



THE UNIVERSITY OF  
**AUCKLAND**  
Te Whare Wānanga o Tāmaki Makaurau  
NEW ZEALAND

# The University of Auckland: Sustainability Report 2019



SUSTAINABLE  
DEVELOPMENT  
**GOALS**

# Vice-Chancellor's Message

The 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs) were adopted by all UN member states in 2015 and set out an ambitious plan for ending poverty, fighting inequality and building peaceful, just and sustainable societies by 2030. Achieving the SDGs will require the concerted efforts of all members of society. Universities are particularly well-placed to contribute to the creation of a sustainable future through their research and teaching activities.

Universities at the forefront of research generate new knowledge and innovations that provide solutions to the interconnected social, economic and environmental challenges captured in the SDGs. As educators, universities equip students with the knowledge and skills that enable them to contribute to creating a sustainable future.

Of course, the role of universities in sustainable development extends beyond their role in research and teaching. Institutions also contribute to the SDGs through their policies and practice, and increasingly institutions everywhere are working hard to ensure continuous improvement and lead by example.

At the University of Auckland we recognise and embrace our responsibility in the transition to a sustainable future. We are committed to ensuring that our activities, be they research, teaching, community service or operations, advance us to a place that is better for humanity and planet.

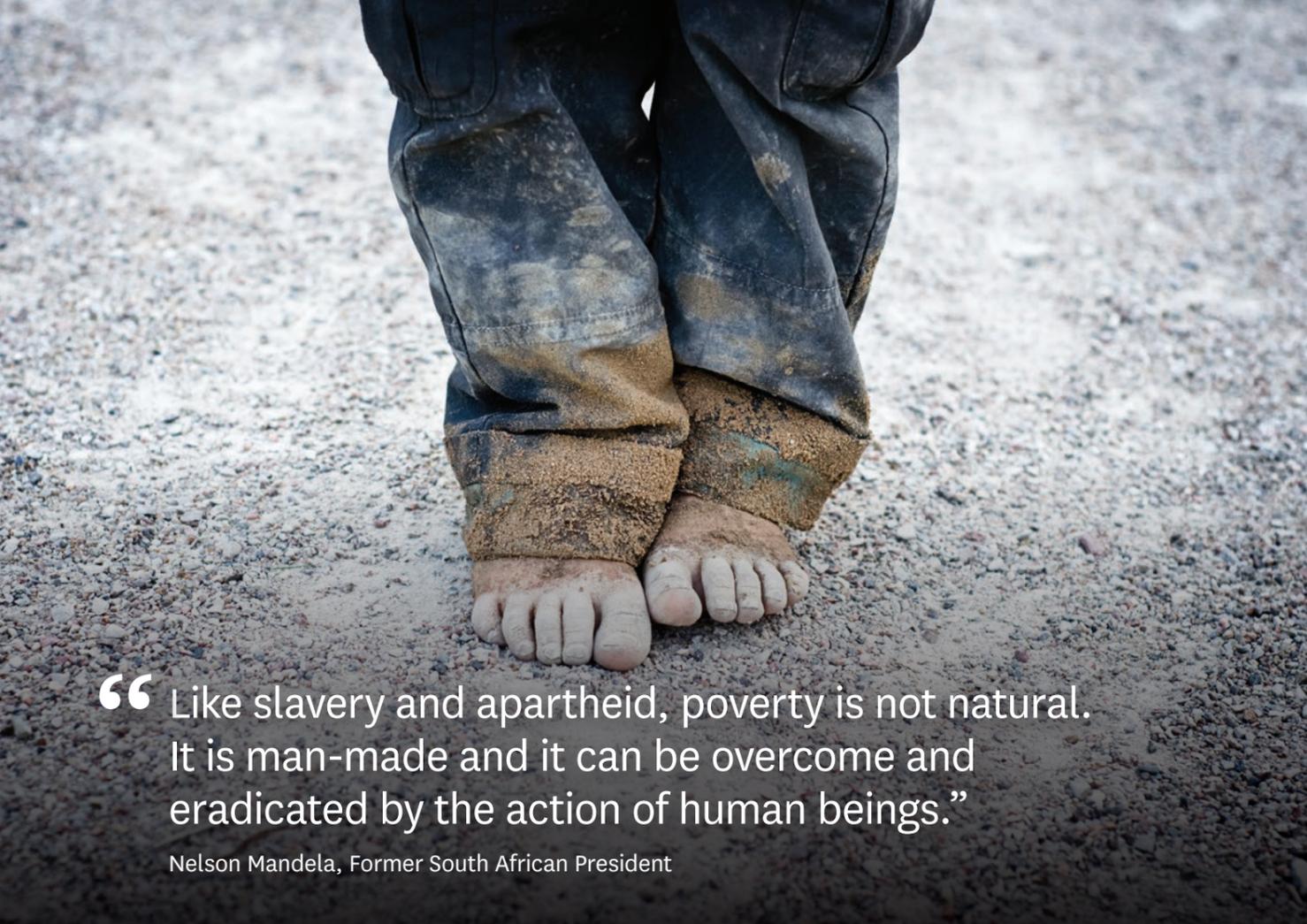
In this report we outline some of the many activities in our University that contribute to the achievement of the SDGs. We cannot capture all the amazing work of our staff and students that occurs across research, teaching, engagement/outreach and operations. However, the selection presented here gives an appreciation of the kinds of activities happening within our University that are setting us on a path to a more sustainable future for all.

