UTS

Institute for Sustainable Futures

Global water and sanitation expertise

at the UTS Institute for Sustainable Futures

The UTS Institute for Sustainable Futures (ISF) conducts research to support water and sanitation policy and practice across the globe, as part of a wider effort to contribute to the Sustainable Development Goals (SDGs).

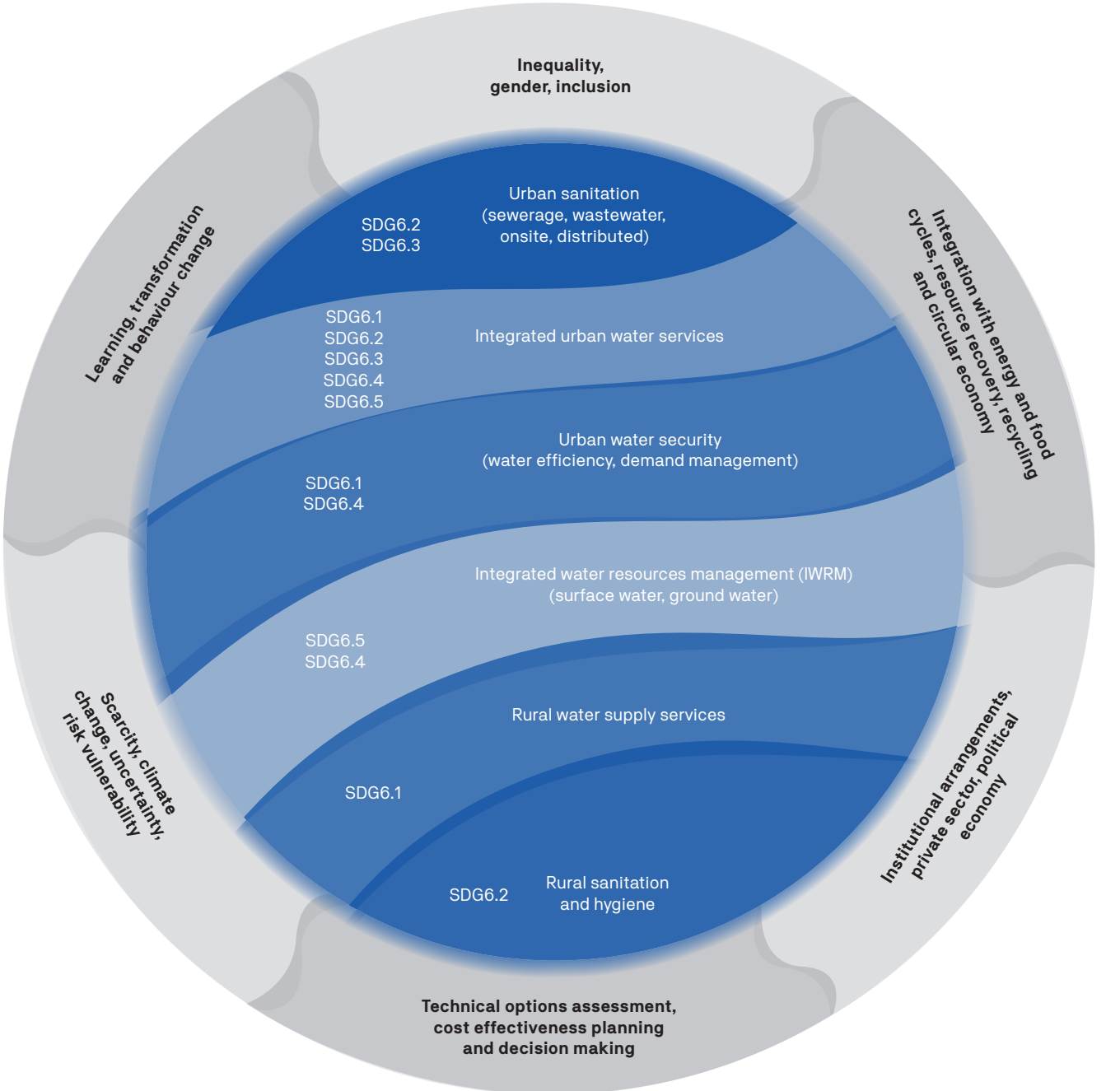
Our recognised expertise:

- Urban sanitation
- Integrated urban water services
- Urban water security
- Integrated water resources management
- Rural water supply services
- Rural sanitation and hygiene

Our work supports more sustainable solutions:

- We provide technical expertise including water cycle options assessment, economic analysis, planning, governance and decision-making support.
- We have in-depth knowledge and experience in water governance issues (including institutional arrangements, policy and regulation), private sector engagement, and political economy analysis.
- We have experience in managing scarcity, climate change, uncertainty, and vulnerability using resilience and adaptive planning, risk assessment.
- We are world leaders in approaches address inequality, and to drive greater gender equality and inclusion.
- We provide holistic solutions to complex problems, drawing on interdisciplinary expertise across the ISF's energy futures, urban planning, natural resource and ecosystem management, food futures, and circular economy teams.

