

rise

REVITALISING INFORMAL
SETTLEMENTS AND
THEIR ENVIRONMENTS



People & Partners

RISE Annual Activity Report 2018





Revitalising Informal Settlements and their Environments (RISE) is an **action-research program** working at the intersection of health, environment, water and sanitation in urban informal settlements.

RISE aims to provide research-based evidence that a localised, nature-based approach to revitalising informal settlements can deliver sustainable, cost-effective health and environmental improvements, paving the way for further deployments in the region and globally.

Underpinned by the emerging discipline of 'planetary health', the success of RISE will be measured by the health and well-being of residents — particularly children under five years of age — and their surrounding environment.

Part of Wellcome Trust's 'Our Planet, Our Health' program, with support from the Asian Development Bank, RISE is being led by Monash University in partnership with the Cooperative Research Centre for Water Sensitive Cities, Stanford University, Emory University, The University of Melbourne, University of Cambridge, Fiji National University, Hasanuddin University, The University of the South Pacific, Live and Learn, United Nations University, Melbourne Water, South East Water, Oxfam, WaterAid, and the Wellcome Sanger Institute.

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FRONT COVER

Top: RISE Melbourne-based researchers in discussion with visiting colleagues from RISE Fiji during the Assessment Training and Induction Workshop in February.

Bottom: The RISE Indonesia Team having a rewarding discussion with the Tallo community during the consent process in January.

ABOVE

Objective 1 Assessing site conditions across the 12 Makassar communities

What is RISE?

Mission

To improve the lives of women and men, girls and boys in urban informal settlements through improvements in environmental and human health by adopting a water sensitive cities (WSC) approach to informal settlement upgrading.

Approach

A randomised control trial involving 24 settlements. Half will be upgraded initially and the other half (the control group) will be upgraded mid-way through the program. RISE will compare the two groups to measure the impact of the intervention on health and environmental outcomes.

Aim

To provide the first-ever evidence base that a localised, WSC approach to upgrading informal settlements can deliver sustainable, cost-effective improvements in health and the environment.

Main Activities

1. Baseline health and environmental assessments;
2. Co-design of upgrading works with communities and local partners;
3. Implementation of upgrading building works;
4. Quarterly monitoring of human health and environment;
5. Upgrading the control settlements at the end of the study; and,
6. Continuous dissemination of lessons learned and results achieved to inform policy making and investments.





2018 Highlights

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24 Community Engagement Committees (CECs) formed in Makassar and Suva

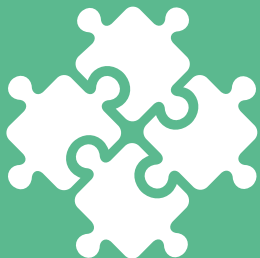
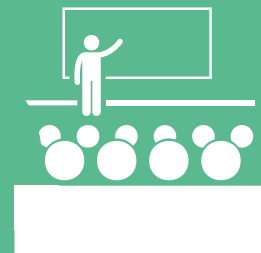


More than **150 people** are now working on RISE around the world



World Water Day CEC Gathering in Makassar and **World Cities Day CEC Gathering** in Suva

RISE Annual Workshop held in Melbourne in November with colleagues from **Australia, Fiji, Indonesia, Malaysia, United States & the United Kingdom**



Formation of the 'Integrators' Group, **bringing together researchers and practitioners** from all levels across objectives and locations

Signing of key partnership agreements, including Knowledge Support and Technical Assistance Grant with the Asia Development Bank for the demonstration projects, and MoU with the City of Makassar



Enumeration of **1,200 houses** and **7,000 people**; community consent received from all **24 sites**



Relationships strengthened with stakeholders, including communities, local leaders, government & partner institutions

Assessment



World-class laboratories established at Hasanuddin University in Makassar and Fiji National University in Suva



Standard Operating Procedures developed, trialled and refined in both Suva and Makassar in collaboration with in-country teams

Objective 2 (Ecology & Environment) **baseline sampling** and analysis for soil, water, boot-socks and animal faeces **initiated** in Makassar



Objective 3 (Human Health) and Objective 4 (Well-being) **baseline survey rolled out** in Makassar



Comprehensive training conducted throughout the year, including a full RISE Team Assessment Training and Induction Workshop in Melbourne in February

Sound recorders, mosquito traps and temperature sensors deployed in Makassar by RISE Researchers and Community Fieldworkers, with **nearly 15,000 mosquitos already identified**



Intervention



Community and government-led **works commenced** at Makassar demonstration site in Batua



Detailed Engineering Design (DED) advanced for the Suva demonstration site in Tamavua-i-Wai

Foundational research activities begun, including longitudinal monitoring of site characteristics and development of the co-design framework





What is a water sensitive cities (WSC) approach to upgrading informal settlements?

The water sensitive approach integrates ecologically and economically sustainable water infrastructure into buildings and landscapes. This includes constructed wetlands, bio-filtration gardens, stormwater harvesting, and local sanitation systems based on “smart” technologies.

Also known as nature-based solutions, these types of systems are more ecologically sustainable because they mimic the earth’s natural systems, as well as requiring less maintenance and not requiring connection to a central “big pipes” system.

