

2017

[RESEARCH
REPORT]

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Message from The Australia-Indonesia Centre

Australia and Indonesia's future prosperity will be built on deep and enduring trade, diplomatic, cultural, defence and security linkages. Advancing institutional and people-to-people links through science, technology, education and innovation offers new opportunities for both nations to engage in a different type of partnership. One that seeks to solve complex and shared challenges, promotes a contemporary and mutual understanding of each other and reflects the maturing, long-term relationship between close neighbours.

We are proud to present the Centre's 2017 Research Report. It represents a milestone in the Centre's journey to building better relations between Australia and Indonesia. It also gives a glimpse of some amazing and important science and research along the way.

Through our research program, the Centre is helping strengthen the bilateral research network and partnerships between universities and organisations including research end-users – policy and industry.

The Centre has fostered a network of more than 380 researchers working together in five research areas – energy, infrastructure, urban water, health, food and agriculture. Our researchers are tackling 80 challenges across 74 locations in Australia and Indonesia. Over 50 industry and government stakeholders are actively participating in the Centre's research.

Beyond partnerships, the Centre is also helping develop the research capability of our bi-national early-career researchers. A highlight of the year was our first Future Researchers of Indonesia Program (FRIP). The program brought together future researchers from across the Centre's network and exposed them to how to work in interdisciplinary teams, engage policy and industry stakeholders, and apply scientific rigour to "real-world" problems. It was an invaluable opportunity to learn from our best researchers.

With the completion of 23 projects in 2017, it is pleasing to see the impact that the Centre's research, researchers, universities, government and industry partners are having and the legacy it is leaving for others to follow.

This 2017 Research Report captures the outcomes of some of these inspiring projects.



Harold Mitchell AC
Chair



Dr Eugene Sebastian
Director and CEO

The Australia-Indonesia Centre Board

Harold Mitchell AC

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University

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Vishnu Shahaney

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ANZ Indonesia

Karen Sandercock

Branch Manager,
Policy and Systems
Department of Education
and Training

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Provost
The University of
Melbourne

Mahendra Siregar

Past Chairman
Trade and Investment
Coordinating Board (BKPM)

Ian Kemish AM

EGM – Public Affairs
& Social Performance
Newcrest Mining Limited

Professor Margaret Gardner AO

President and
Vice-Chancellor
Monash University

Professor Duncan Ivison

Professor of Political
Philosophy
Deputy Vice Chancellor,
Research
The University of Sydney

Andrew Parker

Partner, Asia Practice
Leader
PwC

James Castle

Principal
CastleAsia

About The Australia-Indonesia Centre

"At the heart of all our actions has been a vision to bring Australia and Indonesia closer together - to advance the mindset that working together is much better than working separately"

HAROLD MITCHELL AC, CHAIR

The Australia-Indonesia Centre is supported through federal funding from Australia's Department of Education and Training and Department of Foreign Affairs and Trade. Support also comes from Indonesia's Department for Research, Technology and Higher Education.

The Centre, hosted by Monash University, is a collaboration between Monash University, the Australian National University, The University of Melbourne and The University of Sydney, working with seven leading Indonesian universities.

The Indonesian academic institutions are Universitas Indonesia, Universitas Gadjah Mada, Universitas Hasanuddin, Universitas Airlangga, Institut Teknologi Bandung, Institut Teknologi Sepuluh Nopember and Institut Pertanian Bogor.

Valued corporate partners include the Pratt Foundation, ANZ and PwC.

The Australia-Indonesia Centre has three Core Objectives set in consultation with the Australian Government.

RESEARCH

→ Pursuing solutions to shared national challenges in areas such as Energy, Infrastructure, Health, Urban Water, and Food & Agriculture via highly collaborative research.

LEADERSHIP

→ Strengthening and deepening Australia-Indonesia networks, developing leadership skills and fostering the exchange of knowledge.

INSIGHT

→ Promoting greater understanding and cultural awareness – Australians of Indonesia, and Indonesians of Australia.

Indonesia project distribution map



Research projects progress

Strategic Research Projects

Large-scale projects, generally interdisciplinary, that make a substantial contribution to the achievement of the cluster goal.

Tactical Research Projects

Small- to medium-scale projects that complement Strategic Research Projects by filling specific gaps in knowledge.

Small Projects

Small-scale pioneering projects aimed at testing ideas to be pursued in the cluster.

Rapid Start

Medium-sized projects designed to accelerate the implementation of cluster research activities.

Capacity Program

Intensive programs designed to further develop research and collaboration capacity for undergraduate and graduate students within the Centre's networks

Ongoing Projects

 **STRATEGIC RESEARCH PROJECTS 24**

 **TACTICAL RESEARCH PROJECTS 17**

 **SMALL PROJECTS 1**

 **RAPID START 3**

+ CLUSTER MANAGEMENT & PLANNING

Completed Projects

 **STRATEGIC RESEARCH PROJECTS 4**

 **TACTICAL RESEARCH PROJECTS 2**

 **SMALL PROJECTS 22**

 **RAPID START 1**

 **CAPACITY PROGRAM 2**

Research Funding 2017

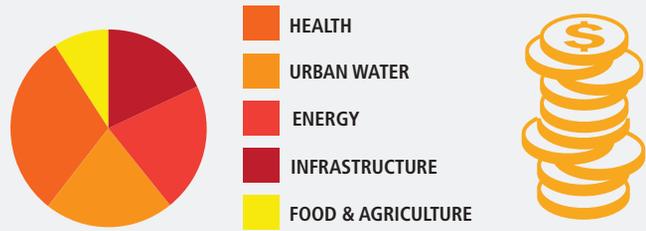
RESEARCH CLUSTER FUNDS

\$3,300,000

RAPID START & SMALL PROJECTS

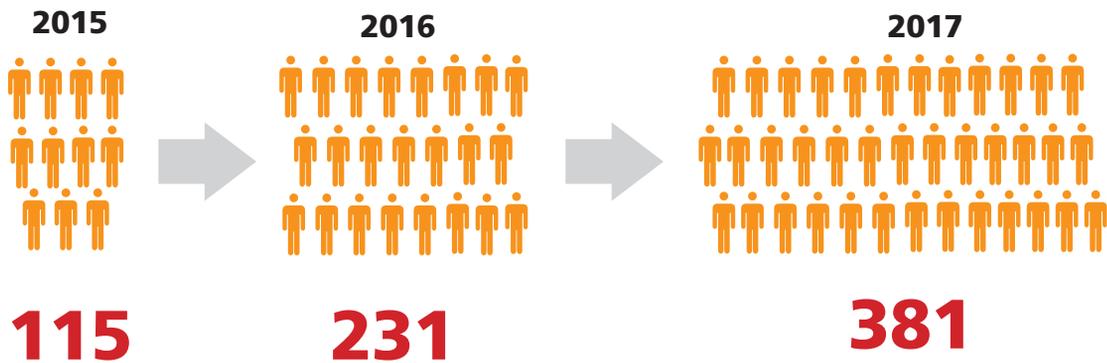
\$39,400

RESEARCH CLUSTER FUNDS DISTRIBUTION



Comparative chart 2015-2017

AUSTRALIA-INDONESIA CENTRE RESEARCHERS



RESEARCHERS BY COUNTRY



BILATERAL RESEARCH PROJECTS



STAKEHOLDERS ENGAGED





ENERGY

TRANSFORMING ELECTRICITY
SUPPLY TO PROVIDE AFFORDABLE,
SUSTAINABLE ENERGY FOR ALL

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2017 KEY ACHIEVEMENTS

- Building coalitions to support community empowerment through renewable energy and livelihood solutions has been completed.
- Near-off grid solutions using renewable energy technologies and demand side predictions has been completed.
- Additional funding of AUD\$190k was leveraged by the energy research team from APEC for the project titled "Integrated energy system planning for equitable access to sustainable energy for remote communities in the APEC regions using North Sulawesi as a pilot project/testbed." As part of this project, researchers from Monash, Institut Teknologi Bandung and Institut Pertanian Bogor are engaging with communities in North Sulawesi, City of Bitung and Universitas Sam Ratulangi to model a Low Carbon Model Town initiative.
- The research team has also attracted a AUD\$100k commitment of private investment from CWP Renewables, a global company with business activities in both Australia and Indonesia.
- Researchers have engaged closely with the Consulate General in Makassar to develop a Renewable Energy Field Study.
- The research team has engaged closely with the Indonesian National Energy Council (Dewan Energi Nasional).
- Energy has leveraged a AUD\$52k European Climate Foundation fund to develop a state-of-the art analysis of the renewable transformation potential for the Java-Bali power system.