AREAS OF WORK AND CROSS-CUTTING EXPERTISE



OUR WORK CONTRIBUTES TO SUSTAINABLE DEVELOPMENT GOAL 6

Target 6.1
By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

Target 6.2
By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Target 6.3
By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

Target 6.4
By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Target 6.5
By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

Target 6.6
By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

Our Key Strengths

- We have 20 years' experience working across multiple countries within the Asia-Pacific region, South Asia, Latin American, Middle East, Europe, North America and Africa, and play a leading role in the Australian water sector.
- Our team has a diverse breadth of technical, institutional and social science skills – we work together to address complex questions.
- Our projects are designed to support mutual and transformative learning between and amongst our partners and our researchers.
- We work with government, private sector and civil society partners to create change. Our work is applied, grounded in research and makes an impact.
- We are key contributors to global water and sanitation networks, and contribute to the latest evidence and innovations.
- We are at the forefront of thinking and practice towards achieving the integrated Sustainable Development Goals, and our work translates evidence and practice across the Global North and South.

Our Clients

We have provided world-class research consultancy expertise to:

- The Global Water Partnership
- Australian Department of Foreign Affairs and Trade
- Australian Water Partnership
- International Water Association
- USAID
- World Health Organisation
- United Nations Development Program
- Department for International Development UK
- UNICEF
- National and subnational governments
- Civil society organisations including WaterAid, Plan International, National and sub-national governments
- Australian water utilities and state government agencies

Our Networks

ISF contributes to a wide range of global networks:

- Strategic Advisory Board of International Water Association (IWA)
- Board Member of ICE WaRM
- Member of the Australian Water Partnership Advisory Committee
- Member of the Australian Water Partnership Expert Review Panel (Gender, Equity and Social Inclusion)
- Chair of the IWA efficient urban water management specialist group
- Co-chair of the AWA Water Efficiency Specialist Network
- Executive Committee of the Australian WASH Reference Group
- Research and Learning Constituency of 'Sanitation and Water for All' Global Partnership
- Organisational partner in global Faecal Sludge Management Alliance
- Member of Sustainable Sanitation Alliance
- Member, contributor, chair to the Rural Water Supply Network
- Global Phosphorus Research Initiative

What we offer

- We provide high-level technical expertise across the water and sanitation sectors
- We offer independent research and analysis based on sound knowledge of the global evidence base.
- We provide advisory support and capacity building on strategic and sustainable water and sanitation management approaches, monitoring and evaluation.
- We conduct independent evaluations, based on our sectoral expertise and innovative evaluative methodologies.
- We create practical guidance materials to support more effective policy and programs.
- We provide partnership opportunities to improve policy and practice.

Urban sanitation, wastewater and recycling

ISF is recognised for both addressing urban sanitation challenges in diverse contexts around the world, including in developing country contexts, and supports Australian utilities in the integration of wastewater solutions within the wider water cycle.

ISF has led multiple applied urban sanitation research projects in Indonesia, including for the DFAT-funded Australia-Indonesia Infrastructure Facility on strengthening governance and institutional arrangements in six cities in Sumatra, and a DFAT-funded transdisciplinary research project on the governance and sustainable management of community-scale sanitation systems. These projects identified how the political economy affects service provision and informed national policy and local planning. Related work for the Water Environment Research Foundation (WERF) examined risk, reliability, governance and management arrangements for onsite systems in US.

In the South-East Asian region as part of the multi-country 'Enterprise in WASH' research initiative, ISF investigated the role of private sector in faecal sludge management (FSM) and business success factors. While in Vietnam, ISF developed an award-winning approach to assess the costs and sustainability of sanitation options for a peri-urban areas.