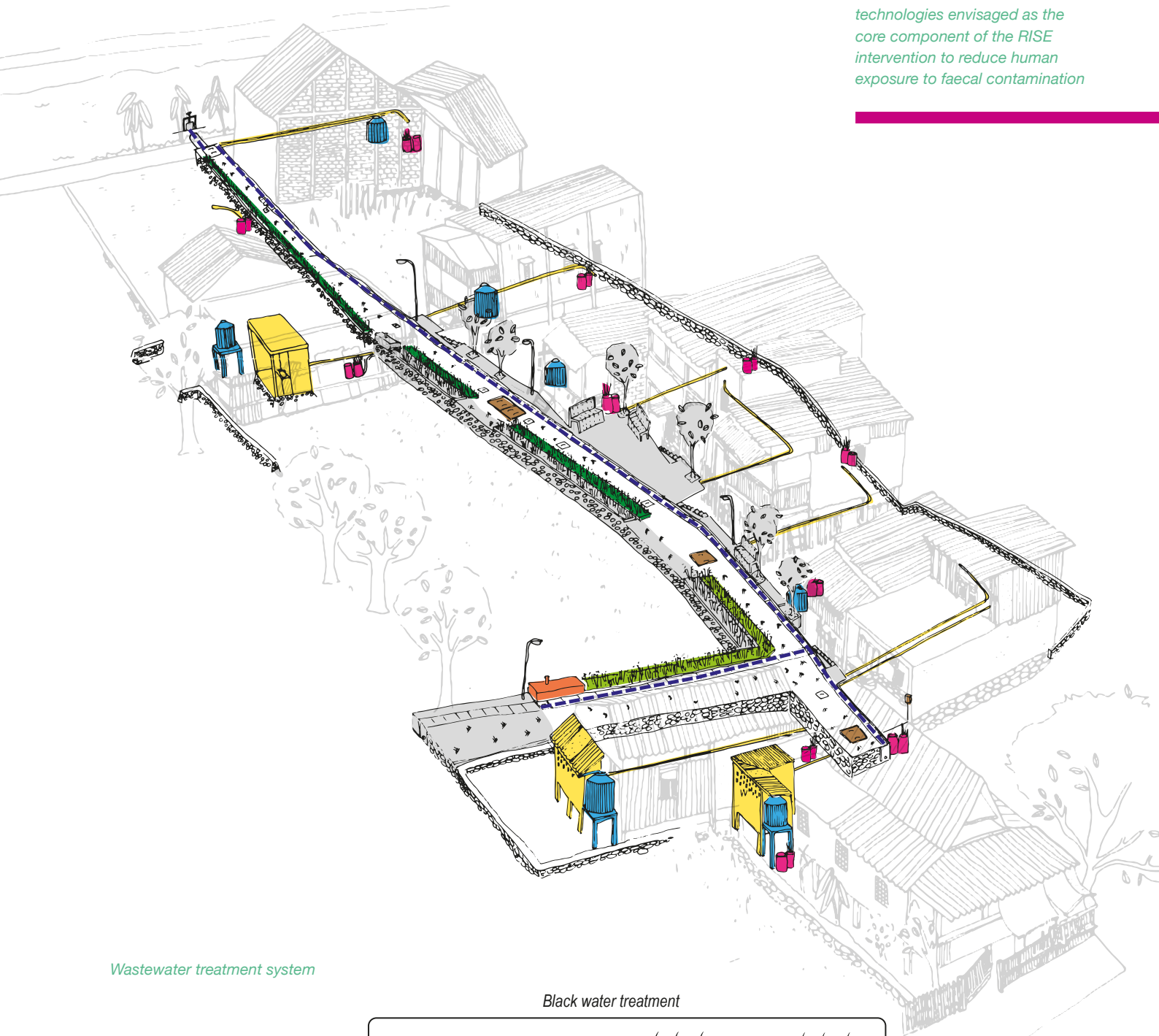
Decentralised water infrastructure is implemented at dwelling, neighbourhood, and precinct scales to harvest rainwater and stormwater, recycle wastewater, and protect dwellings from flooding and environmental pollution.

Wastewater is managed locally using natural passive treatment processes such as constructed wetlands and natural filters. Stormwater runoff is conveyed to minimise flooding and environmental pollution using grassed channels, surface wetlands and bio-filtration gardens.

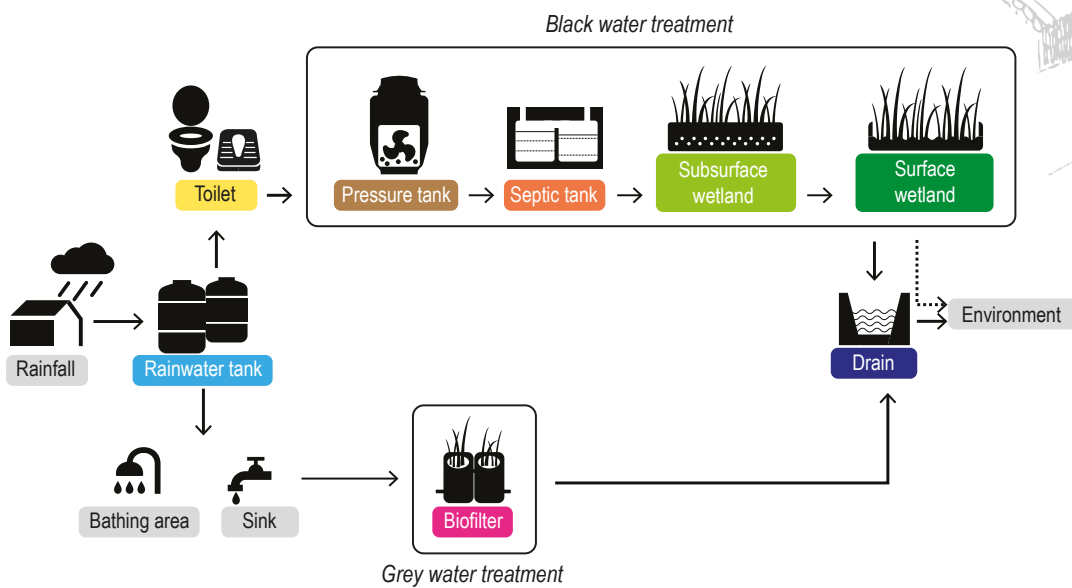
Locally sourced water, such as storm and rain water, is used for a range of domestic purposes and economic activities including urban agriculture, while green spaces increase local amenity and environmental health.



Overview of the water-sensitive technologies envisaged as the core component of the RISE intervention to reduce human exposure to faecal contamination



Wastewater treatment system



Foreword



The critical challenge for humanity today is how we grow sustainably. We are a species that grows, changes and adapts. How do we ensure that we grow in a way that benefits the whole of society, while embracing inclusion and diversity? How can we develop in a way that both restores the health of our planet and protects it? This is the ultimate challenge, and one that I believe RISE can play a significant role in addressing.

RISE brings together a dedicated team of researchers and practitioners focused on crafting the technology, the science, and the governance around the idea of the water sensitive city. Previously this approach was only applied in developed contexts. Through the Wellcome Trust's 'Our Planet, Our Health' initiative we now have the opportunity to reach some of the world's most vulnerable people.

We have come a long way since the program officially commenced in August 2017. There have been significant obstacles and the journey has not been a linear one. The path for rigorous scientific research seldom is. In 2018, our focus has been on strengthening collaboration across disciplines, institutions and geographical borders. The year has seen us strengthen existing partnerships, while building new ones across academia, government and industry, to ensure real and lasting global impact.

Interdisciplinarity is critical to the success of RISE — we cannot address grand challenges such as water supply, sanitation and flood protection with one singular discipline. The enthusiasm and commitment of the whole RISE team is inspiring, as we grow and strengthen together, and learn to work within the realms of each other's disciplines and cultures.