HIGHLIGHT

Smarter electrification: providing energy isn't enough

Four years ago life in Pulau Bau, a village on a tiny island off North Maluku, was transformed. The community was supplied with electricity via small-scale diesel generators and a state-of-the-art solar energy system with battery backup. Every house was receiving some electricity but early in 2017 the system broke down, and the cost to repair it (equivalent to AUD\$20k) was beyond the budget of the community.

"There's a gap between the provision of technology and the development of capacity to maintain that supply," says Dr Sebastian Thomas, a climate and sustainability researcher with the University of Melbourne who is co-leading a bilateral research project with Dr Yudo Anggoro from Institut Teknologi Bandung.

The research team is working with community members, leaders, and representatives from different levels of government and industry in Indonesia to create a way for these communities to participate in sustainable national energy development policy in a way that suits them.

Between November 2016 and June 2017, the team visited four communities in West Java (Cinta Mekar, Buni Kasih, Tajur and Ponggang) and three around the northern island of Morotai (Daruba, Pulau Bau and Korolai), all of varying sizes, demographic makeup, and levels of electricity supply.

"We're working to do several things: one is to establish a coalition of people talking about the same issues right across the policy network. Another is to work with communities to ask what they need and want, if energy is going to be provided," Sebastian says.

During their discussions, the team noticed that health, education, and local livelihood needs tended to be central concerns for communities, whereas government authorities tended to focus on broader economic development.

Understanding the local livelihoods people want to develop or extend is crucial, Sebastian says.

"Remote communities have to take food from the environment around them. When they have growing populations, if there aren't management systems in place, those resources can become depleted.

"For example, as people fish more they go deeper and deeper, they use more fuel which costs them money, and do more damage to the marine environment. So if you can provide electricity not just to watch television at night but to give them internet access and education opportunities, to allow them to create home eco-tourism businesses, to attract more income, then you tend to find that there are livelihood opportunities that can be built through the provision of energy. There's capacity building, and you've got a way to alleviate the pressure on the environmental systems such as food and other basic resources."

The team also includes Ariani Ariani of Institut Teknologi Bandung, Dr Max Richter of Monash University, Dr Shikha Prabawaningtyas of Universitas Paramadina, and Sebastian's University of Melbourne colleague Widia Lestari.

HIGHLIGHT**Renewable ‘alternatives’ cheapest option for Australia and Indonesia**

Australia-Indonesia Centre research has revealed that electricity from photovoltaics and wind are likely the cheapest options for large-scale energy generation in both Australia and Indonesia.

“Reductions in the cost of photovoltaics and wind, coupled with developments in high-voltage direct current and off-river pumped hydro energy storage, allows photovoltaic and wind to strongly compete with all fossil, nuclear and renewable alternatives,” says Professor Andrew Blakers of the Australian National University’s Energy Change Institute, who led the project along with Dr Rachmildha Tri Desmana of Institut Teknologi Bandung.

“Indeed, photovoltaic and wind are the cheapest options for new large-scale generation capacity in both Australia and Indonesia.”

The team investigated the potential for renewable energy, principally photovoltaics, to provide most of the Indonesian and Australian electricity supply by 2040, through the development of a large-scale interconnected system for the generation, pumped-hydro storage, and transmission of the renewable energy.

Researchers conclude that only about 0.1 percent of Indonesia’s land would be needed to meet all electricity requirements from photovoltaics and wind, especially when factoring in the swift price reductions over the past five years in these technologies.

Pumped Hydro Energy Storage was the primary storage technology examined by the team (which makes up about 99 percent of all energy storage because of its low cost relative to alternatives such as batteries). Storing energy using pumped hydro means the electricity doesn’t have to be sold as it’s being made, but can be saved for later.

“Only the very best, most favourable sites will be needed to stabilise an Indonesian grid that has very high levels of wind and photovoltaics. Almost everywhere people live there are large numbers of mountains; volcanoes with very large heads — that’s the height difference between the upper and lower reservoir. And a big head for pumped hydro is a very favourable thing because it reduces costs.”

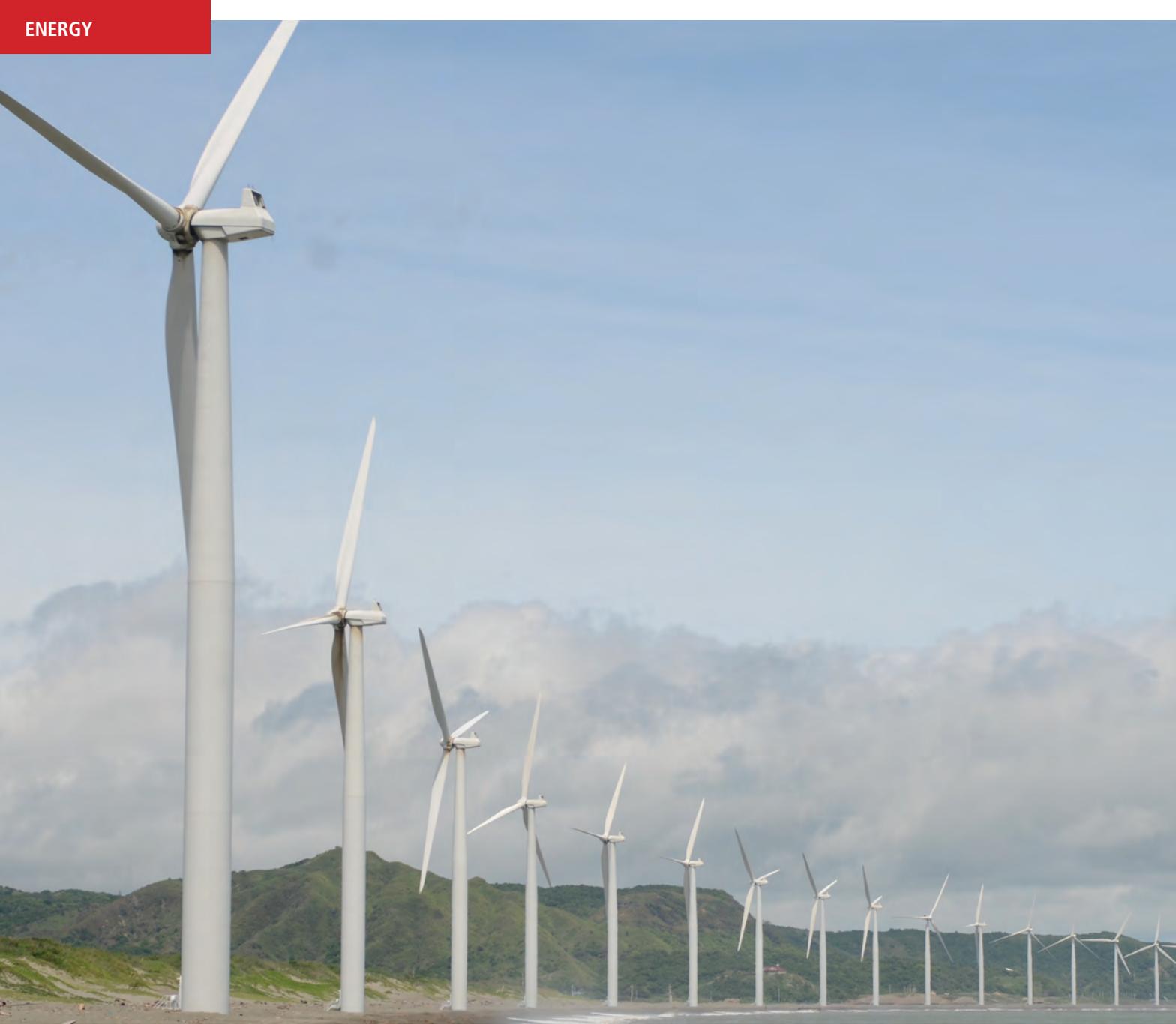
Connection of Australia and Indonesia via an HVDC transmission line and interconnection within Indonesia were also explored.

“Really big systems are now being built that can transmit 12 gigawatts over 3,000 kilometres, with a loss of 10 percent. In other words, you could move power from one end of Indonesia to the other and only lose about 10 percent.

“That means that when the weather is poor, for example, in Java, but is favourable in the Eastern provinces, you could move solar and wind power from the east to the west. And when the weather moves from the west to the east, the power goes the other way.”

