



Dear friends,

Twenty-five years ago, the Institute for Sustainable Futures was established as a flagship research institute of the newly formed University of Technology Sydney.

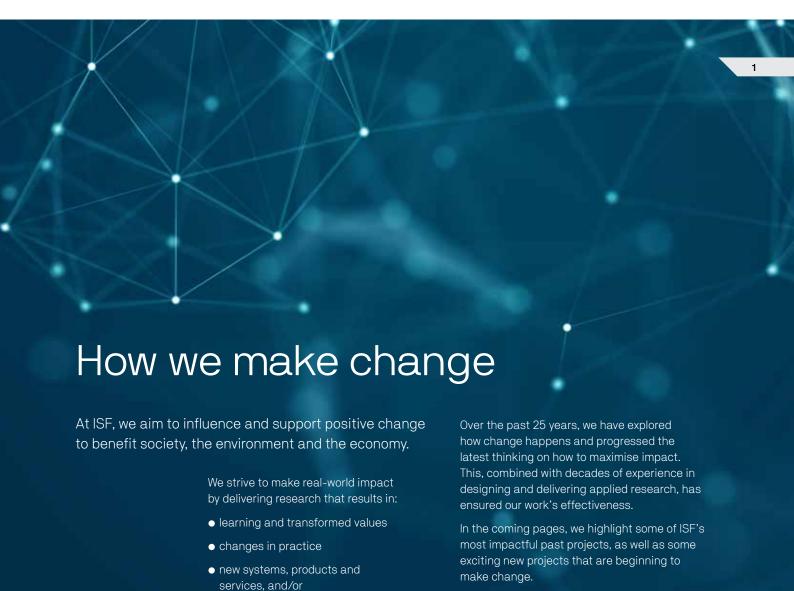
Twenty-five years later, the institute has grown in size and ambition. Our mission has never changed, but ISF now has expanding teams in six research programs, a vibrant higher degree research program and is formally exploring short course development.

Each year, the research programs work together, and with our partners, on some 200+ projects, providing sustainability solutions to all aspects of life, from resources to waste, water to energy, food security to economic security.

This year, we celebrate ISF's achievements from the past 25 years, but this is not to say we've stopped looking to the future. As new opportunities and challenges emerge, we continue to meet them with energy and expertise. Our goal remains the same... a better, fairer, more secure future for generations to come.

Stuart White

ISF Director



policy changes.

25 years of ISF

1997

- ISF established
- 5 staff, 10 students

2000/01

- Delivered Container
 Deposit Legislation
 review for NSW Minister
 for Environment
- Developed Your Home, Australia's first green building guide

2006

Reviewed Sydney Metropolitan Water Plan

2009

- Developed responsive passenger information systems for rail industry partners and Rail Manufacturing CRC
- Hosted Australian node of World Wide Views on Global Warming

1998

 Produced Sydney Water Least Cost Partnering study

2004/05

- 37 projects
- Moved from Australian Technology Park to City Campus Building 10

2007/08

- 47 projects
- Co-founded the Global Phosphorus Research Initiative
- Devised City development strategies for Vietnam

2011

 Produced decentralised Energy Roadmap for CSIRO Intelligent Grid Cluster

2015/16

- 54 staff. 34 students
- 112 projects
- Research areas aligned with UN Sustainable Development Goals

2020

- 212 projects
- Co-founded for RACE 2030
- Co-founded Product Stewardship Centre for Excellence

2022

 ISF 25-year anniversary

2013/14

- Hosted Development Futures conference with ACFID
- Led Adaptive Communities Node of NSW Adaptation Research Hub
- Helmed Wealth from Waste project

2018

- 90 staff, 47 students
- 155 projects
- Led One Earth Climate Model for Leonardo DiCaprio Foundation
- Launched TULIP smart city program

2021

 Conducted Australia's first large-scale survey of renewable energy employment

Learning and transformed values

Australian Volunteers Program evaluations

ISF research supported effectiveness of the government-funded aid program.

Client: Australian Volunteers International

In 2019, ISF established a baseline description of three impact areas – inclusive economic growth; human rights; and climate change, disaster resilience and food security – and mapped alignment of the Federal Government's Australian Volunteers Program to these in all 26 countries where it works.