Together we are bridging the divide between the humanities and social sciences, and the science, technology, engineering and mathematics perspectives, which is no easy feat.

I sincerely thank my RISE colleagues for the hard work and dedication they continue to put into this program. I am so proud to be working with this collective of truly brilliant and caring minds. Our in-country teams in Fiji and Indonesia have been fundamental to our progress, as have our government partners and stakeholders. Thank you also to the Wellcome Trust. Without this progressive and flexible funding, transformative research such as RISE would not be possible.

"It is exciting to reflect on the year that was, and the strength of our people and our partnerships. I look forward to what 2019 will bring, and thank everyone again for their support of RISE."

PROFESSOR REBEKAH BROWN

**SENIOR VICE PROVOST (RESEARCH), MONASH UNIVERSITY
RISE PROGRAM DIRECTOR**

Executive Summary

The RISE Annual Activity Report for 2018 focuses on the people and partners who are working to advance this ambitious research program. It provides an overview of the highlights from the year, shining a spotlight on the program's interdisciplinarity and impact orientation, while providing the opportunity for reflection and capturing lessons learned.

RISE made considerable progress in 2018 across all areas of work. The establishment of in-country teams, RISE research infrastructure, and community mobilisation were key priorities for the first half of the year. An enumeration of all 7,000 people and 1,200 houses in the 24 RISE sites was undertaken in Makassar and Suva. Community Engagement Committees (CECs) were formed in both countries, providing an essential platform for formal engagement between the RISE program and study participants in the communities. RISE hosted several CEC workshops during the year, most notably on World Water Day and World Cities Day. By year-end, community consent was secured across all settlements and household-level consent had been obtained in Makassar.

A comprehensive schedule of assessment training commenced in February with an Assessment Induction and Training Workshop at Monash University in Melbourne, attended by RISE assessment colleagues from both Makassar and Suva. Throughout the subsequent months, RISE researchers from Australia, Malaysia and the United States visited Suva and Makassar to conduct further training with the Laboratory Technicians and the Community Fieldworkers. In addition, RISE industry partner, Melbourne Water, delivered essential Integrated Water Management (IWM) training in Makassar and Suva for both the RISE teams and key stakeholders.

RISE secured human subjects ethics approvals for all program components from institutions in Australia, Fiji and Indonesia. Standard Operating Procedures (SOPs) co-developed by RISE researchers across institutions and countries have been rolled out and socialised across teams. Customs requirements were effectively navigated to establish world-class laboratories in both countries, with the support of Hasanuddin University in Makassar and Fiji National University in Suva. Collection of the environmental assessment (Objective 2) baseline data was initiated in Makassar, with the human health and well-being (Objectives 3 and 4) assessment well underway.

Substantial progress was made by the intervention team (Objective 1) in 2018 across the two RISE demonstration sites, Batua in Makassar and Tamavua-i-Wai in Suva, and the 24 main sites. Key activities in the demonstration sites included community co-design resulting in a community-endorsed upgrading strategy with localised solutions. For the 24 main sites, detailed biophysical diagnostic assessments and "system" diagram options for sizing and locations of critical improvements were developed. In November, construction formally commenced on the Makassar demonstration site.

The year concluded with the RISE Annual Workshop in Melbourne, bringing together RISE colleagues from across institutions and locations to reflect on progress to date, and plan for the next year of the program.

The 2018 RISE Journey

JANUARY

- Objective 1 hosts Demonstration Site workshop with participants from Monash Art Design and Architecture (MADA), the CRC for Water Sensitive Cities, South East Water, and RISE Indonesia Team
- Enumeration completed in Makassar (3,041 people, 755 families, 608 houses surveyed) in five days
- Monash and UNHAS sign official partnership agreement



MARCH

- Objective 2 water, soil and mosquito field training initiated in Makassar and Suva
- Enumeration completed in Suva (3,460 people across 630 houses surveyed) in one week
- RISE Makassar communities gather on World Water Day for first CEC citywide meeting
- Melbourne Water delivers Integrated Water Management training in Suva

FEBRUARY

- 2017 Annual Activity Report released and website launched
- RISE Assessment Induction and Training Workshop held in Melbourne with team members from Indonesia and Fiji
- Monash and Wellcome Sanger Institute sign official partnership agreement
- Makassar Mayor signs Letter of Intent with the Asian Development Bank (ADB) for Batua project





MAY

- Melbourne Water delivers Integrated Water Management training in Makassar
- Human subjects ethics approval attained in both Makassar and Suva
- RISE presents at the second Planetary Health Alliance Annual Meeting in Edinburgh
- RISE featured as Case Report in The Lancet Planetary Health Volume 2



APRIL

- House numbering and consent training and piloting completed in Makassar
- Human health and well-being field training and baseline survey piloting completed in Suva
- Kato Katz training commenced at UNHAS in Makassar
- Objective 1 biophysical diagnostic systems diagram assessments in 24 sites in Suva and Makassar



JUNE

- First Community Engagement Committee citywide meeting held in Suva
- Community consent secured in Makassar and Suva
- Rodent training undertaken in Makassar
- Kato Katz training commenced at FNU in Suva
- Piloting of Objective 3 and 4 baseline survey

The 2018 RISE Journey continued

JULY

- Monash and Cambridge officially sign partnership
- Material Transfer Agreement (MTA) signed in Indonesia
- Inaugural meeting of the RISE Governance Advisory Panel
- RISE hosts workshop at Singapore International Water Week



SEPTEMBER

- Objective 2 baseline training completed in Makassar
- RISE work officially commences at Cambridge University
- Kato Katz training of RISE Fiji and Indonesia Laboratory Technicians

AUGUST

- RISE Fiji office and guest house officially opens
- Objective 3 and 4 baseline training completed in Makassar
- New RISE Makassar Laboratory construction commences in Makassar
- Draft Data Management strategy developed and socialised across the Program
- In-principle agreement on the scope of the RISE 'intervention'
- Indonesian Research Permits approved for Melbourne-based researchers
- Shipment of research equipment arrives in Makassar





NOVEMBER

- Breaking ground in Batua (Makassar demonstration site)
- Asia Development Bank signs knowledge support agreement with Monash Sustainable Development Institute for RISE demonstration projects
- 2018 RISE Annual Workshop
- Inaugural International Scientific Advisory Panel Meeting



OCTOBER

- World Cities Day CEC Meeting in Suva
- Objective 2 baseline data collection in Makassar
- Makassar Laboratory construction and fit-out complete
- Community implementation agreement signed with Batua community for community-led demonstration project works



DECEMBER

- Objectives 3 and 4 baseline data collection in Makassar
- Flood gauge installation and training at key RISE sites in Makassar and Suva
- Second Phase of Batua community-led construction works commence for 'wet-pods'
- Translation of baseline Human Health (Objective 3) survey instruments in Suva

Across Objectives



DESIGN & ENGAGEMENT

Substantial progress was made in 2018 across the two RISE demonstration sites and 24 main sites. Key activities in the demonstration sites included community co-design to develop neighbourhood-scale infrastructure resulting in a community-endorsed upgrading strategy and adaptation of household water and sanitation facilities (wetpods) and green-infrastructure to each community's sociocultural context. Key main site activities included biophysical assessments and developing "system" diagram options for sizing and location of critical integrated water management improvements.