The team collected information on the electricity use of five to ten typical Indonesian islands, and conducted a review of the recent literature for HVDC technology.





Energy Cluster Leads



Professor Ken Baldwin



Dr Ariel Liebman



Dr Ulfah Juniarti
Siregar



Dr Retno Gumilang Dewi



Coordinator



Dr Igor Skryabin



Strategic Research Projects

Optimal microgrid design and operations

Dr Hassan Hijazi - Australian National University
Dr Tri Desmana Rachmildha - Institut Teknologi Bandung

Indonesian energy technology and resource assessments

Professor Ken Baldwin - Australian National University
Dr Retno Gumilang Dewi - Institut Teknologi Bandung

Microgrids as enablers of sustainable power system investment and decarbonisation pathways

Dr Ariel Liebman - Monash University
Dr Armansyah H Tambunan - Institut Pertanian Bogor

Tactical Research Projects

Near off-grid solutions using renewable energy technologies and demand side prediction

Professor Saman Halgamuge - The University of Melbourne
Associate Professor Deendarlianto - Universitas Gadjah Mada

Building coalitions to support community empowerment through renewable energy and livelihood solutions

Dr Sebastian Thomas - The University of Melbourne
Dr Yudo Anggoro - Institut Teknologi Bandung

Operational security support for power and energy systems: networked microgrids as the solution

Dr Yan Xu - The University of Sydney
Dr Ardyono Priyadi - Institut Teknologi Sepuluh Nopember

Inter-island multi-terminal high-voltage direct current (HVDC) transmission system for renewable energy integration

Dr Ke Meng - The University of Sydney
Dr Tri Desmana Rachmildha - Institut Teknologi Bandung

Rapid Start Projects

Mapping the energy resources and infrastructure of Indonesia for efficient and equitable system growth, and electrification of remote/island populations

Dr Ariel Liebman - Monash University
Dr Yuli S Indartono - Institut Teknologi Bandung

Small Projects

Indonesia-Australia renewable energy Super Grid

Professor Andrew Blakers - Australian National University
Dr Tri Desmana Rachmildha - Institut Teknologi Bandung

Remote area electrification in Indonesia

Dr Max Richter - Monash University
Associate Professor Prakoso Tirta - Institut Teknologi Bandung

Energy sustainability in naval and aerospace systems through improved turbulence management

Dr Nicholas Hutchins – The University Of Melbourne
Professor I Ketut Aria Pria Utama - Institut Teknologi Sepuluh Nopember

Baseline survey of energy needs, consumption and production sources on Bintan Island

Hari Nugroho - Universitas Indonesia
Professor Anthony Vassallo - The University of Sydney

Case study on decarbonising the Indonesian electricity sector

Dr Retno Gumilang Dewi - Institut Teknologi Bandung
Professor Kenneth Baldwin - Australian National University

Priorities and pathways to implementation for energy and urban sustainable development goals for Indonesia

Professor David Griggs - Monash University
Dr Jatna Supriatna - Universitas Indonesia

Overcoming legal and governance barriers to clean energy in Indonesia and Australia

Dr James Prest - Australian National University
Dr Laode Syarif - Universitas Hasanuddin

Evaluation of technologies for energy from biomass and waste

Associate Professor Lu Aye – The University of Melbourne
Dr Armansyah H Tambunan - Insitut Pertanian Bogor

Passive housing in warm climates

Dr Jatmika Adi Suryabrata - Universitas Gadjah Mada
Dr Glenn Platt - CSIRO



INFRASTRUCTURE

➔ infrastructure.australiaindonesiacentre.org



2017 KEY ACHIEVEMENTS

- The connectivity project has developed initial models to optimize the transport of goods across different modes of transport – from ships, rail and road transport. Modeling has focussed on optimising strategic intermodal terminal location, tactical route selection in the intermodal network, and operational planning and scheduling.
- Two students and the Indonesian Infrastructure Cluster Lead from Institut Teknologi Sepuluh Nopember spent time at Monash University in December, working with Australian collaborators on the development of fibre optic-based sensors for critical road, railway, port, bridge and pipeline monitoring.
- Cluster researchers led a workshop in Jakarta in September which brought together representatives of the Ministry of Transport and researchers from Universitas Gadjah Mada, Universitas Indonesia, the University of Sydney and the University of Melbourne.
- The Connectivity Project has engaged an industry representative from SMEC Holdings Ltd for feedback on preliminary computer modelling and potential commercial applications of the model.



HIGHLIGHT

Improving rail safety in Indonesia and Australia: The sweet spot for rail repair vs efficiency

Computer models to predict how railcars will respond to different track conditions are being developed by Indonesian and Australian researchers, to improve rail safety and efficiency in both countries.

They've already created a successful model for passenger carriages, which has been validated against the performance of trains in Indonesia. Now they're working on models for freight trains.

"For railways, it's standard practice to measure the conditions of the track periodically," says Nithurshan Nadarajah, a research engineer at the Institute of Railway Technology at Monash University.

"However, the influence of a track's condition on the vehicle isn't fully understood. So the thresholds for when to intervene with maintenance aren't comprehensive, or optimised.

"Lots of data is helping our computer algorithm learn about the relationship between track conditions, running speeds, and the response of a moving train. This work will help operators predict the response of different wagons, and schedule maintenance based on that performance."

They're also hoping the models could be used to predict optimal running speeds, but the work is yet to be validated.

The project is using data collected by a real-time monitoring railcar that ran on a track between Surabaya and Lamongan

in East Java for several weeks during 2016. Further data is coming from an Australian line, managed by the Australian Rail Track Corporation.

When a range of different vehicles use the tracks – for example passenger or freight wagons – the risks associated with using the current passive threshold-based maintenance increase.

"The increased demand on railways – particularly in a growing country like Indonesia – is quickly exposing the crippling limitations of this passive assessment, and a number of derailments have resulted from a combination of non-ideal track features," Nithurshan says.

The project is being conducted with the support of the Government of East Java, the Institute of Railway Technology at Monash University, PT Kereta Api Indonesia (the national rail company), Java Integrated Industrial and Port Estate, the Lamong Bay Terminal container port, the Australian Rail Track Corporation, Public Transport Victoria, Institut Teknologi Sepuluh Nopember, and Monash University.



HIGHLIGHT

Earthquake-proofing ports

Researchers are learning how to modify existing Indonesian and Australian ports so earthquakes don't cause such devastating damage to sea trade.

"What we currently have is a recipe for disaster. Some port infrastructure is over 100 years old and was not designed to cope with the loads they are currently bearing, let alone an earthquake," says Dr Massoud Sofi of the University of Melbourne.

"We hope that our research leads to an upgrade or better maintenance of ports so they are disaster resilient and recover faster from natural events such as earthquakes."

Earthquakes and seaports aren't a great mix. Unfortunately, Indonesia has both of them in abundance, but no guidelines on how to make ports more resilient during quakes.

As island nations, both Australia and Indonesia rely on the sea for over 90 percent of international trade. Indonesia is also one of the most seismically active regions in the world — within the past decade alone, close to 20 major earthquakes have occurred in the country.

"Australia's port structures are vulnerable because the structural elements are poorly detailed. In Indonesia, the detail is better but the earthquake loading is much more significant," says Dr Elisa Lumantarna, also of the University of Melbourne.

Massoud and Elisa are collecting data on the health status and load capacity of critical infrastructure in Port Teluk Lamong and Terminal Petikemas in Surabaya, and Port of Melbourne in Australia. They are also investigating critical elements such as bridges around the ports.

"Soil layers are really important. If the port is built on top of deep sedimentation, this could amplify the impact of the earthquakes. It's like having a building on top of jelly — the more the jelly wobbles, the more the building wobbles," Elisa says.

This data is being used to develop a computer model of the port, which they can subject to simulated earthquake events and assess how it performs.

"Ports that perform particularly badly could then be prioritised for maintenance," Massoud says.

They hope to have a comprehensive method in place to assess port infrastructure in Australia and Indonesia by April 2018.

The project is being conducted in partnership with researchers from Institut Teknologi Sepuluh Nopember in Surabaya.



HIGHLIGHT

Fibre optic based sensors for critical infrastructure monitoring

Researchers from Monash University are developing fibre optic sensors to more efficiently monitor billions of dollars worth of infrastructure.