In partnership with SNV across Asia and Africa, ISF has co-developed papers bringing critical questioning and innovative thinking to FSM and wastewater financing, planning, monitoring, compliance, resource re-use and climate change. ISF also lead the development

Poor sanitation conditions in Dhaka (bangladesh)
Photo credit: Juliet Willetts

of an approach to assess health risks in urban sanitation investment options through the DFID-funded initiative of Water and Sanitation for the Urban Poor (WSUP).

Planning for key future disruptors to the sewerage system is important for delivering resilient servicing systems. ISF used foresighting to identify future uncertainties related to the Melbourne (Australia) sewerage system under three domains: physical infrastructure, institutions, and customers.

A circular economy planning approach for urban sanitation planning with Sydney Water saw the integration of water, wastewater and organic waste. Water recycling, phosphorus recovery, biogas generation using food waste and biosolids, and generating compost for agriculture all contribute to reducing the use of freshwater, grid electricity and the disposal of biosolids to landfill and/or the environment.

Institutional Innovation for Integrated Urban Water Services

ISF works with water professionally to develop strategies and approaches to deliver water services that systematically add economic, recreational, aesthetic and environmental value. Sustainability opportunities are identified using a circular economy approach, focusing on reductions in energy use, water use, and organic waste.

ISF's innovative research into restorative infrastructure asks the question:

"What if we started to expect something quite different from our infrastructure? Can we go beyond reducing ecological damage and seek to design infrastructure that actually improves the local environment, economy and society?"

This work involves thinking differently about networks; institutional arrangements; recovery of valuable materials; acceptable levels of risk, security and price; meaningful engagement with customers and communities; and a more expansive approach to externalities.

For example, our international project, Pathways to One Water, provided a user-friendly guide for institutional innovation and overcoming the institutional challenges that limit the ability to develop systems that contribute to liveability through an integrated water management approach.

Planning for resilience is now key for all utilities. Our award-winning work with the four urban water utilities in Melbourne was the first

Sydney's 'One Central Park' is a built-environment leader in water recycling
Photo credit: Simon Wood

to show the value of investing in diverse responses: efficiency plus distributed generation plus centralised infrastructure. ISF also has expertise in how best to invest in and govern and regulate distributed water infrastructure, developed over two decades of projects across the US, Australia and Asia.

Recycled water systems can meet many of the opportunities and challenges currently facing the urban water industry. However, current regulatory, financial and institutional arrangements can make this challenging. In a national project ISF took an in-depth case study approach to reveal the real stories behind experiences to date - why context matters in every situation, and how the practical assessment of success goes beyond economics. Our resources fill the knowledge gap for investors and decision makers around the real costs, benefits and risks of recycled water schemes.

Urban water security: responding to and planning for water scarcity and drought

Drought in Australia
Photo credit: istock

For over two decades ISF has supported water utilities, governments, industries and communities to manage drought response, deal with uncertainty and impacts of climate change, and implement long-term planning to ensure cities, towns and their surrounding regions maintain water security.

Our research aligns with the SDGs and improves the accessibility, equity and security of water and wastewater services in urban centres across the world.

Our integrated approach to drought response and long-term planning includes: supply-demand analysis; institutional, economic, financial and social context appraisal; and identifying the most cost-effective, sustainable and equitable water, sanitation, stormwater capture, water efficiency and conservation, and recycling options. We investigate how water scarcity affects all sectors of society and economy, spanning business and industry needs to the implications of drought responses on marginalised and vulnerable communities.

We assess how different supply and demand options increase water security rapidly in response to drought, as well as in the longer term. To deal with uncertainty in drought we apply a real options or "readiness to construct" approach to stage expenditure in infrastructure when needed. With governments and utilities we co-develop and help implement the required changes in regulatory, institutional, pricing and financing arrangements.

We have supported many cities and towns deal with severe drought, including: all major Australian cities during and since the Millennium Drought; California; Cape Town, South Africa; Iloilo and Zamboanga, Philippines; Alexandria, Egypt; Madrid, Spain; and São Paulo, Brazil.

Integrated Water Resources Management

ISF has broad experience in Integrated Water Resources Management (IWRM) in Australian and international contexts, and has specialised expertise in planning, institutional arrangements, gender equality and governance of water resources at the river basin to local catchment scales.

In India, ISF provided international development expertise as part of the Australian Water Partnership (AWP) funded River Basin Planning Project. The project involved engagement with a range of Indian government agencies across several states in India to consult on how river basin planning processes, including institutional arrangements, could be strengthened, informing a user guide to be used by central government agencies and states in India to support river basin planning processes.