Institutional and government stakeholder relationships strengthened in both cities through regular discussions relating to planning, permits and construction. Co-design with the Government of Makassar resulted in significant support through identification of and co-funding for precinct-scale water management improvements. The four RISE PhD candidates under Objective 1 made excellent progress, and early findings were disseminated through papers and presentations.



ECOLOGY & ENVIRONMENT

In 2018, the team prepared and trained in-country teams for the collection of environmental samples and subsequent analysis of these in RISE laboratories. This included the development of all field and laboratory Standard Operating Procedures (SOPs) with multiple in-country visits to develop sampling maps and hands-on training sessions for individual SOPs. Laboratory staff purchased major equipment and consumables and travelled to both countries to help with laboratory setup. Importantly, a collaborative effort across RISE researchers and in-country teams was instrumental in establishing RISE's operational laboratory spaces.

The strength of this collaboration was demonstrated in September/October when the first baseline samples were collected in Suva (boot-socks) and in Makassar (soil, boot-sock, water and faecal samples). All environmental monitoring equipment has now been deployed in Makassar to provide regular information on the ambient conditions within the settlements including temperature and humidity, acoustics and the prevalence and type of mosquitoes.



HUMAN HEALTH

2018 was an exciting and challenging year for the RISE Human Health Team, requiring flexibility to move from the theoretical to the practical. The team successfully undertook in-country team training, while gaining an appreciation of inter-country logistical requirements — including consumable and equipment procurement as well as regulatory hurdles.

Visits to Fiji and Indonesia provided the opportunity for the RISE Researchers to assist with laboratory set-up and conduct training sessions exploring sample collection and survey administration. The thinking process about consent, the baseline survey, and child-sampling activities was adapted as the year progressed and the RISE Researchers learned more from the RISE communities and in-country teams.

As the year closed, the Objective 3 baseline survey instrument and the human sampling approach and logistics for blood and stool collection had been finalised and translated. The survey baseline commenced in November in Makassar and will be completed in January 2019.



WELL-BEING

The RISE Well-being Team focused on the development of the Baseline Annual Household Survey in 2018, a core means by which RISE will monitor changes in people’s well-being over the duration of the trial. Comprehensive training of the RISE Community Fieldworkers was undertaken in-country on a number of occasions, equipping the team with the skills, knowledge and confidence to ensure efficient and scientifically rigorous implementation of the surveys.

November saw the rollout of the Baseline Annual Household Survey in Makassar, with Suva to follow in 2019. The Well-being Team also engaged a Post-Doctoral Research Fellow with quantitative and qualitative research skills, who will support data collection and analysis activities. Work has also commenced on developing additional qualitative modes of well-being assessment in close partnership with the other objectives.

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POLICY & INVESTMENT

In 2018, the Policy and Investment Team undertook foundational work to explore the potential future scale-up of the RISE approach. The team has reviewed recent research to identify drivers and barriers to policy support for effective water, sanitation and hygiene (WASH) interventions. Through collaboration across RISE Researchers, this paper was finalised for submission for publication.

Following this global review, the team has begun a policy analysis that will focus initially on the Indonesian context. In addition, they are working closely with other objectives to collect data on four likely impacts of the intervention that are believed to be important to policymakers evaluating the merits of scaling up the intervention: (i) gender, diversity, and inclusion; (ii) collective efficacy; (iii) water security; and, (iv) climate resilience.

Many events were held throughout 2018 to build support for a new approach to upgrading, including at Singapore International Water Week, and in-country trainings of government counterparts.

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DATA MANAGEMENT

In 2018, considerable effort was taken to set the foundations for the responsible, safe and interdisciplinary data architecture of RISE. A regulatory review of data management and responsibilities was undertaken in both countries to ensure compliance. A RISE Data Access Policy was developed and approved in May and a Data Management Strategy has been drafted. The RISE database was developed and populated with pilot data and back-up systems were set-up.

On the technical level, RISE established a Data Management working group to lead this area of work across the program. In-country servers and back-up systems were established. SurveyCTO and tablets were sourced and used for field data collection, streamlining this across objectives for consistency in approach. Laboratory Information Management Systems (LIMS) were established in both RISE Laboratories.

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Across Sites

RISE Fiji

Since the RISE Inception Meeting in August 2017, activities in Fiji have progressed very well, overcoming numerous challenges, thanks to the ongoing commitment and dedication of the RISE Fiji Team and key partners, Live and Learn Environment Education (LLEE), Fiji National University (FNU) and the University of the South Pacific (USP). The year saw the RISE Fiji Team secure local research ethics approvals, and strengthen critical partnerships with government and local industry stakeholders.

The RISE Fiji Laboratory, located at Fiji National University, is now one of the most advanced in the Pacific with the first refrigerated centrifuge, first shaking waterbath, the only Endetec (E. coli sampling system) in the region, and one of only three -80°C freezers in Fiji.

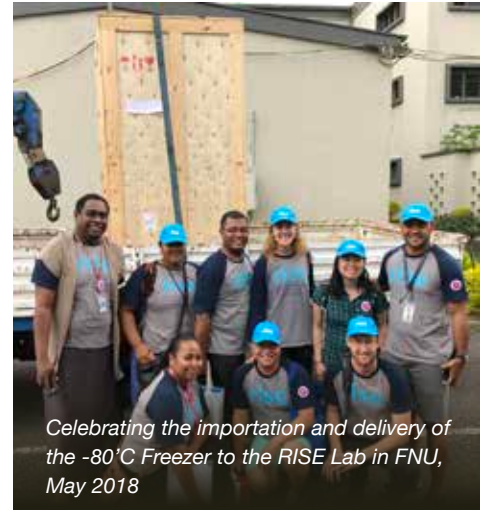
This achievement was only possible through the significant collaboration of the Melbourne-based RISE Researchers, RISE Fiji Team, and RISE partners at FNU and LLEE. The RISE Hub and Guesthouse, located adjacent to the RISE Laboratory at FNU, launched mid-year, and has been a valuable asset for streamlining work and accommodating visiting researchers and practitioners.