From 2019 to 2021, we carried out three deep-dive evaluations to assess the program's contribution to development outcomes: inclusive economic growth in Indonesia, human rights in South Africa, and climate change, disaster resilience and food security in the Pacific.

Impact

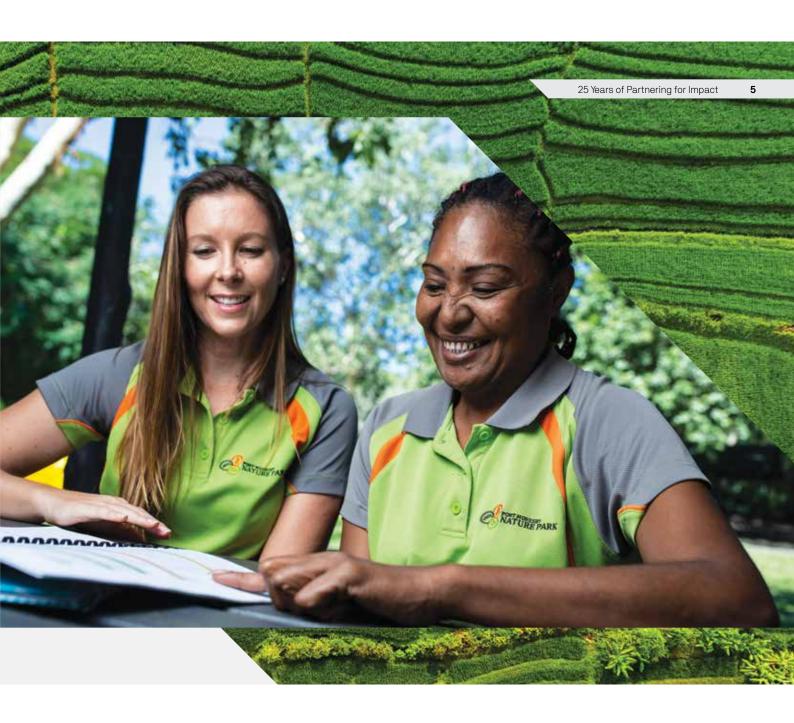
The Department of Foreign Affairs and Trade (DFAT), funders of the Australian Volunteers Program, agreed to act on all eight recommendations from ISF's first evaluation.

ISF presented synthesis findings of the evaluation to DFAT and Australian Volunteers Program staff. The evaluation reports have been circulated widely within the Program, within DFAT and are publicly available.

View full story:

Researchers:

Keren Winterford, Anna Gero, Tamara Megaw, Rebecca Cunningham, Jay Faletta



Challenging the approach to recycled water investment

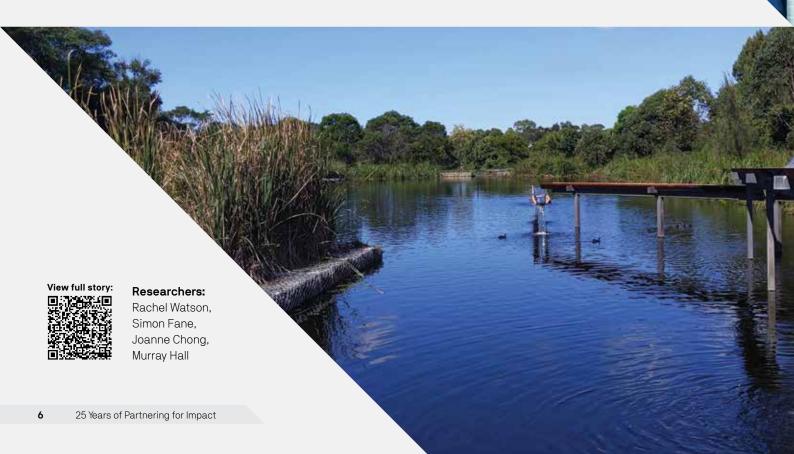
ISF research helped Sydney Water to improve their recycled water schemes.

Client: Sydney Water

In 2019, ISF collaborated with Sydney Water, to question the utility's approach to non-potable recycled water. Our research uncovered 20 ways Sydney Water could change and innovate to reduce costs and increase the viability of their schemes.