There are more than 33,000 road bridges in Australia, about 10,000 of which are managed by State road authorities. A 2002 estimate reveals the high cost of maintaining these bridges as this crucial infrastructure ages. While annual maintenance cost are upwards of AUD\$100 million, the replacement value of all of these bridges is estimated at over AUD\$16 billion.

Research lead by Professor Jayantha Kodikara of Monash University, with the support of Dr Hera Widyastuti of Institut Teknologi Sepuluh Nopember, has resulted in a fibre optic sensor prototype which will help establish structural health, plan rehabilitation measures, and minimise potentially catastrophic failures.

Road, bridge and pipeline infrastructure is vulnerable to flooding, soil erosion, and even ground shifts due to earthquakes. Some water and gas pipelines in Australia are over a century old and failures are all too common. Jakarta's water supply system requires major upgrading and suffers a high percentage of water losses due to leakage.

Currently, infrastructure monitoring includes routine maintenance and visual inspections. Developing robust sensors that can withstand moving water and water pressure and long term effects of corrosion is important. Fibre optic sensors are glass fibres and do not undergo corrosion, like traditional strain gauges.

The fibre optic sensor prototype developed by the research team is already being actively tested and has drawn the attention of potential industry partners.

By using these types of sophisticated sensors, civic maintenance organisations can more accurately assess the lifespan of materials and analyse their integrity after natural disasters. The sensors can even be built into critical road sections and pipelines for constant monitoring to catch issues as they arise, instead of waiting for visible damage to appear or more destructive failures to occur.

Accurate, timed monitoring of this infrastructure promises not only cost savings to state and federal departments in repairs, but to also provides a valuable public safety aspect in reducing incidents.

Infrastructure Cluster Leads



Professor Wing Kong Chiu



Professor Colin Duffield



Dr Hera Widyastuti



Professor Iswandi Imran



Professor Sigit Priyanto



Coordinator



Dr Maria Platt



Strategic Research Projects

Seismic performance of critical infrastructures in port development

Professor Abbas Rajabifard - The University of Melbourne

Dr Hera Widyastuti - Institut Teknologi Sepuluh Nopember

Efficient facilitation of major infrastructure projects

Dr Felix Kin Peng Hui - The University of Melbourne

Dr Sari Wahyuni - Universitas Indonesia

Connectivity – from sea to rail, sea to road, road to rail

Professor Andreas Ernst - Monash University

Dr Hera Widyastuti - Institut Teknologi Sepuluh Nopember

Changing the landscape of rail through advanced asset health monitoring systems – A novel method to increase the resilience of track infrastructure

Dr Chao Chen - Monash University

Dr Hera Widyastuti - Institut Teknologi Sepuluh Nopember

Tactical Research Projects

Life-cycle structural performance assessment framework for concrete bridges

Dr Lihai Zhang - The University of Melbourne

Professor Iswandi Imran - Institut Teknologi Bandung

Development of fibre optic based sensors for critical road, railway, port, bridge and pipeline monitoring

Professor Jayantha Kodikara - Monash University

Dr Hera Widyastuti - Institut Teknologi Sepuluh Nopember

Small Projects

Asset life improvement of rail infrastructure

Professor Wing Kong Chiu - Monash University

Dr Hera Widyastuti - Institut Teknologi Sepuluh Nopember

Australia-Indonesia Joint Workshop on Smart Cities

Professor Marimuthu Swami Palaniswami - The University of Melbourne

Professor Prihatmanto Ary Setijadi - Institut Teknologi Bandung

Effective structuring and packaging of funding and financing arrangements for the delivery of infrastructure

Professor Colin Duffield - The University of Melbourne

Dr Sari Wahyuni - Universitas Indonesia

Rapid Start Projects

Improving Rail Infrastructure - rail transportation (interfacing to a port intermodal terminal)

Professor Wing Kong Chiu - Monash University

Dr Hera Widyastuti - Institut Teknologi Sepuluh Nopember

Using Instrumented Revenue Vehicle to Inspect Track Integrity and Vehicle Performance during Peak Times

Professor Colin Duffield - The University Of Melbourne

Professor Wing Kong Chiu - Monash University



HEALTH

CREATING INNOVATIVE APPROACHES
TO PRIMARY PREVENTION OF
NON-COMMUNICABLE DISEASES

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2017 KEY ACHIEVEMENTS

- The Assessment of NCD Risk Factors in Indonesian Adolescents project team, supported by principals and school representatives in Jakarta and the Provincial Education Office in Makassar, advanced their surveys towards a robust health profile of Indonesian adolescents. Completed data collection in Jakarta involved quantitative surveys, height and weight measurement and blood tests for metabolic risks in 615 students and 64 focus groups. In total, over 1,200 adolescents will be assessed, including a high risk out-of-school adolescent cohort.
- Following training with the Indonesian research teams and enumerators around qualitative surveys, data collection is underway for a study of decision-making by mothers and medical professionals around the introduction of breast milk substitution with formula milk for infants.
- The cluster harnessed the opportunity to engage youth organisations around the known value of engaging young people as active agents of change within their own communities and of building their capacity for leadership – known to underpin healthy choices by adolescents. A roundtable with representatives from youth-focussed organisations was held in Universitas Indonesia in August. This led to two successful youth-led tobacco advocacy and leadership projects currently running in schools in Jakarta.
- Indonesian delegates presented at the First 1000 Days Australia Summit in Brisbane. Additionally two international roundtables were held: firstly in Brisbane with delegates from the Indonesian National Population and Family Planning Board, Indonesian academics and range of Australian stakeholders; secondly in Jakarta, attended by Indonesian and Australian representatives from policy, midwifery, nutrition, family planning and NGO sectors as well as First 1000 Days Australia Council Members to discuss possibilities for a coordinated, holistic model of the First 1000 Days in Indonesia.
- The cluster fully realised its portfolio of research and educational activities by awarding three tactical research projects. These projects are to validate assessment tools for adolescent mental health and to map approaches to assessment of common mental disorder in adolescents, together with a study using geospatial mapping of tobacco sales outlets in relation to schools.
- The cluster has also awarded four strategic educational initiatives. These projects consist of a series of health professional capacity building projects and a study to explore parent knowledge of adolescent health and development to inform future approaches to the primary prevention of NCDs.
- A delegation of Indonesians and Australians, including Health Cluster Co-Lead Dr Achmad Romdhoni, attended the World Congress on Adolescent Health in Delhi in October which was presided over by the AIC Health Cluster Lead Professor Susan Sawyer in her role as President of the International Association of Adolescent Health.



HIGHLIGHT

Health Cluster funds mental health, tobacco education, and capacity-building projects

Mental health disorders, tobacco education, and capacity-building for communities and medical professionals are the focus of nine collaborative projects launched by the Health Cluster in October 2017.

The projects cover an array of research themes based on the Cluster's focus on adolescence as a period within the lifecourse that can be highly influential in preventing the uptake of particular behaviours that contribute to non-communicable diseases in later adult life.

Tobacco is the most significant risk factor for adult non-communicable diseases in Indonesia. Researchers from the University of Sydney, Universitas Udayana and Universitas Airlangga will audit retailers in Denpasar, to assess how tobacco retail promotions target young people at the local level. This work will be complemented by two youth-led projects to develop school curriculum and peer leadership programs which aim to transform adolescents' attitudes to smoking, conducted by Smoke-Free Agents and the Center for Indonesia's Strategic Development Initiatives.

Adolescence is a highly dynamic period for the onset of mental disorders. Monash University and Universitas Airlangga researchers will translate and culturally validate psychometric instruments to identify depression among adolescents, while

University of Melbourne and Universitas Indonesia researchers will determine baseline data needs to determine the current prevalence of mental health issues in Indonesian adolescents.

A number of educational initiatives include a needs assessment of parent support around adolescents and non-communicable disease risks is being conducted by researchers from the University of Melbourne and Universitas Indonesia. The development of adolescent-friendly approaches for primary care physicians engaging with school students is being led by Universitas Gadjah Mada, while Universitas Indonesia is leading a study around the health curricula needs for communication with adolescents around non-communicable disease prevention, both in collaboration with researchers from the University of Melbourne.

An intensive eight-day program run by the University of Melbourne at the Melbourne Children's campus is advancing the capacity of eight future leaders to prevent non-communicable diseases in Indonesia by focussing on the life stage of adolescence.



HIGHLIGHT

Researchers, Ministry of Health, WHO representatives explore educational initiatives for adolescent health

Researchers from five top universities in Indonesia and Australia have teamed up with Indonesian health policy experts and practitioners to identify educational opportunities to promote adolescent health issues.