Under the advice of, and in partnership with, relevant government authorities, stakeholders and local leaders, RISE selected 12 informal settlement communities. Throughout the year, the RISE Fiji Community Fieldworkers have engaged the communities ensuring they are well informed about RISE. The team established Community Engagement Committees (CECs) across all 12 sites to assist in communicating program plans, as well as providing a platform for discussing study participants.





Field testing Objective 2 water sampling in Tamavua-i-Wai settlement, July 2018



Celebrating the importation and delivery of the -80°C Freezer to the RISE Lab in FNU, May 2018



Piloting mosquito surveying in Suva, February 2018



Bootsock testing in RISE lab, September 2018

“Throughout the year, the RISE Fiji Community Fieldworkers have engaged the communities, ensuring they are well-informed about RISE.”



Enumeration of people and houses in Suva, March 2018

RISE Indonesia

Community Fieldworkers, Laboratory Technicians and the Build Team in Indonesia demonstrated strong cohesion in 2018 to achieve significant progress. Support from the Community Engagement Committees (CECs), established in early 2018, was invaluable during each stage of the RISE program and essential to community mobilisation.

The RISE Indonesia Team completed household-level consent across 12 sites by mid-year, with 634 households and 242 children under 5 years of age enrolled to participate in the RISE study. This enabled the commencement of baseline surveys and deployment of the first round of environmental monitoring and equipment.

A brand new and fully equipped RISE laboratory was established at the Hasanuddin University (UNHAS) Faculty of Public Health this year and is now operational, thanks to the ongoing support of UNHAS. Environmental baseline sampling and analysis has been initiated, with the human health and well-being baseline data well underway.

Community and Government-led construction works began in November at the RISE demonstration site in Batua after a series of co-design sessions with community members, local leaders and government stakeholders. Local consultants have been engaged to implement the intervention, under the leadership of the RISE Indonesia Build Team, with the build anticipated to be completed in early 2019.



Piloting the Lab Information Management System (LIMS), June 2018



Co-developing the RISE work plan at UNHAS, July 2018



Enumeration in Lempangan site, Makassar, January 2018

“Environmental baseline sampling and analysis has been initiated with the human health and well-being baseline data well underway.”



Bio-physical diagnostic assessments, May 2018



Ground-breaking ceremony at the Batua demonstration project, November 2018



Household consent piloting, April 2018



Official RISE Lab opening at UNHAS, November 2018



Kato Katz training to identify soil transmitted helminths, August 2018

RISE Teamwork

RISE Fiji

Supported by Live and Learn Environment Education, the Fiji National University School of Public Health and Primary Care and the University of South Pacific (USP), the RISE Fiji Team grew to 14 people, including the Build Team, Assessment Team, Community Fieldworkers, and Administrative and Data support in 2018. The University of the South Pacific School of Geography and Environmental Sciences provided additional support to the program by way of resources and students during the enumeration.



RISE Indonesia

An interdisciplinary team of 25 people currently work in Makassar, including UNHAS Faculty of Public Health and Faculty of Engineering partners. The Assessment Team range in expertise from microbiology, chemistry and environmental science, while the Build Team consists of architects and engineers. A dedicated Data Officer sits within the Program Support Team, alongside Administrative and Communications Officers. Community Fieldworkers with international development experience come from anthropology, architecture, agriculture, geology, and ecology backgrounds.

“The RISE Global Team brings more than 150 people together across a diverse set of disciplines.”



RISE Global

The RISE Global Team brings more than 150 people together across a diverse set of disciplines, institutions and locations, including Fiji, Indonesia, Australia, the United States, the United Kingdom and Malaysia. International advisors from even further afield provide ongoing support through participation in the RISE International Scientific Advisory Panel and RISE Governance Advisory Panel.

COMMUNICATIONS AND ENGAGEMENT

An emphasis on communications and engagement this year saw the launch of the RISE website, and commencement of production of the RISE Documentary Series. The RISE Team presented at a number of high-profile global conferences including the Planetary Health Annual Meet-

ing and Singapore International Water Week, while also participating in meetings with influential leaders from the World Health Organisation, World Bank, UNICEF and USAID. A key highlight was the profiling of RISE as a Case Report in The Lancet Planetary Health Volume 2.



3 RISE documentary series produced (Enumeration, Flashback, Film #1)



305

average monthly users to our website



20 issues of the fortnightly e-newsletter, 'RISE Report'



14 local RISE events in Makassar and Suva to promote planetary health

9

global conferences attended (inc. Ottawa, Geneva, Stockholm & Singapore)

3 videos, 6 articles

partner-led communication run across Monash, MSDI, CRCWSC, UNHAS



PROGRAM MANAGEMENT — FOSTERING INTERDISCIPLINARY ACTION



1

International Scientific Advisory Panel formed and the inaugural meeting held

2 week-long, cross-program workshops held: February Assessment Workshop and November Annual Workshop

2



\$4M

of financial oversight, risk-management and quarterly donor reporting



271

trips taken by RISE personnel to project sites



18

cross-program policies and guidance notes drafted and approved

167

interdisciplinary meetings held

31 Executive meetings
19 Leadership Meetings
3 Extended Leadership
4 Governance Panel
8 Integrator meetings
102 weekly Melbourne-Makassar-Suva management meetings

Global Engagement

Here's a snapshot of our external engagements in 2018.