Impact

Sydney Water acted on seven of ISF's 20 recommendations, changing their infrastructure across small, medium and large schemes and investing in additional recycled water projects.





Wellbeing Wardrobe

ISF research for the European Environmental Bureau takes on the significant issue of sustainability for the textile and garment industry.

Client: European Environmental Bureau

Partners: Erasmus University Rotterdam, Lund University

Produced in partnership with Erasmus University Rotterdam and Lund University, this research envisions a transformation of the fashion and textiles system to one that operates within planetary boundaries and provides social living standards to the many millions of people who depend on the sector for their livelihoods.

Steps towards impact

This research provides evidence that will inform policy around a growth-independent fashion sector, and recommendations that will support change within the emerging EU textile policy mix.





Researchers:

Samantha Sharpe, Monique Retamal, Taylor Brydges, Rebecca Cunningham

Australian Technology Network of Universities

The UTS carbon reduction strategy and ISF's research were pivotal to a landmark project to reduce greenhouse gas emissions in Australian universities.

The Australian Technology Network of Universities (ATN) – Queensland University of Technology, Curtin University, RMIT, the University of South Australia, and UTS – pledged in 2009 to reduce their aggregate greenhouse gas emissions to 25% below 2007 levels by 2020.

ISF provided the research basis for the 25% reduction and supported the ATN's commitment by developing greenhouse gas inventories, scenario modelling based on individual university reduction strategies, capital works and policy developments. ISF also prepared financial analysis of the investment needed to meet the 25% target.

The ATN agreement demonstrated leadership in the university sector and set in motion an ongoing process of adaptable emissions reduction.

Impact

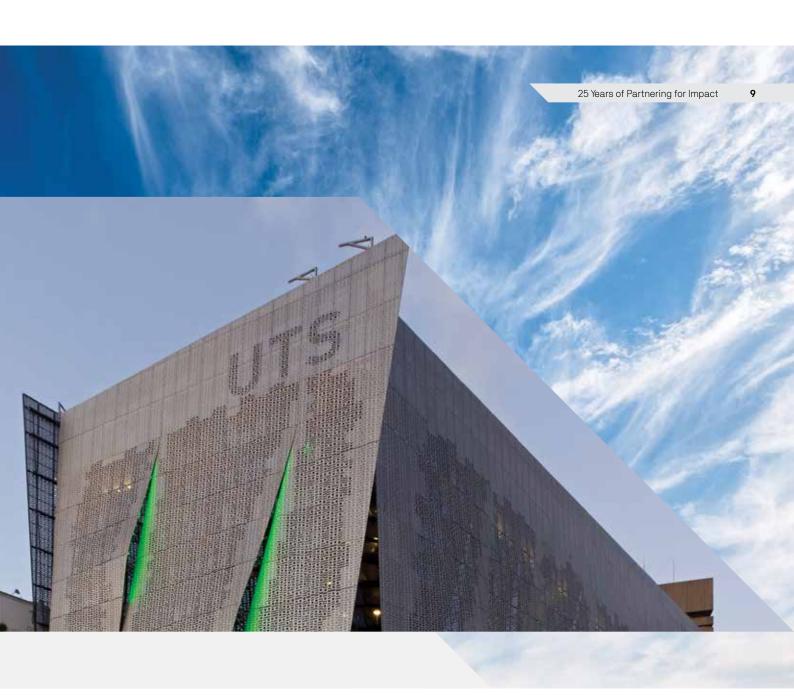
By 2020, the ATN universities had exceeded their emissions reduction target of 25%, collectively achieving a reduction of 46%.

UTS recorded a 30% reduction in 2020, despite a 50% increase in floorspace. The ATN agreement informed the UTS Climate Change Action Plan (2009), the UTS Sustainability Strategy (2011), and the new UTS Climate Positive Plan.



Researchers:

Chris Riedy, Fiona Berry



Enterprise in WASH

ISF helped civil society organisations support small-scale enterprises in bringing water, sanitation and hygiene to poor communities in Asia.