In late July 2017, the University of Melbourne in partnership with the Faculty of Medicine at Universitas Gadjah Mada in Yogyakarta hosted a roundtable for the Australia-Indonesia Centre Health Cluster: 'Educational initiatives for medical education and public health for primary prevention of NCDs and NCD risks'.

The two day scoping roundtable was attended by top health researchers from Universitas Gadjah Mada, Universitas Airlangga, Universitas Hasanuddin, The University of Melbourne, The University of Sydney, as well as members of the Indonesia Pediatric Society, and representatives from Indonesia's Ministry of Health, the World Health Organisation, and the Association of Indonesian Medical Education Institutions.

"It is hoped that a medical education workshop that focuses on non-communicable disease will promote the capacity for future NCD prevention research in Indonesia with the goal of reducing risk factors that result in NCD disease," said Dr Achmad Romdhoni of Universitas Airlangga.

The purpose of the roundtable was to scope opportunities for collaborative education initiatives that focus on the primary prevention of NCDs for medical – including nursing and allied health – and public health education. The group sought to share the types of education that are currently delivered at different universities in Indonesia and Australia, explore current teaching approaches including analysing the extent that information technologies are used for education, and identify gaps and opportunities around the teaching and training of adolescent health, patient centered care, and NCDs.

"We are particularly interested in the role of innovative education methods including the teacher extensions, such as online technologies like Massive Open Online Courses. In Indonesia, there is the opportunity to create innovative partnerships with communities that would help create scalable, sustainable interventions to prevent NCDs," Professor Susan Sawyer said.

A formal call for applications was announced following this roundtable which resulted in four educational initiatives being funded by the Health Cluster.



HIGHLIGHT

What influences mums away from breastfeeding

Introducing infant formula or other breastmilk substitutes during the first six months of a baby's life increases the risk of infectious diseases including diarrhoea and pneumonia, and of non-communicable diseases such as type II diabetes, associated with being overweight or obese throughout the life course. The World Health Organization, the Indonesian Ministry of Health, and the Australian National Health and Medical Research Council all recommend that babies be fed nothing but breastmilk until they are six months old.

Almost all Australian and Indonesian mothers choose to breastfeed their babies but it is estimated that more than 70 percent of Indonesian mothers and more than 80 percent of Australian mothers introduce infant formula or other foods before their babies are six months old. Very little is known about how mothers make this decision, whether they would prefer to avoid breastmilk substitutes, and what they need to enable them to do so.

A team of scientists, supported by the Australia-Indonesia Centre and led by Associate Professor Kirsty Foster and Dr Nina Berry of

the University of Sydney with Dr Titis Prawitasari and Dr Pramita Gayatri from the Universitas Indonesia and Dr M. Farid Dimjati Lusno and Dr Setya Haksama from Universitas Airlangga are investigating.

They hope to find out whether mothers choose to introduce infant formula and other breastmilk substitutes, or if they feel they must. The team hopes their work will improve our understanding of mothers' support needs and inform the development of more effective policy tools, and practice guidelines.

It's a timely project. Indonesia's Ministry of Health has achieved significant gains in exclusive breastfeeding prevalence since 2007, with Indonesia passing legislation to protect, promote and support breastfeeding in health facilities and communities. However, Australia has no equivalent legislation and no longer collects nationally representative data on infant feeding. This makes it difficult for maternal and child health services to know what support mothers need or to ensure the support they are providing is effective.

Health Cluster Leads



Professor Susan Sawyer



Associate Professor Kirsty Foster



Dr Budi Wiweko



Dr Achmad Romdhoni



Coordinator



Christianne O'Donnell



Strategic Research Projects

Evaluation of NCD risks, NCDs and NCD monitoring frameworks in Australia and Indonesia

Dr Peter Azzopardi - The University of Melbourne

Associate Professor Ansariadi Ancha - Hasanuddin University

Assessment of NCD risk factors in Indonesian adolescents

Dr Peter Azzopardi - Burnet Institute

Dr Budi Wiweko - Universitas Indonesia

Exploring potential impacts of family empowerment and NCD prevention strategies on achieving early life equity

Professor Kerry Arabena - The University of Melbourne

Dr Indah Widyahening - Universitas Indonesia

Improving nutritional outcomes in infants

Associate Professor Kirsty Foster - The University of Sydney

Dr Achmad Romdhoni - Universitas Airlangga

Parent Support Initiative Needs Assessment on Early NCD Prevention in Adolescents

Associate Professor Lena Sancu - The University of Melbourne

Dr Bernie Medise - Universitas Indonesia

Needs assessment of health professionals and medical students in communicating with adolescents about prevention of NCD

Associate Professor Lena Sancu - The University of Melbourne

Dr Yoga Devaera - Universitas Indonesia

Transform: Investing in leadership and building educational and translational capacity for early prevention of NCDs

Andrea Krelle - The University of Melbourne

Dr Bernie Medise - Universitas Indonesia

Engaging primary care physicians in approaching adolescents for early prevention of NCD" An Educational Initiatives Project at Yogyakarta, Indonesia"

Associate Professor Lena Sancu - The University of Melbourne

Dr Mora Claramita - Universitas Gadjah Mada

Breaking the chain of tobacco smoking by Generation Z by changing the perspective through Interactive and Cognitive Approach in middle and High School Students

Hasna Pradityas - Smoke Free Agents

De-normalising smoking among youths: A school-based smoking prevention program

Anindita Sitepu - Center for Indonesia's Strategic Development Initiatives.

Tactical Research Projects

Collecting minimally sufficient data on child and adolescent mental health disorders in Indonesia

Professor George Patton - The University of Melbourne

Dr Indang Trihandini - Universitas Indonesia

Translation, cultural verification and formal validation of the Centre for Epidemiologic Studies Depression Scale – Revised (CESD-R) for young people in Indonesia

Professor Jane Fisher - Monash University

Dr Fransiska Kaligis - Universitas Indonesia

Cigarettes in small hands: Mapping cigarette retailers around children and adolescents in Denpasar, Bali, Indonesia

Dr Becky Freeman - The University of Sydney

Dr Susy Sebayang - Universitas Airlangga

Small Projects

Understanding immune response to tuberculosis infection to help design new vaccines

Professor Warwick Britton - The University of Sydney

Associate Professor Ning Rintiswati - Universitas Gadjah Mada

Uncovering information on nutrition for school age children in Indonesia's linguistic landscape