Network Conferences

- Professor Daniel Reidpath presented RISE at the **Going Global Conference** in Kuala Lumpur in May, highlighting the significant involvement of students from both Australia and RISE partner institutions in Indonesia and Fiji.
- Professor Thomas Clasen, Professor Diego Ramírez-Lovering, and Dr Matthew French travelled to Edinburgh at the end of May for the second **Planetary Health Annual Meeting**. The team presented at the urban session alongside the other Wellcome Trust-funded 'Our Planet, Our Health' projects.
- In the first half of 2018, Professor Steven Chown was a Plenary Speaker at the **24th International Symposium on Polar Sciences at the Korea Polar Research Institute** and presented at the **Marine Ecosystem Assessment for the Southern Ocean (MEASO18)** in Hobart, Australia. During both presentations, Professor Chown referenced RISE in the context of how important for coastal informal settlements it is to understand how changing Antarctic ice sheets will affect sea level, and thanked the Wellcome Trust for its significant support of the program.
- In July, Professor Tony Wong, Kerrie Burge, Jane Wardani and Mere Naulumatua hosted a half-day **Hot Issues Workshop** titled *Strengthening Delivery of WaSH to Urban Informal Settlements in the Asia-Pacific* at **Singapore International Water Week (SIWW)**. The session brought together leading WaSH experts and institutions, local and central government partners, and international development agencies.
- In August, Professor Rebekah Brown was a keynote speaker at the **12th International Conference on Management Science and Engineering Management** in Melbourne, speaking about the need to bridge the STEM/HASS divide in order to solve grand sustainable development challenges. RISE was presented as an ambitious research program at the forefront of this kind of interdisciplinary work.
- In August, RISE Indonesia joined a number of government, NGO and community stakeholders for a Makassar Smart City Forum, held by the Makassar City Government with the United Nations International Organisation for Migration (IOM).
- In September, the RISE Indonesia Team participated in Monash Doctoral Day in Makassar, presenting RISE to academics, researchers, government officials, current students and potential students from the Eastern Indonesia region.
- Professor Tony Wong, Professor Steve Luby and Kerrie Burge attended **Stockholm Water Week** at the end of August and presented the RISE program.
- At the end of August, Professor Thomas Clasen represented RISE at **The Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISEE-ISES 2018)** in Ottawa.
- In September, Professor Diego Ramirez-Lovering and Dr Michaela Prescott presented RISE at the **Annual Design Research Conference** in Sydney.



Inaugural meeting of the International Scientific Advisory Panel, November 2018



Assessment workshop, February 2018



External Communications

TRADITIONAL MEDIA

- **Volume Magazine** featured an interview with RISE Objective 1 (Design & Engagement) Leader, Professor Diego Ramirez-Lovering in Issue 52 on **The End of Informality** in May.
- Monash University collaborated with Reuters to produce a short film on how the University is meeting its obligations under the Sustainable Development Goals. RISE is a key feature of this film.
- MSDI announced its **formal partnership agreement** with the Wellcome Sanger Institute for RISE in February.
- MSDI announced the **formal partnership agreement** between the University and three of the Asia Pacific's most highly regarded universities — Hasanuddin University (UNHAS) in Indonesia; Fiji National University (FNU) and The University of the South Pacific (USP) in Fiji — for RISE in March.
- MSDI featured at the inaugural meeting of the **RISE Indonesia Community Engagement Council (CECs) Workshop on World Water Day** in March.
- Monash Research Services featured an article by RISE Indonesia Communications Officer, Ina Rahlina for **International Day of Biological Diversity** in June.
- The official opening of the RISE office at the UNHAS Faculty of Public Health (FoPH) was featured in the June edition of the **Hasanuddin University Update**.
- MSDI featured the Batua project launch in December 2018, along with news about the partnership with the Asian Development Bank (ADB) for the two demonstration projects.

RISE DOCUMENTARY SERIES

As part of the RISE program, Monash Sustainable Development Institute is producing a series of short films to document program implementation.

As a preview to the RISE Documentary Series currently in production, Inspire Design produced a **short clip about the RISE enumeration process** in Fiji earlier this year.

In November we launched the first RISE documentary clip. It's six minutes long and focuses on the how? and why? of RISE.

Publications

- The Lancet published a Case Report on RISE on 28 May 2018 — **Improving human and environmental health in urban informal settlements: the Revitalising Informal Settlements and their Environments (RISE) programme**.

“As part of the RISE program, Monash Sustainable Development Institute is producing a series of short films to document program implementation.”



Piloting human health survey in Suva, April 2018



Objective 1 bio-physical diagnostics, May 2018

Reflections

RISE is an ambitious planetary health research program, aiming to deliver world-first and transformative research impact. With this ambition comes complex challenges. There are, understandably, many lessons to learn along the way. Interdisciplinary research is never a linear journey and comes with unique transaction costs requiring flexibility and commitment to a unifying goal. The following reflections highlight key learnings from 2018, which have strengthened RISE as a global team and provided a solid foundation on which to build throughout the program duration.



Water sampling in Makassar, October 2018

IN-COUNTRY ANCHORING

Strengthening in-country research capacity

For RISE to succeed it must be anchored in-country. This need was recognised in the early planning stages, with an understanding that in-country academic partners and locally-based teams would be essential to the program's success. Time required in-country from Melbourne-based team members however was underestimated, with more technical support and engagement required from RISE lead institutions than originally envisaged. The Objective 1 (Design and Engagement) Team was strengthened in 2018 to be more embedded in terms of staffing and responsibilities, resulting in immediate improvements that are already showing results for the Objective.

Trust and knowledge sharing is crucial

It takes considerable time and effort to develop interpersonal trust and mutual respect between partners with little history of collaboration, and between different cultures of work. It has taken time and open two-way transfer of information, for all members of the RISE team to appreciate the tacit knowledge and skills held by different disciplines and individuals within the program. The many operational challenges faced along the way have assisted in developing trusted relationships between colleagues, which has in turn, assisted in overcoming those challenges.

OPERATIONALISING INTERDISCIPLINARITY

Interdisciplinary work is inherently challenging, and the RISE journey in 2018 has not been an easy one. Operationalising collaboration between 150+ researchers and practitioners across 11 disciplines and multiple countries, both on the ground and within the 25 partner institutions, requires constant and conscious effort from all involved.

You still can't beat face-to-face communication

Although time-consuming, RISE recognises that internal communication across all program components and at all levels is critical to advancing the work. The majority of this internal communication is digital, over video conferencing, however the RISE Executive recognised the value of face-to-face interaction early on and subsequently coordinated the RISE Assessment Training and Induction Workshop in Melbourne in February of this year, bringing together colleagues from across Indonesia, Fiji, the United States and Malaysia. Seeing the value of this type of communication, the RISE researchers took the initiative and formed the 'Integrators Group', meeting across objectives monthly to work collaboratively in a shared space.

Recognise different motivations and starting points

Each discipline has its own methodological standards, tools, paradigms, methods and protocols. RISE aims to foster a culture of inclusion of researchers and practitioners across the program, empowering them to oscillate between both their own and other disciplines. Different motivations and associated indicators of personal success for researchers at all levels must be respected and supported. Individuals are supported by being provided with the space and necessary resources, to ensure they achieve their own goals while embracing interdisciplinarity and the overarching aims of the RISE program.