Clients: WaterAid, DFAT

Partners: Plan International, SNV Netherlands
Development Organisation, Universitas Gadjah Mada,
National University of Timor-Leste, Centre for Natural
Resources and Environmental Studies, The Overseas
Development Institute, Institute of Economic and
Irrigation Management (IWEM)

Enterprise in WASH was a two-phased project that ran from 2013 to 2018. In the first phase, ISF researchers investigated viable business models for supplying privately managed water to disadvantaged rural areas in Indonesia, Vietnam and Timor-Leste. This research identified knowledge and skills gaps among stakeholders and made recommendations to address them. The research also looked at strengthening the role played by civil society organisations (CSO) in supporting small-scale enterprises. Outcomes included training and educational resources for CSO staff.

The second phase, which also included Cambodia, looked at the role of women in water, sanitation and hygiene (WASH) and recommended ways to strengthen business enterprise development via intermediary organisations such as local governments.

Impact

Project partner and CSO SNV Vietnam used ISF's findings that remote communities need cheaper alternatives to government-approved sanitation technologies to inform its work with the World Bank in nine Vietnamese provinces.

WaterAid Timor-Leste changed its approach from focusing solely on marketing only traditional heavy and breakable latrines to supporting entrepreneurs to trial low-cost, light-weight product designs for areas with poor roads and transport facilities.

In 2020, project partner IWEM, continued to guide the Vietnamese government on the basis of this research.



Researchers:

Tim Foster, Juliet Willetts, Naomi Carrard, Caitlin Leahy, Anna Gero, Melita Grant



New systems, products and services

Network Opportunity Maps

ISF research is behind a free resource that provides annually updated data on Australia's electricity grid to renewable energy companies, community groups, energy planners and providers of local energy efficiency and clean energy services.

Major funder: Energy Networks Australia, ARENA

ISF partnered with ARENA and a coalition of energy network businesses to develop a series of free online maps showing Australia's electricity network. NOM includes spatial data from all electricity network businesses on network constraints, planned investment and the potential value of distributed energy resources to provide network services across the Australian National Electricity Market (NEM). The Network Opportunity Maps bring Distribution and Transmission Annual Planning Report (DAPRs, TAPRs) data together in a consistent format across jurisdictions, to make it more visible and meaningful for those seeking to understand areas of opportunity to provide network services or connecting new sources of renewable generation.



The project uses the Dynamic Avoidable Network Cost Evaluation (DANCE) model developed by ISF as part of the Intelligent Grid research program. ISF has previously applied the DANCE model for mapping Decentralised Energy for Victoria and for rural areas of the NEM suitable for concentrating solar power.

Impact

Upon launching in October 2015 until March 2016, the maps received 22,600 visits, representing 1,256 unique users.

In 2017, peak body Energy Networks Australia formally took over the production of the Network Opportunity Maps, which are now available on the National Map portal. By 2018, NOM maps were among the most popular on the Australian Renewable Energy Mapping Infrastructure (AREMI) platform with four of its datasets featuring in the top 10 most utilised layers.

ISF is currently working on the latest update of them, due for launch in July 2022.

View full story:



Researchers (2022):

Ed Langham, Jaysson Guerrero, Joe Wyndham

CASE STUDY

SIMPaCT Sydney Olympic Park

ISF helps introduce smart technology to improve water management and keep NSW's biggest public park cool.

Client: Sydney Olympic Park Authority

Partners: NSW Department of Planning, Industry and Environment, Sydney Water, Western Sydney University

SIMPaCT (Smart Irrigation Management for Parks and Cool Towns) merges environmental monitoring and Al across Bicentennial Park, 42 hectares of public parkland that hosts a diversity of microclimates.

ISF researchers are collaborating with other universities and industry to deploy smart sensors across the park, to gauge external conditions and use that data to inform the park's irrigation system of what each discrete microclimate needs.

Steps towards impact

SIMPaCT is Australia's largest smart green infrastructure project and a major leap forward in the development of heat-responsive urban design

SIMPaCT also relieves pressure on water supplies, saving resources and money.





Researchers: Andrew Tovey, Kerryn Wilmot, Simon Fane

Your Home

ISF is behind Australia's most comprehensive, practical, and detailed guide to environmentally sustainable homes.