Associate Professor Lesley Harbon - The University of Sydney

Dr Sisilia Halimi - Universitas Indonesia

Universal Health Coverage for the informal sector

Dr Robert Sparrow - Australian National University

Dr Teguh Dartanto - Universitas Indonesia

Household nutritional intake and trade reform in Indonesia

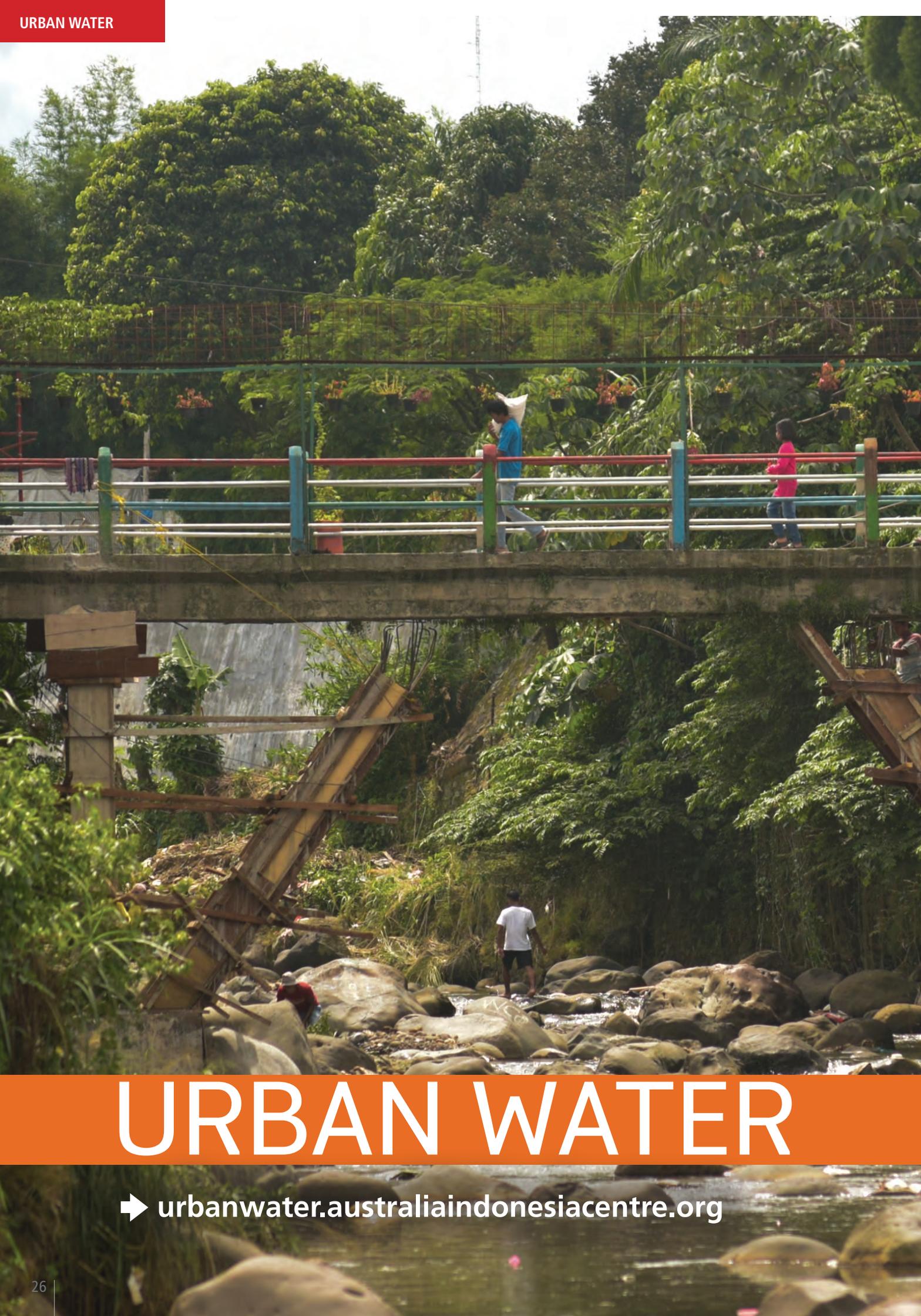
Dr Arianto Patunru - Australian National University

Dr Ari Kuncoro - Universitas Indonesia

A study of pneumonia in hospitalised Indonesian children and its association with vitamin D deficiency

Dr Margie Danchin - The University of Melbourne

Dr Yati Soenarto - Universitas Gadjah Mada



URBAN WATER

➔ urbanwater.australiaindonesiacentre.org

2017 KEY ACHIEVEMENTS

- Urban Water researchers and GRIP participated in and presented at a focus group discussion in March to discuss the impact and management of floods in Bogor city chaired by the Mayor of Bogor.
- In May the Cluster delivered a program for the AIC Leaders Program – Future Cities. The program included a masterclass on Water Sensitive Cities and 5-minute thesis presentations from the Water and Sustainability in Asia GRIP, a CAVE tour and Elwood Visualization demonstration of how integrating green technology into the urban design of Elwood can mitigate future scenarios of climate change and urbanisation, and a guided tour of green infrastructure around Docklands by representatives of the City of Melbourne.
- One of the Cluster's GRIP students interviewed the Mayor of Surabaya in October. The student received considerable media coverage regarding her fieldwork with local communities in Surabaya.
- Urban Water researchers submitted a joint conference paper to the 'International Symposium of Sustainable Landscape Development'. The paper, titled 'Jumping to the Top: Catalyst for Leapfrogging to a Water Sensitive City' was presented in November.
- Cluster researchers from IPB, UI and Monash observed a benchmarking workshop in action attended in Bendigo in October. The CRC workshop was attended by government and industry officials from the City of Greater Bendigo, Coliban Water, Department of Environment, Land, Water and Planning, and North Central Catchment Management Authority.
- Researchers from IPB, UI and Monash came together in October in Melbourne to co-design the framework for sharing information, building knowledge and collecting primary data in Bogor. The outcome was the delivery of workshops and focus group discussions in November involving government, industry, academia, communities and local residents. These were held in Pulo Geulis and Griya Katulampa, and those focused on Bogor Raya, Cibinong and Sentul City, were held at IPB. All participants were awarded with an 'AIC Water Champions' certificate.
- Two Water Sensitive City masterclasses were held in November, and included training on leapfrogging to a Water Sensitive City, through socio-political, biophysical and partnership pathways. The participants for the first masterclass included researchers and students from IPB, UI and LIPI. A second masterclass was delivered for local government, industry and NGOs.
- The Urban Water Cluster Learning Alliance was launched in Bogor in November. This Alliance connects leaders, influencers and 'water champions' to work towards shaping a water sensitive future for the city of Bogor that achieves improvements in liveability, wellbeing and health and community resilience. A Declaration of Water Sensitive Cities was signed at the Learning Alliance launch with all participants pledging to create pathways to leapfrogging to WSC.



HIGHLIGHT

Nature based technologies that stop flooding and clean up contaminated water

Known as Indonesia's 'rain city', Bogor receives 3,000 mm of rain per year. In the Colonial-era, irrigation channels were designed and built to transport runoff to rice fields that encircle Bogor. But with houses now replacing most of the city's agriculture, during heavy rains the runoff causes flooding in Bogor as well as downriver in the nearby metropolis of Jakarta.

Urban Water Cluster research has been addressing how innovative, nature based solutions, such as 'rain gardens', can help to keep waterways free from pollutants, stop flooding and create green beautiful and cool spaces.

Rain gardens look similar to a normal garden, but beneath these green urban spaces are sandwich layers of sand, gravel, roots and microbes through which polluted water passes and clean water exits that can be used for irrigation for urban agriculture or household washing.

"Rain gardens not only keep our precious waterways free from contamination, they are beautiful to look at, provide habitat to local wildlife, use very minimal energy and are easy to maintain," says David McCarthy, Associate Professor in Water Engineering in Department of Civil Engineering at Monash University.

Professor Hidayat Pawitan of Institut Pertanian Bogor and Dr Dwinanti Rika Marthanty of Universitas Indonesia are working with David and his team, Dr Emily Payne and Dr Harsha Fowder, to explore how green technologies using nature based solutions could apply to communities in Bogor.

"Rain gardens, constructed wetlands, swales, green walls, green roofs, porous pavements, detention ponds, rainwater tanks and sedimentation ponds are all possible green infrastructure options that could be incorporated into city plans in Indonesia. By conducting workshops in Bogor we bring together experts in biofiltration and green infrastructure, to explore which of these nature based solutions best suit the different urban environments in Bogor," says Harsha.

The cluster aims to create a guide for green infrastructure application in Bogor that will inform the design of water sensitive urban plans and more broadly the strategy to leapfrog Bogor Raya to a more water sensitive and resilient future.

"We aim to change the paradigm of urban water management in Indonesia using the water sensitive city concept. By incorporating green infrastructures into spatial planning and urban designs to manage rain water quantity and quality, as well as aesthetic aspects, we will help to promote environmental awareness and values," says Dwinanti. "And conserve the rivers and groundwater recharge areas of Bogor without sacrificing regional incomes."

Professor Hadi Susilo Arifin (IPB) agrees and sees the cluster playing a critical role in educating communities in the sustainable water practices. "Most communities in Indonesia have low levels of environmental education so they treat rivers as garbage bins. Perhaps when they are filtering water themselves and using it to grow cash crops that make them income, they will appreciate clean water more," Hadi says.



HIGHLIGHT

Alleviating the severity of flooding with urban water management strategies

As heavy downpours in Bogor, West Java, routinely threaten deadly and devastating floods in the nation's capital of Jakarta, Indonesia confronts the challenges of urban water management.

"The causes of damaging flooding are manifold," says Monash University's Dr Christian Urich, "including outdated and repurposed drainage infrastructure, rapid urbanisation leading to more sealed surfaces, and climate change delivering more intense rainfalls".

"For studies in Australia and other Melbourne catchments, we have shown that the combined effect of urbanisation and climate change is increasing the flood risk significantly," Christian says.

Researchers from Universitas Indonesia, Institut Pertanian Bogor and Monash University are working with communities, industry and government in Bogor, Cibinong and Sentul City, to develop strategies that aim to mitigate the impact of heavy rain and prevent damaging flooding, contamination and water waste.