Institutions can hold both their own agenda and hold the RISE agenda

Each institution and organisation has research agendas, with timelines, priorities and capacities differing significantly at times. RISE has been navigating this challenge throughout implementation, while ensuring the needs and expectations of the communities/study participants remain front-of-mind in all decision-making. Merging approaches between disciplines, institutions, governments, local leaders, and the communities requires significant attention and ongoing commitment from all.





ASSESSMENT

Establishing in-country laboratories is a significant undertaking

Setting up fully functioning RISE laboratories in Makassar and Suva took more time, cost and engagement than was accounted for during initial planning. The RISE Team did not foresee a need to construct the laboratories, and did not fully appreciate the complex customs requirements and costs for equipment importation. This challenge provided an opportunity for both the Melbourne-based researchers and the in-country teams to demonstrate remarkable perseverance and ingenuity, while strengthening the collaboration across institutions and countries.

RISE is trying to stay at the forefront of scientific advances

An ongoing challenge facing a long-term program such as RISE is the continuous emergence of scientific advances in sampling and analysis. Research infrastructure must provide maximum flexibility to adapt to these advances, while ensuring stability to deliver robust results. Unique to planetary health research is the complexity of combining environmental and human pathogen detection. RISE must continuously reflect on the importance of systematic validation processes across new and emerging sciences.

Setting-up an in-country research infrastructure takes time

A common theme across all program components is the importance of in-country partnerships, which are fundamental to the success of RISE. University counterparts — UNHAS, FNU and USP — have been crucial in advancing the assessment components of the program. These institutions have not only provided the physical laboratory spaces, but resources, staff and students to help with piloting. Ensuring RISE's in-country academic partners benefit from these research opportunities is fundamental to the program. So far, the effort has been focused on setting up the infrastructure. In 2019 there will be more opportunities to involve local students and researchers in RISE Assessment activities.

Piloting is essential

Piloting the assessment has proven essential to ensuring the processes function in-country and are appropriate for both the in-country teams, and the communities in which RISE is operating. Within initial planning, piloting was only scheduled to occur once for each process, however the program has benefited significantly from the allocation of additional time and resources to continue to pilot in an iterative fashion until satisfactory processes and results were achieved.

INTERVENTION

Valuable insights gained through the demonstration projects

The two RISE demonstration sites — Batua and Tamavua-iwai — were not part of the original RISE proposal, however they have proven to be of significant value to the program. Numerous learnings arose throughout many stages of the demonstration intervention work, from the initial community co-design and approval processes through to onboarding local consultants for the construction. Both the in-country teams and the Melbourne-based Objective 1 (Design & Engagement) team have benefitted immensely from this process, which has established a strong professional culture and working relationship. The process of testing out the technical solutions highlighted individual skill sets and strengths, while ensuring the global RISE Build Team formed the necessary foundation to scale up.

Communities should be in the driving seat

Community co-design was the basis of the RISE approach from the initial proposal stage, and continues to be central to all intervention work. Numerous planned engagements through community meetings and focus group discussions have taken place, and the results have been highly valued. One of the most effective tools however has been the formation of Community Engagement Committees (CECs) in both Makassar and Suva, which provide an effective two-way communication platform between the in-country Community Fieldworkers and the communities themselves. This has enabled community members to express to a trusted neighbour their true thoughts and needs, which they may not have had the confidence to share with external RISE staff.

COMMUNICATIONS

Our program 'branding' is not about marketing, it has helped to forge a common identity

A significant challenge any consortium such as RISE faces is how to align the team, empowering both institutions and individuals to identify with the program and own the outcomes. From early on, it was important for RISE to establish this consistency and speak with one voice to strengthen the external profile and contribute to successful delivery, advocacy efforts and research publications, while ensuring fair and balanced visibility of all partners. When developing the RISE visual identity, the team needed to find a balance between demonstrating a professional research program and ensuring the program connected with communities in an approachable and authentic way. The RISE visual presence (wordmark and colour scheme) has been a valuable tool to enable all RISE members to align with a common identity.

EMERGING BASELINE FINDINGS

There are very real human and environmental health challenges in urban informal settlements

Assumptions from site analysis and observations supported the initial assessment and selection of the 24 main informal settlement sites for RISE. Baseline data has confirmed that these sites are contaminated, and even more so than initially anticipated. This evolution of RISE's understanding and knowledge further supports the need for the program, while the variation between sites strengthens the argument for a localised water sensitive approach.



Surveying topographic levels at Tamavua-i-Wai, the demonstration project in Suva, for the Detailed Engineering Drawings (DEDs), October 2018.

“Community co-design was the basis of the RISE approach from the initial proposal stage, and continues to be central to all intervention work.”



Outlook for 2019

OBJECTIVE 1: DESIGN & ENGAGEMENT

2019 will see the completion of the demonstration sites in both Makassar and Suva. In parallel, the Design and Engagement team will continue preparing for work across the main sites, including:

- Developing the co-design framework — with core activities that are adapted to each city's sociocultural context;
- Undertaking drone surveys across all sites to acquire high resolution imagery and surface/terrain information;
- Reviewing and finalising the biophysical diagnostic for each site; and
- Developing precinct masterplan options across all settlements.

An exposure pathways assessment will inform the continued development of the intervention requirements for each site.

OBJECTIVE 2: ECOLOGY & ENVIRONMENT

The coming year will see continued laboratory and field staff training and quarterly rounds of sample collection in Makassar. The team will also be finalising the rollout of the hemo-dialysis method for virus concentration within environmental waters in 2019. This all requires close partnership with the in-country teams to finalise laboratory and field preparations. The team will collect the first set of data from the acoustic recorders and temperature sensors in January 2019, with rodent and mosquito pupal surveys anticipated to begin in Makassar by mid-2019.

OBJECTIVE 3: HUMAN HEALTH

Objective 3 will begin 2019 ready to 'launch' into human sample collection supported by documented protocols as well as an already completed baseline survey, to which child sampling activities will be appended. The team now has a deeper awareness of culture within each country and the way in which to approach logistical constraints. Further challenges are anticipated in 2019 as the team recruits and trains new laboratory staff, develops protocols for DNA extraction, and determines how best to analyse collected samples. Activities will also include documentation of research protocols, and submission of grant proposals to fund add-on projects.

