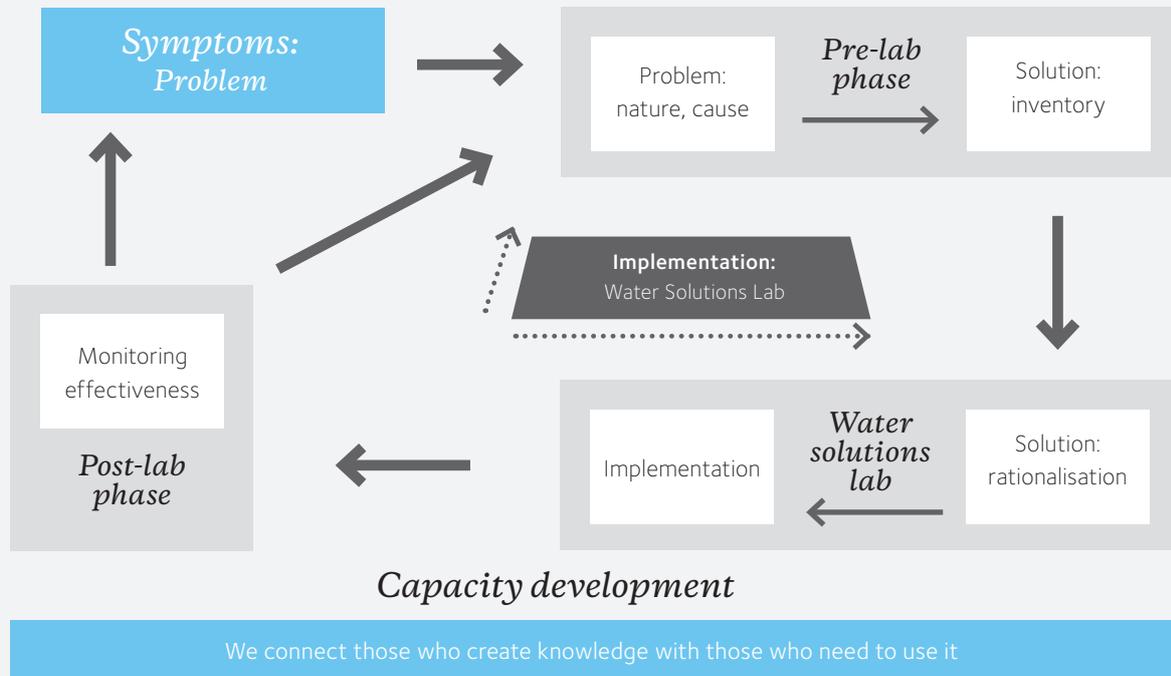
The central goal of the **Water Solutions Lab (WSL)** is to overcome these barriers and **establish a framework to facilitate the process of innovation in water-related issues. WSL integrates problems with solutions towards identifying a feasible set of solutions that address the root causes of the problem at the local level.**

Figure 7 illustrates the process.

The goal will be achieved by stimulating innovation through:

1. Identifying the root cause of problems at local levels using a systems approach, and understanding interactions between hydrology, biogeochemical processes, infrastructure, and human dimensions of water-related problems. As several problems are interconnected, identifying root-causes of the problems through systems-based approaches will help to reduce the costs of solving water-related problems at local levels. It will allow systemic problems to be addressed.
2. Providing a solution knowledge platform that showcases different solutions available at global, regional, national and local levels and is relevant to the problems identified through systems analysis.
3. Identifying feasible solutions from the solution platform that address root causes of the problems using a multi-stakeholder and multi-criteria analysis framework.
4. Monitoring and assessing implementation of solutions using impact analysis.

Figure 7: Water Solutions Lab process



LAB SHARES ITS KNOWLEDGE

The activities are supported by knowledge hubs, which shares knowledge and solutions, and builds the capacity and skills of our international water management community. The knowledge hub:

- showcases different research organisations' expertise in water research, management, policy, and their support for the Lab
- facilitates domestic and international collaboration through developing a network and referral service of water solution providers, experts and institutions or countries with problems
- assists in global capacity building, training and skills development and know-how in water management
- establishes a means for easily presenting and sharing water management knowledge and information
- provides a portal for participants worldwide to discuss, review and share information to create and apply new knowledge and improve practices.

Currently, a co-design process is undergoing to establish such a Water Solutions Lab knowledge hub based at Indian Institute of Science (IISc), Bangalore. It is a collaborative forum (involving many partners including Federation of Indian Chambers of Commerce and Industry (FICCI)) for addressing water-sector challenges in India, with emphasis on challenges facing the city of Bangalore. The Solutions Lab will seek to increase access to effective solution providers in the water sector. Such a process of establishing Water Solutions Lab is also currently underway in other countries.



KEY BENEFITS TO DONORS COUNTRIES AND ORGANISATIONS

1. The WSL framework reduces the transaction cost that is normally incurred in the diffusion process of innovation.
2. The lab will support the development and diffusion of local innovations by managing the flow of knowledge between projects at a global level. Common issues, problems and best practices of local innovation projects can be identified and compared with each other on a global scale in order to accumulate knowledge and strengthen current and future innovative projects.
3. The Lab will benefit private small and medium industries in exploring the demand side for innovative products and services by facilitating dialogue between the private sector and local actors/communities. This will help to stimulate the diffusion process by identifying demand pulls instead of creating a supply push.
4. The Lab will result in business solutions and therefore contribute to economic growth and creation of jobs, and help to enhance the competitiveness.
5. The Labs will also take place in emerging, developing and underdeveloped countries, and in the form of north-south and south-south collaboration. It will be an instrument for cross-learning and help to develop further innovations and business solutions.
6. WSL addresses multi-objectives simultaneously as the result of its multi-stakeholder and multi-criteria perspectives.