ISF has recognised world-leading expertise in the intersection of gender equality and inclusion, and IWRM. We have delivered high profile research projects such as the Gender and SDG 6: The Critical Connection Framing Paper (2016) and Discussion Paper (2017), which influenced the High Level Panel on Water to take steps towards incorporating gender and inclusion considerations in its Action Plan. Additionally, ISF researched and authored the Global Water Partnership's Action Piece for gender equality in water resources management, with a focus on IWRM. ISF sits on the Expert Review Panel of the Australian Water Partnership, providing gender equality and inclusion advice.

Krishna River
Photo credit: iStock

ISF is also leading thinking about the intersection of water and sanitation services and water resource management. We take a holistic view, drawing on the notion of a safe and just planet, which integrates Rockstrom et al's 'Planetary Boundaries' framework and Raworth's 'Doughnut Economics', and are currently applying this thinking to research on climate-resilient sanitation (across urban and rural areas) and groundwater reliance and management.

Rural water systems in Cambodia.
Photo credit: Melita Grant

Rural Water Supply Services

ISF carries out cutting edge research on rural water supply issues across the Asia-Pacific region. Our inter-disciplinary expertise spans a diverse range of rural water supply domains, including institutional and regulatory aspects, finance and economics, political economy, technology, climate change, and water science.

In recent years we have evaluated rural water supply initiatives for both multilateral organisations and international non-government organisations across Asia (World Bank, DFAT), the Pacific region (UNICEF) and sub-Saharan Africa (Oxfam, Caritas). Our work has directly informed policy and practice in a number of domains and at multiple levels, from water quality monitoring practices and technological choices through to government and development partner support mechanisms for services providers.

Our "Enterprise in WASH" initiative has also generated critical insights and charted a pathway forward for private enterprises and entrepreneurs to delivery rural water services in Cambodia, Vietnam and Indonesia. This includes a better understanding of barriers and opportunities, lifecycle costs, and the role of women in service delivery.

Rural Sanitation and Hygiene

ISF has a long track record supporting rural sanitation, working in partnership with governments and civil society organisations and addressing critical questions and evidence gaps to inform sector strengthening towards sustainable outcomes.

As part of our 'Enterprise in WASH' research initiative, ISF investigated private sector engagement in rural sanitation including analysis of sanitation value-chains for remote rural areas and political economy analysis, exposing the need for greater focus on equity if the SDG goal to 'leave no one behind' is to be met.

Through a long-term partnership with SNV Netherlands Development Organisation working across Asia and Africa, ISF has co-developed papers on inclusive rural sanitation, pro-poor support approaches and safe reuse for food production. Through our most recent collaboration, ISF is contributing to new thinking on climate change, social accountability and gender equality aspects of rural sanitation.

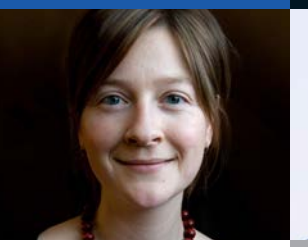
ISF are also part of the international "Making Rights Real" consortium, comprising WASH United, UNICEF, WaterAid and others. This group works to equip local governments with the knowledge and resources to progress the Human Rights to Water and Sanitation including. It includes a focus on institutional arrangements as well as policy and regulation that supports local governments to play their mandated roles.

Sanitation entrepreneur
with toilet facilities she built.
Photo credit: Juliet Willetts

About ISF

The Institute for Sustainable Futures (ISF) is a research institute within the University of Technology Sydney. We work with industry, government and the community to create change towards sustainable futures through research and consultancy.

Distinguished Professor Cynthia Mitchell



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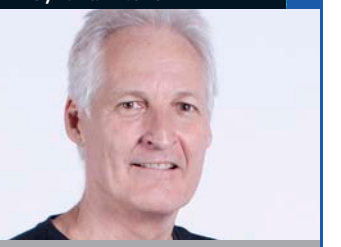

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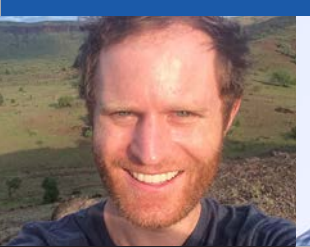

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Let's collaborate

We look forward to hearing from you to see how our global water and sanitation research expertise can be applied to your needs.

Contact Melita Grant for more information and links to our wider team.

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