Partner: Australian Greenhouse Office

First published in 2001 by ISF and the Commonwealth Government, Your Home provides comprehensive, expert and independent advice to designing, building and buying sustainable houses, including new homes and renovations. Your Home, available in print and online, is now in its sixth edition. It remains one of the most widely used resources to inform household sustainability measures in Australia.

Impact

A 2021 Department of Industry report found that the Your Home website attracts more than 1 million visitors per year, and approximately 120 Your Home books are sold each month.

Your Home is used as an educational resource for the Master Builders' Association's Green Living program and for the Housing Industry Association's Green Smart Professional CDP programs.

View full story:



Researcher: Caitlin McGee





Phosphorus: the missing ingredient to food security

76.0

ISF research continues to inform the world's approach to managing the problematic – and vital – nutrient.

P-FUTURES funders: International Social Science Council, The Swedish International Development Cooperation Agency

P-FUTURES partners: National University of Civil Engineering (Vietnam), Arizona State University, University of Malawi – The Polytechnic

RePhoKus funders: Biotechnology and Biological Science Research Council, Economic and Social Research Council, the Natural Environment Research Council. Scottish Government

RePhoKus partners: Lancaster University, the University of Leeds, Agri-Food and Biosciences Institute (AFBI), UK Centre for Ecology and Hydrology (CEH), and the N8 AgriFood Programme

As an essential nutrient in fertilisers for food production, phosphorus has no substitute. The world's main source, finite phosphate rock, is controlled by a handful of countries and is becoming increasingly scarce, which poses a threat to food security from Australia to Malawi to the UK. At the same time, wide-spread overuse of phosphorus fertilisers is tainting our water supplies.

Over the past decades, ISF researchers have co-designed and collaborated on major international sustainable phosphorus projects, including P-FUTURES Cities – which investigated innovative governance models to manage phosphorus in diverse peri-urban locations in Australia, Vietnam, Malawi and the US – and RePhoKus, which identified phosphorus vulnerability in the UK food system and opportunities to transform.

Impact

ISF's work for RePhoKus, which engaged stakeholders in a national workshop including policy-makers and regulators and members of the agri-food and water industries, led to the development of the UK's first National Phosphorus Transformation Strategy.

View full story:



Researchers:

Dana Cordell, Brent Jacobs, Stuart White



NSW Container Deposit Scheme

ISF research is central to the single largest initiative ever undertaken to reduce litter, and recover resources, in NSW.

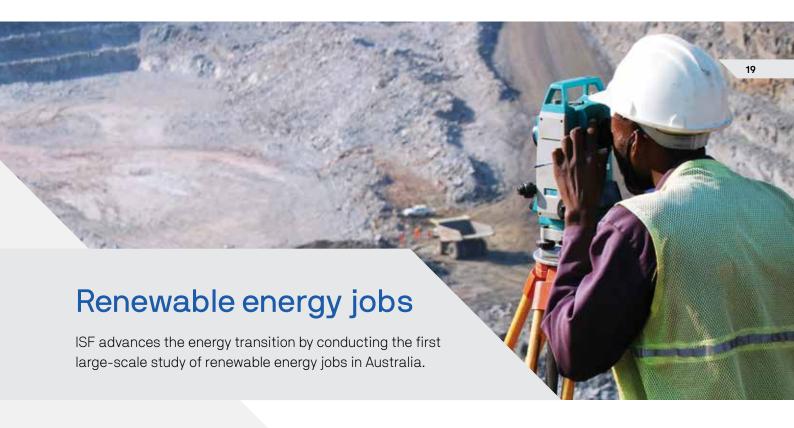
Partner: NSW Government

In 2000 and again in 2017, ISF researchers tested the viability and benefits of a state-wide container deposit scheme. Their findings formed a positive evidence base for the scheme, leading to its establishment and uptake across Australia.

Impact

By March 2020, three-quarters of NSW's population had participated in the scheme and 5 billion containers had been returned. By this time the scheme had generated more than \$10 million in revenue for the not-for-profit sector and created recycling industry jobs.





With the transition to renewable energy gaining motion, the question of Australia's energy workforce remains at the fore. In 2019-20, ISF researchers undertook the first large-scale survey of employment in renewable energy to understand the number, types and location of jobs that will be created, and the opportunity for alternative employment for coal industry workers.