"Our research has noted that existing water infrastructure around Bogor, built by the Dutch for irrigation, is now used for drainage. This old infrastructure cannot cope with the increased runoff," Christian says.

Christian suggests more sensitive land use planning, and building community resilience to minimise flood impact, are strategies that research shows can benefit communities at the local level.

"For big floods we will still need some traditional infrastructure but it is how those can be combined with localised green technologies that will achieve multiple benefits," he says.

"We should change our paradigm to think from different points of view," says Universitas Indonesia's Dr Dwinanti Rika Marthanty. "People in Bogor need not sacrifice their land for the sake of conserving upstream Ciliwung [River] but should get financial support from the Jakarta local government to conserve their lands."

Monash University's Dr Jane Holden says, "governments, industry, academia and communities need to work together to create world-leading urban water solutions in Indonesia."

To create a knowledge sharing and learning environment an AIC Urban Water Learning Alliance was established in 2017, to connect community water champions, and experts in research, water regulation and management, urban planning and development, to work on delivering holistic sustainable urban water solutions, together.

HIGHLIGHT**Community Water Champions create a water sensitive vision for Pulo Geulis and Griya Katulampa**

Monash University, Institut Pertanian Bogor and Universitas Indonesia researchers held workshops with the communities of Pulo Geulis and Griya Katulampa, Bogor, to better understand the different ways residents interact with water in their daily lives, how they envision their community in the future and how water could contribute to these aspirations.

'Community Visioning' workshops were hosted by each community with residents participating on a voluntary basis and guided through visioning a water sensitive future by researchers in small groups of men, women and youth.

Starting with a community mapping exercise, the groups sat around satellite images of their kampong, identifying different points of interest that mattered to them such as their homes, markets, schools, public places or religious buildings. Participants shared their views on these places, why they mattered and what they liked about them.

They then explored problems relating to water, sanitation and hygiene, using a problem tree approach, which helps to unpack the underlying factors creating a water-related problem, i.e. the 'roots', and the direct and indirect effects, the 'branches', that relate to these problems.

Raul Marino, an expert in Water Sensitive Urban Design, explains that "a problem tree is a powerful tool for understanding the relationships between different issues in a neighbourhood, as well as how causes and effects interact. Problem trees visualise how one issue can lead to multiple negative conditions."

Community leaders and residents guided researchers on 'transect walks' through their community, giving researchers a hands-on opportunity to explore the community together with the different resident groups and to observe the various spatial characteristics of the neighbourhood.

Residents shared their thoughts on what they like about their neighbourhood and what the problems are with existing infrastructure, i.e. houses, important buildings, public spaces, drainage, waste, and sanitation, how this changes throughout the seasons and describing the multiple uses of each urban space.

Researchers at Institut Pertanian Bogor, Universitas Indonesia and Monash University are now evaluating the key learnings from the community visioning workshops. Combined with the results of visioning activities held with government and industry officials, this shared vision from the different stakeholder groups will form a basis for creating urban design concepts that will inform a leapfrogging strategy for a water sensitive Bogor Raya.



Urban Water Cluster Leads



Professor Diego Ramirez-Lovering



Dr Briony Rogers



Professor Hadi Susilo Arifin



Dr Dwinanti Rika Marthanty



Coordinator



Dr Jane Holden



Liaison Officers



Dr Dwi Yuliantoro



Louise Maryonoputri



Strategic Research Projects

Benchmarking tool for assessing the water sensitivity of Indonesian cities

Dr Briony Rogers - Monash University

Dr Yuli Suharnoto - Institut Pertanian Bogor

Institutional pathways to enable leapfrogging towards becoming a water sensitive city

Dr Megan Farrelly - Monash University

Professor Yusman Syaukat- Institut Pertanian Bogor

Infrastructure pathways to enable leapfrogging towards becoming a water sensitive city

Dr Christian Urich - Monash University

Dr Yanuar Purwanto - Institut Pertanian Bogor

Green technology pathways to enable leapfrogging towards becoming a water sensitive city

Associate Professor David McCarthy - Monash University

Professor Hidayat Pawitan - Institut Pertanian Bogor

Urban design visions for water sensitive precincts

Professor Diego Ramirez-Lovering - Monash University

Dr Regan Kaswanto - Institut Pertanian Bogor

Learning alliances across research, government and industry to support the development of water sensitive cities

Dr Jane Holden - Monash University

Dr Dwi Yuliantoro - Institut Pertanian Bogor

Tactical Research Projects

Developing a new regulatory approach to ensuring potable water quality and pollution control in the environment in East Java

Professor Peter Scales - The University of Melbourne

Eddy Soedjono - Institut Teknologi Sepuluh Nopember

The socio-economic impacts of floods on Jakarta

Professor Budy Resosudarmo - Australian National University

Alin Halimatussadiyah - Universitas Indonesia

Small Projects

Leapfrogging Jakarta towards sustainable water management to become a water-sensitive city

Professor Rebekah Brown - Monash University

Professor Budi Setiawan - Institut Pertanian Bogor



FOOD & AGRICULTURE



2017 KEY ACHIEVEMENTS

- The project on cocoa-based farming systems undertook three major activities in 2017. The first was to gather data on farmer livelihoods and health. The second was to evaluate the quality of cocoa beans from Indonesia. And the third was to develop financial and market literacy amongst smallholder cocoa farmers.
- Analysis of the farmer health data, conducted in August in collaboration between the University of Sydney and Universitas Hasanuddin, led to a discussion on developing a curriculum for village health training with district health staff in Polewali-Mandar, North Sulawesi. Data gathering used a mobile application platform that has the potential to be used by communities to identify health care needs. A proposal has been submitted to the Department of Foreign Affairs and Trade for further funding to implement this concept.
- Project staff from Sydney participated in the Indonesian International Cocoa Symposium (INCOSY - Climate Change and Soil Degradation, Impacts on Cocoa Farming), conducted as part of the World Plantation Conferences and Exhibition held in Jakarta in October 2017.
- Professor David Guest presented an overview of the One-Health approach to addressing cocoa productivity in Indonesia at the International Symposium on Cocoa Research in Lima, Peru in November 2017.
- The research team participated in a seminar at the International Center for Applied Finance and Economics at Institut Pertanian Bogor in December 2017.
- The research team conducted a meeting of the Cocoa Sustainability Partnership in Makassar in December 2017.
- The project team met with the Cocoa Sustainability Partnership (CSP), a forum of government, industry and NGOs concerned with sustainable cocoa production, smallholder livelihood and meeting industry demand, in Makassar. CSP will be engaged to align and provide feedback on the draft findings of the project in December 2017. A final workshop will be held in partnership with CSP in April 2018. The outcome of this workshop will be a series of recommendations for developing a sustainable and profitable cocoa industry in Indonesia.

**HIGHLIGHT:****Can cocoa help rebuild impoverished communities?**

Cocoa is currently a major livelihood provider for farming families across Indonesia. The supply chain supports more than 400,000 smallholder families, as well as enterprises and services. The crop also provides essential products for international export, including to Australia.

But lower farm yields have led to a severe decline in national production (320,000 tonnes in 2016, compared to 475,000 tonnes in 2006), with consequences for smallholder producers' incomes. The movement of younger family members to towns and cities for education or work opportunities also poses a significant problem for growing cocoa, which is a labour-intensive crop.

Australia-Indonesia Centre researchers are identifying opportunities for improving farmers' incomes, and boosting the involvement of other members of rural communities, including youth and women.

Two surveys have been conducted: one on health and the second on economic livelihood issues. A workshop held in July 2017 provided feedback to the district departments of health and agriculture, health clinic staff, mid-wives and village leaders, as well as farmers who participated in the surveys.

The health survey results are being used to develop a village health curriculum, and will contribute to Masters research for students at Institut Pertanian Bogor and Hasanuddin University in partnership with the University of Sydney.

The researchers also want to identify opportunities to improve cocoa quality, productivity and certification (increasingly sought after by consumers in Australia), production of niche chocolates (which unlike coffee, are still undeveloped in Indonesia) and business diversification to support rural economies.

The project team held an informal workshop in Mapilli Subdistrict, Polewali-Mandar District in West Sulawesi – a major centre of cocoa production in Indonesia – to discuss intensification of cocoa farming, diversification of incomes using goats, and included a tasting of five different chocolates.

More than 30 growers, village leaders and government officers attended, to discuss the factors that determine cocoa prices in the region. These include the weather in West Africa (where more than 70 percent of the world's cocoa originates) the age of the trees and farmers, and government support policies.