OBJECTIVE 4: WELL-BEING

The team will work across objectives to finalise plans and commence implementation of the qualitative assessment of impacts of RISE on communities, while also deriving the plan for quarterly survey content in 2019 and beyond. Once the data from the baseline surveys is compiled, it will be analysed and drafting of research manuscripts will commence.

OBJECTIVE 5: POLICY & INVESTMENT

In 2019, Objective 5 will complete a policy analysis for Indonesia and develop a policy framework with recommendations for engendering policy support for scale-up. The team is collaborating across objectives to ensure that RISE will collect and disseminate data that is important and useful to stakeholders including communities, local and national governments, implementing organisations, and funders. This work will have a special emphasis on the ways in which the RISE intervention addresses well-being and numerous other outcomes.

RISE partners



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RISE is led by Monash University which is Australia's largest university and a member of the 'Group of Eight'. RISE incorporates diverse expertise from across the University, including Monash Malaysia and five Faculties: Art, Design and Architecture (MADA); Science; Medicine, Nursing and Health Sciences (MNHS); Engineering; and Business and Economics.

RISE is anchored with the Monash Sustainable Development Institute (MSDI). As one of the leading research and education institutes for sustainable development in the Asia-Pacific region, MSDI is driven to find real solutions to some of the most significant challenges facing our world today. MSDI provides a cross-faculty, interdisciplinary platform to bring diverse partners together to collaborate, to educate, to take action - and to make a real difference.



Wellcome Trust

Wellcome Trust is funding the research components of RISE under the 'Our Planet, Our Health' program, which is exploring what makes cities healthy and environmentally sustainable, and how water management can be built into urban design. The Wellcome Trust is also a key advisory body for the program.



Stanford University, The Centre for Innovation in Global Health

Stanford University's Centre for Innovation in Global Health is engaged in RISE primarily for Objective 3: Human Health. The Centre for Innovation in Global Health is dedicated to understanding and reducing health disparities and strengthening human capital. The Centre strives to create an ethos of service for low resource communities in the US and worldwide.



Asian Development Bank (ADB)

The ADB has pledged to support the infrastructure components of the program, including the 'Site Zero' rapid demonstration project in one site in each city. The ADB's 'Future Cities' program provides integrated planning and support to assist cities across the Asia Pacific to manage rapid urban growth and become more liveable.



Emory University

Emory University's focus for RISE is Objective 5: Policy & Investment, though it also plays a key role in Objective 3: Human Health, with strong experience in gender and social inclusion. Emory is a leading research university, with one of the world's best health care systems. Its focus is on confronting global challenges, educating the next generation, creating knowledge, advancing caring and healing, and transforming society.



Cooperative Research Centre for Water Sensitive Cities (CRCWSC)

With significant practical experience in designing, implementing and monitoring the WSC approach, the CRCWSC is providing technical support to Objectives 1 and 5. The CRCWSC's vision is for future cities and towns, and their regions, to be sustainable, resilient, productive and liveable.



The University of Melbourne

The University of Melbourne is providing support across the program on the statistical aspects of the research. As Australia's leading comprehensive research-intensive university and host to some of the world's most distinguished medical researchers, The University of Melbourne strives to make a distinctive contribution to society.



University of Cambridge

Working closely with the Wellcome Trust Sanger Institute, University of Cambridge has partnered with RISE to support the genomics work of the human and environmental research. Cambridge is committed to achieving excellence in research and scholarship, and to ensuring its research contributes to the well-being of society.



Fiji National University (FNU)

RISE has partnered with the FNU College of Medicine, Nursing and Health Sciences for the program assessment (Objectives 2, 3, and 4). FNU will lead the implementation of the research in Fiji across all 12 settlements, including set-up and operation of the laboratory. Originally established as the Suva Medical School in 1885, the College transformed into the School of Medicine, then became part of FNU when the university officially opened in 2010.



Hasanuddin University (UNHAS)

RISE is partnering with the Faculty of Public Health at UNHAS for the assessment components of the program. The Faculty will lead the implementation of the research in Makassar across all 12 settlements, including set-up and operation of the laboratory. In addition, RISE is partnering with the Faculty of Engineering to support implementation of Objective 1. UNHAS, located in Makassar, is one of the largest autonomous universities in Indonesia.



The University of the South Pacific (USP)

RISE has partnered with the USP School of Geography to support Objective 1 and the qualitative components of Objective 4. USP students will work alongside MADA students on community co-design processes. USP is the premier provider of tertiary education in the Pacific region and an international centre of excellence for teaching, research consulting and training on all aspects of Pacific culture, environment and human resource development need.



United Nations University International Institute for Global Health (UNU-IIGH)

The strategic partnership with UNU-IIGH will assist with translating RISE lessons and findings into global policy dialogues. The partnership will focus on the human health and well-being dimensions of RISE, particularly qualitative research under Objective 4. UNU-IIGH was established by the United Nations University and the World Health Organisation in 2000 to address issues of global health and public health delivery systems.



Melbourne Water

Melbourne Water has extensive experience in citywide and city-region WSC design, implementation and maintenance. Its role with the RISE program includes technical support and advisory services, primarily for Objective 1. Melbourne Water is a leader in world class integrated water, sewerage, waterways and amenity management.



South East Water

South East Water has considerable experience in decentralised wastewater treatment solutions, new technologies and innovations that are cost-effective and offer alternatives to big-pipe solutions. Alongside its subsidiary, Iota Services, South East Water's role in the RISE program is technical support and advisory services, primarily for Objective 1.



Oxfam

Oxfam is a global leader in poverty reduction, disaster response and development. OXFAM supports the strategic direction of RISE, both at global and country levels, specifically as a member of the End-User Advisory Panel, and the Fiji In-Country Stakeholder Advisory Panel.



WaterAid

WaterAid is a global leader in water, sanitation and hygiene challenges, joining the RISE program as a strategic partner, End-User Advisory Panel member and strategic support provider. WaterAid is working towards getting water, toilets and hygiene to the millions of people still living without these basic human rights.



Wellcome Trust Sanger Institute

Alongside University of Cambridge, the Wellcome Trust Sanger Institute is supporting the genomics work on human and environmental samples for the RISE program. The Wellcome Trust Sanger Institute is a non-profit British genomics and genetics research institute, primarily funded by the Wellcome Trust.



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Thank you

The RISE team extends their gratitude to all those individuals and institutions involved in and supporting the program. With your significant contributions, a strong foundation has been established for the program as it heads into 2019.

Thank you for your unwavering support.

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