ISF surveyed more than 450 Australian renewable energy businesses across Australian manufacture, installation, operation and supply chains for wind and solar energy, hydro and pumped hydro power, and batteries. The results were applied to the renewable energy scenarios used by the Australian Energy

Market Operator in its draft Integrated Systems Plan to estimate the resulting job creation into the future.

Steps towards impact

ISF's research highlighted the urgency of appropriate policy to support a potential 45,000 electricity sector jobs by 2025 under a 'step change' scenario consistent with the goals of the 2015 Paris Agreement.

The data is widely used by governments, industry, training authorities and community groups to understand and plan for the employment growth and helped inform public debate through extensive national and regional media coverage.



Researchers: Chris Briggs, Jay Rutovitz

Partnerships that maximise impact

ISF's partnership model means working in collaboration with our clients and partners to develop research outcomes that meet their individual needs.

Action on Poverty

AECOM

AgriFutures

Alluvium Consulting

American Express

Athena Infonomics

Australasian Circular Textile Association

Australia Water Partnership

Australia-China Relations Institute

Australian Centre for International

Agricultural Research

Australian Council for International

Development

Australian National University

Australian Packaging Covenant

Organisation

Australian Renewable Energy Agency

Australian Research Council

Australian Volunteers for International

Development

Australian Water Partnership

Bill and Melinda Gates Foundation

Blacktown City Council

Bread for the World

Central Coast Council

Central Highlands Regional Water

Authority

Central NSW Councils

Centre for Work Health and Safety

CHEP

City of Sydney

City West Water

Clean Energy Council

Climate Risk

Climate-KIC Australia

Commonwealth Department of

Agriculture, Water and the Environment

CRC Race for 2030

CSIRO

Data61

Department Environment, Land, Water

and Planning

Department of Environment and Energy

Department of Environment, Land,

Water and Planning (Vic)

Department of Foreign Affairs and Trade

Department of Industry, Science.

Education and Resources

Department of Prime Minister and Cabinet

Department of Water and Environment

Regulation (WA)

Department of Water and Environmental

Regulation (WA)

Desert Knowledge Australia

Deutsche Gesellschaft f√r Internationale

Zusammenarbeit (GIZ)

Earthworks

East Meets West Foundation

Energy Networks Australia

Equilibrium

EU Marie Curie ITN

European Climate Foundation

Faculty of Design, Architecture and

Building, UTS

FFA Pacific

Flow Power

Food Agility Cooperative Research Centre

FRDC

Future Battery Industries Cooperative

Research Centre (FBICRC)

Future Earth

Future Superannuation Group

GHD

Greenpeace

gwa group

Gwydir Shire Council

Health Infrastructure NSW

Hort Innovation

IGO Independence Group

Infrastructure Australia

Infrastructure Victoria

Inner West Council

Institute for Sustainable Futures

Institute of Development Studies at the

University of Sussex

Insurance Australia Group

International Labour Organisation

Kmart

Knight Frank Australia

Collaboration also means greater impact. Our clients and partners play a crucial role in maximising the impact of our research by using their influence and connections to socialise our findings and enact change. In many instances, we deepen impact by collaborating with a partner on a series of related projects.

At ISF, we value our relationships and thank each of our collaborators for their support over the past 25 years.

Lake Macquarie City Council Latrobe Valley Authority Lithgow City Council

Maritime Union of Australia

Nation Partner

National Australia Bank (NAB)

National Institute of Dramatic Art (NIDA)

NFRC

New Democracy Foundation

Northern Sydney Regional Organisation

of Councils

NSW Department of Education
NSW Department of Industry

NSW Department of Planning and

Environment

NSW Department of Planning, Industry

and Environment

NSW Department of Primary Industries

NSW Environmental Protection Authority

NSW Environmental Trust

NSW Family and Community Services

NSW Farmers Association

NSW Office of Environment & Heritage

NSW Office of the NSW Chief Scientist

and Engineer

Nursery and Garden Industry Australia

One Earth - Rockefeller Foundation

Pacific Institute for Studies in

Development, Environment and Security

Palladium International

Parramatta City Council

Plan International Asia-Pacific

Power and Water Corporation NT

Productivity Commission

Randwick City Council
Research for Development Impact

Network

Rio Tinto

Sanitation and Water for All

SEQ Water

SMEC International

SNV Netherlands Development

Organisation

SPC

Stand.earth

Stewart Investors

Sustainability Advantage

Sustainability Victoria

Sustineo

Swiss Federal Institute of Aquatic Science

and Technology

Sydney Airport

Sydney Partnership for Health, Education,

Research and Enterprise (SPHERE)