Researchers arranged for a tasting of 'niche' chocolates using cocoa from Java, Madagascar, Venezuela, and Papua New Guinea, to demonstrate the different tastes that can be achieved with different types and percentages of cocoa. They also showed the participants how to convert the prices they see on the internet back to local prices, after taking into account shipping and other costs.

HIGHLIGHT:**Food processing and value chain development in Indonesia**

Researchers from the University of Sydney, Institut Pertanian Bogor, Institut Teknologi Bandung and the Australian National University worked closely with food manufacturing groups to review relationships in regional and global production networks.

Despite the average growth of 10 percent per year in food processing, the potential of Indonesian food industry exports remains underexploited. Food processing makes up around 37 percent of Indonesia's AUD\$200 billion manufacturing sector and is a major source of employment, increasing 15 percent annually, with much of this growth via micro and small enterprises (up to 20 employees).

The food processing sector has also experienced strong investment growth - 13 percent of total domestic investment and 11 percent of total foreign direct investment in 2014.

Despite these positive indicators, Indonesia's food production accounts for only 1 percent of total global exports, smaller than neighbours like Thailand and Malaysia.

Processed food exports are dominated by vegetable oil products, but products such as processed seafood, intermediate cocoa products and instant noodles are becoming more competitive.

Regional and global production network integration is an important indicator of competitiveness, yet the foreign content of Indonesia's food exports was only 4 percent in 2010, low compared to Taiwan (35 percent), Malaysia (23 percent), and Australia (12 percent).

As Indonesia's food processing sector is an important contributor to the national economy, the review reveals that enhanced integration with regional and global production networks is likely to provide important growth opportunities.

Food & Agriculture Leads Coordinator

Professor David Guest

Dr Nunung
Nuryantono

Dr Thomas Soem

**Strategic Research Projects****Sustainability and profitability of cocoa-based farming systems in Indonesia**

Professor David Guest - The University of Sydney

Dr Nunung Nuryantono - Institut Pertanian Bogor

Small Projects**Assessing food security and resilience of small island communities to socio-environmental changes: the case of the Kei islands in Southeast Maluku**

Professor Budy Resosudarmo - Australian National University

Dr Muhammad Tajibu - Universitas Hasanuddin

Soil information to support sustainable agriculture and food security in Indonesia

Prof Budiman Minasny - The University of Sydney

Dr Baba Barus - Institut Pertanian Bogor

Rapid Start Projects**Food processing and value chain development in Indonesia**

Professor Bill Pritchard - The University of Sydney

Professor Iskandar Siregar - Institut Pertanian Bogor

ATTITUDINAL RES



Attitudes Research

The Australia-Indonesia Centre, in conjunction with its partners, commissions research into the relationship between the two nations.

The reports that resulted have provided profound insights into the strengths and weaknesses of the Australia-Indonesia relationship, and have included key recommendations which can lead to an improved future for both nations, together.

Research has covered longitudinal studies of the attitudes of Australians to Indonesia, and vice versa, as well as an in-depth investigation into international trade and collaborative business opportunities.

In 2016, eight new attitudes projects were commissioned as a series of qualitative and quantitative research studies on the attitudes and perceptions of Australians towards Indonesia and Indonesians towards Australia.

Topics include youth engagement, identity and class, democracy and religion, tourism and stereotyping, education, and digital technology and business.

All projects will be completed in 2018.

RESEARCH

➔ australiaindonesiacentre.org/insights

Tactical Research Projects

Attitudes and Perceptions of Indonesian youth on their role in Indonesia and Indonesia's role in the region

Dr Antje Missbach - Monash University

Dr Dave Lumenta - Universitas Indonesia

Celebrating everyday life in Australia-Indonesia neighbourhood

Professor Ariel Heryanto - Monash University

Dr Inaya Rakhmani - Universitas Indonesia

Is matching 'Destination Image' and 'Destination Society Stereotype' likely to influence travellers attitudes toward tourism destination?

Associate Professor Dewi Tojib - Monash University

Sri Rahayu - Universitas Indonesia

Islamic morality and challenges to Democracy: A study of urban lower and middle class responses to modernity

Professor Vedi Renandi Hadiz - The University of Melbourne

Dr Inaya Rakhmani - Universitas Indonesia

Are Islamic schools in Indonesia educating for or against religious extremism?

Dr Melanie Brooks - Monash University

Professor Irwan Abdullah - Universitas Gadjah Mada

Youth perceptions and diplomatic relations: Improving Australia-Indonesia relations through education

Dr Avery Poole - The University of Melbourne

Dr Dafri Agussalim - Universitas Gadjah Mada

The effect of acculturation on citizens' attitudes toward Australia and Indonesia

Associate Professor Sen Sendjaya - Monash University

Dr Sony Kusumasondjaja - Universitas Airlangga

Internet-based Information and Communication Technology (ICT) and Micro Small-sized Enterprises (MSEs) Attitude toward Participation in International Transactions

Professor Budy Resosudarmo - Australian National University

Dr Eny Sulistyanningrum - Universitas Gadjah Mada

Completed projects

Perceptions of Australians and Indonesians about the Australia-Indonesia relationship

The Australia-Indonesia Centre

EY Sweeney

Australia - Indonesia attitudes impact study-historical

Dr Agnieszka Sobocinska - Monash University

Qualitative research on contemporary attitudes and interventions: Text analysis & smart power for the Australia-Indonesia relationship

Dr RoseAnne Misajon - Monash University

Dr Irwansyah - Universitas Indonesia

RESEARCH CAPA



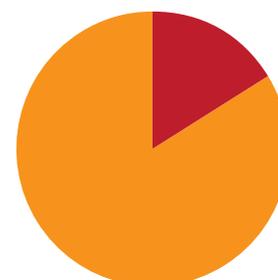
CITY

Future Researchers of Indonesia Program

The Future Researchers of Indonesia Program (FRIP) was a five-day intensive program designed to inspire, encourage, and help sharpen the research skills of the best advanced undergraduate students from the partner universities of the Australia-Indonesia Centre.

The program focused on many skills essential for successful research outcomes, including basic research skills in critical thinking and writing, assessing the major contemporary themes and debates in a range of disciplines, considering the big public policy questions facing Indonesia (including those the Australia-Indonesia Centre is addressing through its research themes and how research is advancing them), and examining career paths in academic, think-tank, policy, private sector, non-government organisations, and more.

Forty-nine students from both nations participated in workshops and engaged in dialogues with academics and experts from the Australian National University, the University of Melbourne, Universitas Indonesia, and Monash University across a range of disciplines including foreign policy, economics, environmental sustainability, data processing, anthropology, history, and language.



Participants by country

INDONESIA: 41

AUSTRALIA: 8

TOTAL: 49

Graduate Research Industry Partnership

The Australia-Indonesia Centre has partnered with Monash University through the Monash Graduate Research Industry Partnership.

The Monash Graduate Research Industry Partnership (GRIP) brings together PhD students and academic leaders from various fields with external partners to explore an issue of global significance. The Water and Sustainability in Asia GRIP has been established to support the transitioning of developing Asian cities to more sustainable, resilient and livable conditions through the uptake of state-of-the-art water technologies, policy development and social practices. The Water GRIP is hosted by Monash Sustainable Development Institute and combines interdisciplinary capabilities across the technical and social sciences.

The Australia-Indonesia Centre is collaborating with eight out of twelve GRIP research students in the fields of technology and innovation, urban planning and design, and society, governance and transitions.

Specific research topics that are being investigated within the GRIP include social innovations for water management, bio-filters for urban agriculture and integrated urban water modelling. Students have undertaken extensive fieldwork in cities such as Jakarta, Surabaya and Bogor. It is expected that the first students of this program will graduate in 2018.

GRIP Students

- Vanessa CopaTorres
- Kay Ng
- Wikke Novalia
- Erika DuncanHorner
- Behzad Jamali
- Adam CharetteCastonguay
- Martijn Kuller
- Joshua Nielsen

Connect with The Australia-Indonesia Centre

+61 3 9903 1296
research@australiaindonesiacentre.org
australiaindonesiacentre.org

Level 8, Building S, Monash University
900 Dandenong Rd, Caulfield East
Victoria, Australia 3145

energy.australiaindonesiacentre.org
infrastructure.australiaindonesiacentre.org
health.australiaindonesiacentre.org
urbanwater.australiaindonesiacentre.org

