

# Mapping UNSW Impact Global Development

<b>Primary SDG</b>	<b>6: CLEAN WATER AND SANITATION</b>
<b>Broad theme</b>	Clean water solutions
<b>Research</b>	Teaming up experts from a range of fields to work with community to design and implement solutions to improve water quality and access
<b>Impact region</b>	Global
<b>Faculty</b>	Engineering
<b>School/Institute</b>	Global Water Institute
<b>Academic</b>	Professor Gregory Leslie
<b>Project partners</b>	PLuS Alliance, Australian Water Partnership, Applied Marine and Estuarine Ecology Laboratory, Australian Centre for Sustainable Mining Practices, Neilan Laboratory of Molecular and Microbial Diversity, Centre for Ecosystems Science, Centre for Marine Bio-innovation, City Futures Research Centre, Climate Change Research Centre, Connect Waters Initiative, Environmental Humanities Group, Evolution and Ecology Research Centre, Sino-Australia Research Centre for Coastal Management, UNESCO Centre for Membrane Science and Technology, Water Research Centre, Water Research Laboratory, South Asian Clinical Toxicology Research Collaboration, TGI India and Australia, TERI
	UNSW Institute for Global Development
<b>Related SDGs</b>	3: Good Health and Well-being, 5: Gender Equality, 11: Sustainable Cities and Communities, 14: Life Below Water, 15: Life on Land, 13: Climate Action

## Elevator pitch

Drawing together experts from law, engineering, science, the arts, and social sciences, the Global Water Institute works with communities to design and implement unique and sustainable solutions to improve water quality and access, improving people's health and limiting their exposure to debilitating disease.

## The Challenge: One in nine people do not have access to safe drinking water

Clean water is essential for all life on our planet but global water issues have never been so prominent, and the demand for solutions never so high. Droughts, flooding, rising sea levels, and dated and basic infrastructure are all affecting the quality of water available to drink and nourish ecosystems. Today, one in nine people in the world do not have access to safe water. One in three do not have access to a toilet. Innovations and solutions are necessary, and they must align with legal and market frameworks.

## UNSW's solution: Bring experts together from the best disciplines to create solutions

Established in 2015, the Global Water Institute offers a truly inter-disciplinary approach to the complex challenges and opportunities facing water and related sectors worldwide. With a membership of over 400 researchers, professional staff and PhD students, GWI is Australia's most advanced water knowledge hub. Its

strength is its scope; lawyers, engineers, ecologists, scientists, and cultural and society experts come together to innovate, investigate and work with communities and government. Current projects include:

- In Cambodia, the GWI is helping to address the presence of arsenic in water thanks that draw water from underground. What is a solution? A GWI geographer, dietician, biochemist, and water treatment specialist are investigating the source of the exposure, how the arsenic is entering and moving through the local food chain, and how the community uses water
- In rural Indigenous Australia, water laden with disease is causing lifelong ill health, such as trachoma. To improve the quality of water, GWI is working with Central and Northern Land Councils on infrastructure planning
- GWI, through the UNSW Centre for Ecosystem Science, is part of a consortium chosen by the NSW Government to restore one of the most important wetlands in the Murray-Darling Basin – the Nimmie-Caira system of the Lowbidgee wetlands
- The town of Walgett has a number of water quality issues. The river water, which is drunk by the town, is treated but people want chlorine added. Ground water, which is not treated, is drunk by the Aboriginal mission outside of town. What should be done? GWI has teamed up with Fabri Blacklock (Art & Design) to create a scholarship for a local artist to explain their relationship to water and highlight priorities for the local people
- In Gujarat, India, the high salinity of water is causing locals kidney problems. GWI is investigating a potential mobile solution to desalinate water from bores and pump them into local tanks
- Dr Nick Osborne is investigating the rise of chronic kidney disease in geographical areas in India which could be caused by heavy metals, pesticides, natural toxins, occupational heat stress, infectious agents and medicines
- GWI water experts are working with the University of Sydney, land councils and Healthhabitat on water security in Australian regional and remote Indigenous communities. The project draws on humanities, social scientific, health, engineering and scientific expertise, and is in partnership with Indigenous organisations and community leaders
- The creation of a UNESCO Chair at GWI for the coastal zone, the region where fresh water and salt water meet. Large populations are expected to be living in coastal regions in the future.

### **The Impact: Prevent illness, promote health and healthy ecosystems**

GWI aims to create solutions to improve the quality of water and access to it around the world. This includes solutions for people and for ecosystems that are sustainable and humanitarian. Higher quality water improves well being, limits disease and the spread of it, minimises pressures on hospitals and saves them money in the process, and allows ecosystems to flourish, promoting wildlife, flora and human livelihoods that rely on them.

### **Researcher**

Professor Greg Leslie is the Acting Director of the UNSW Global Water Institute, and the Director of the UNESCO Centre for Membrane Science and Technology. Prior to joining UNSW, he worked in the public and private sector on water treatment, reuse and desalination projects in Australia, New Zealand, Singapore, Hong Kong and the United States. He served on the World Health Organisation Technical Committee that developed guidelines for desalination, the Water Issue Committee for the Australian National Health and Medical Research Council, and the Independent Advisory Panel for the Orange County Groundwater Replenishment Project (US).

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