Sydney Water Corporation

Tearfund UK

The Hills Shire Council

The University of Leeds

Transdev Australasia

Transport NSW

UNICEF Indonesia

United Nations Food and Agriculture

Program

United Nations PRI. Net Zero Asset

Owners Alliance

University College London

University of Oxford

Vivid Economics

Water and Sanitation for the Urban Poor

Water Corporation WA

Water Research Foundation

Water Services Association of Australia

Wattwatchers Woolworths

.....

World Bank

World Future Council

World Health Organisation

World Vision

World Wildlife Fund for Nature (WWF)

Yarra Valley Water

Empowering with education

ISF's learning opportunities showcase the latest thinking in sustainability and respond to the changing landscape of sustainability challenges, while drawing on our experience of transdisciplinary practice.

Our award-winning higher degree research program for postgraduate students nurtures a new generation of sustainability researchers, while our program of short courses provides specialist guidance for professionals on topics such as circular economy, deliberative democracy and systems thinking.

Two of ISF's current PhD students speak about their research and their experience of learning at ISF.



Naomi Carrard

Placing Sustainability at the Centre of the Water, Sanitation and Hygiene Sector: A Transdisciplinary Inquiry

Supervisors: Professor Juliet Willetts, Emeritus Professor Cynthia Mitchell

My research investigates ways to bridge conceptual thinking about sustainability with what people are doing in practice on the ground, particularly focusing on the challenging development space in water, sanitation and hygiene (WASH).

I wanted to tackle a big issue by undertaking four complementary studies and ISF's transdisciplinarity was the right way to knit them together.

The transdisciplinary inquiry documented in my thesis explores how WASH professionals can translate and implement sustainability concepts in sectoral research and practice.

I hope that daily practices, actions and programs of work that are undertaken in WASH continue to address the important challenges of services for people. The research aims to strengthen this work by also bringing in imperatives around water resources, local environments and wider global sustainability challenges.

I chose to undertake my doctorate at ISF because the transdisciplinary approach to research really resonated with me. I was able to be quite ambitious in my scope and conceptualisation, bringing together different methods and ideas to tackle a complex challenge. I was supported to find ways to tell a story and knit connections together, and ISF's encouragement of publication through your PhD is another real asset associated with the program.





Rupert Legg

A geography of the disruptive effects of contaminated sites on residents' mental health: The regulation of PFAS sites

Supervisors: Professor Jason Prior, Dr Erica McIntyre, Distinguished Professor Jon Adams (UTS School of Public Health)

My PhD explores how residents living around contaminated environments are psychologically affected by the experience and how the government currently manages and responds to cases of environmental contamination. This has involved interviewing and surveying residents in sites affected by per- and polyfluoroalkyl substances (PFAS) and the regulators and managers of these sites

My research highlights exactly how the environment relates to mental health and what can be done to minimise the negative effects of environmental contamination.

The aim is to improve current management approaches to protecting communities affected by environmental contamination. A further outcome of the work is making the case for the need to better regulate the chemicals we produce, including preventing their leakage into the environment. Doing so will not only clean the environment, but also improve our physical and mental health.

I was drawn to ISF when I came across some of the great sustainability research it has done. The sheer breadth of the research and its unique approach to academia have inspired me to take on my PhD here at ISF.

Having the pleasure of working at the forefront of sustainability science and conducting research that can have positive, real-world impacts is one of the most exciting things about doing my PhD at ISF.

The next 25 years

As we celebrate our past, we also look to the future. We asked a selection of ISF staff what excites them about the next 25 years in sustainability.

I am lucky to be at ISF at a time when sustainability and decarbonisation of energy systems are at the forefront of national and international policy discussions. The ISF Energy team has experience across different aspects of the energy transition, and I am excited to be joining a team that can take a holistic approach to developing a sustainable energy future.

Jonathan Rispler, research consultant

It feels like we are turning a corner from having to convince society of the need for action, towards thinking deeply about what that action might be and how that can shape our future. Now it's about bringing everyone along for the journey and expanding the horizons of what a sustainable future might look like, and to me that's the really interesting stuff.

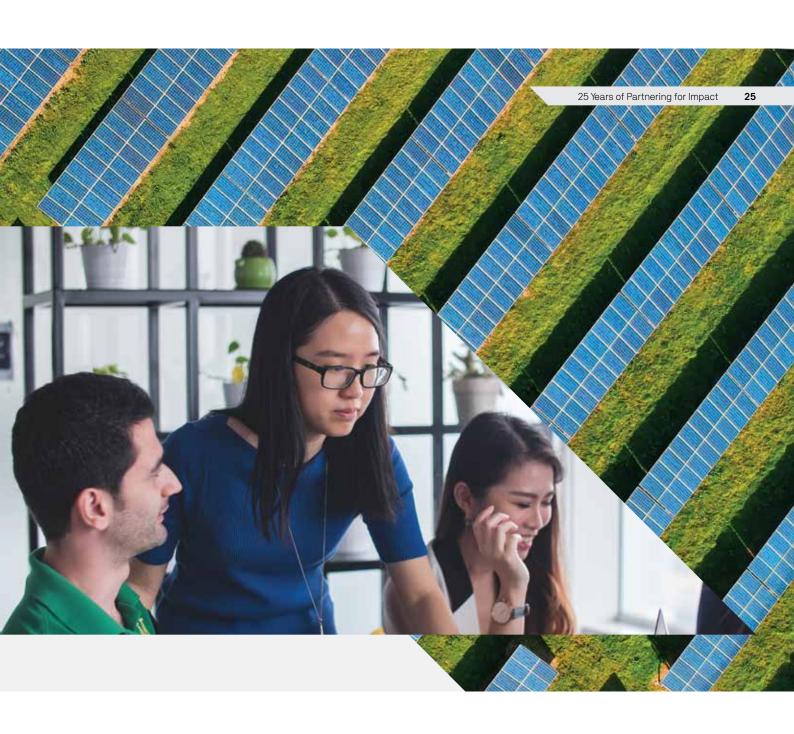
Anja Bless, PhD candidate

I'm excited by the ways ISF is broadening its influence for achieving sustainability, by working with organisations to support their long-term thinking and strategy.

James Macken, PhD candidate

Recognition of the urgency and impacts of climate change has accelerated across the finance industry. There is a rapid need to build climate expertise and capacity within the private sector. With 25 years of transdisciplinary sustainability expertise, ISF is well-positioned to bridge the gap between climate science and finance research, which have traditionally been separate. I am excited to be contributing to current sustainable finance research. This knowledge will be important for solutions and training to guide positive change for business and society.

Donna Lopata, PhD candidate



Our core programs



Business, economy and governance

Reimagining business, finance and economy to advance sustainability, prosperity and wellbeing for all.

Program lead: Alison Atherton



Resource stewardship

Advancing a systemic approach to production and consumption through stewardship and circular resource flows

Program lead: Monique Retamal



Energy futures

Visioning a sustainable energy future in which energy is clean, affordable and accessible to all.

Program lead: Chris Briggs



Water futures

Collaborating to develop restorative, sustainable and resilient water management approaches.

Program lead: Simon Fane



International development

Working in partnerships to end poverty and ensure sustainable development for everyone.

Program lead: Melita Grant



Course development

Offering short courses designed to enhance the sustainability knowledge of academics, professionals and students.

Program lead: Samantha Sharpe



Healthy environments

Transforming food systems to ensure healthy, thriving and food-secure communities and businesses. Improving the liveability of urban environments with social, infrastructure and resource solutions. Enhancing ecosystem integrity and livelihoods by incorporating perceptions and values into decision-making.

Program lead: Kerryn Wilmot



Higher degree research

ISF's award-winning graduate research program for Masters and Doctoral research empowers students to create a better future in their chosen field. Our students make real-world impact, working with committed colleagues from diverse disciplines on innovative, practical solutions to the earth's most complex sustainability issues.

Program lead: Jason Prior