Stuart McCutcheon  
Vice-Chancellor

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-  Research
-  Teaching
-  Engagement/ Stakeholder Relationship
-  Operations



“ Like slavery and apartheid, poverty is not natural. It is man-made and it can be overcome and eradicated by the action of human beings.”

Nelson Mandela, Former South African President

# End poverty in all its forms everywhere

**1 NO POVERTY**

## \$2M

raised as part of the 'For All Our Futures' Campaign will enable the University to offer many more scholarships to students that need financial assistance.



### CHILD POVERTY REDUCTION

Almost a quarter (23%; 254,000) of New Zealand children live in poverty (less than 50% of median household income) leading to poor health and education outcomes. University academics have been hugely influential in shaping the public debate on the issue in New Zealand, particularly through their involvement in the Child Poverty Action Group (CPAG), which has advocated tirelessly for the urgent need to address child poverty. The Child Poverty Reduction Bill, passed into law in 2018 with near unanimous parliamentary support, helps secure an enduring commitment to reducing child poverty in New Zealand.

### WELFARE EXPERT ADVISORY GROUP (WEAG)

The WEAG provides advice to the Government on priority areas for welfare reform ranging from the overall purpose and principles of the welfare system, through to specific recommendations on areas including obligations and sanctions, eligibility, health and disabilities, Working for Families and ensuring everyone receives everything for which they are eligible. Professor Cindy Kiro, Pro Vice-Chancellor (Māori), chairs the 11 member Group, which also includes other University staff members Professor Innes Asher (Paediatrics, Child and Youth Health), Professor Tracey McIntosh (Māori and Pacific Studies) and Latayvia Tualasea Tautai (a conjoint Law and Arts student).

### THE SOUTH AUCKLAND PROJECT

Education is crucial to breaking the cycle of inter-generational poverty. A disproportionate number of households in South Auckland experience high levels of deprivation, and South Auckland students have, on average, lower educational outcomes. The University has a strong commitment to reducing barriers to educational achievement for Māori, Pacific and low socioeconomic status students. To this end the University runs a number of programmes in and with South Auckland secondary schools, and the University has also recently committed to an enhanced presence in South Auckland. In 2020 the University will open a new campus in South Auckland from which it will offer degree level study in Education as well as foundation courses to prepare students for successful tertiary study.

### FOR ALL OUR FUTURES CAMPAIGN

As part of the recent fundraising campaign 'For All Our Futures', the University raised over \$2 million for scholarships enabling it to treble the number of scholarships awarded to students that are first-in-family at university, in financial hardship, or have refugee status, and to provide unique opportunities for top scholars to continue to higher studies.

### HARDSHIP SUPPORT AND AUSA HARDSHIP GRANT

The University provides various grants under its 'hardship support' initiative for students enrolled for more than two weeks. It supports students faced with financial difficulties that may be affecting their studies. The Auckland University Students' Association (AUSA) Hardship Grant helps students in hardship with basic necessities of life under the categories of food, accommodation, travel and medical.

### AFFORDABLE HOUSING FOR STUDENTS

Auckland is one of the most expensive cities in the world, making it increasingly difficult for students to find affordable accommodation closer to the campus. Addressing this issue the University has added additional beds to its existing student accommodation to become New Zealand's biggest provider of student accommodation with 4,500 beds. In addition, stage 3 of the University's Carlaw Park Student Village and New Zealand's largest self-catered student accommodation is in progress and set to add 900 more beds by 2023.



# 8,303

publications 2009-2018

# 26%

of all New Zealand publications 2009-2018

# 52%

internationally co-authored publications 2009-2018

*Note: publication metrics are all based on SDSN keywords*





# End hunger, achieve food security and improved nutrition and promote sustainable agriculture

**2** ZERO HUNGER

**54%**

internationally co-authored publications  
2009-2018 (based on SDSN keywords)

## ADDRESSING OBESITY, UNDERNUTRITION AND CLIMATE CHANGE COLLECTIVELY

Professor Boyd Swinburn (School of Population Health) co-chairs the Lancet Commission on Obesity. The Commission's influential report on The Global Syndemic of Obesity, Undernutrition and Climate Change showed how obesity and undernutrition should both be classed as malnutrition and how it creates more than twice the burden of the next biggest risk factors for poor health outcomes, including tobacco. It highlighted the common drivers of malnutrition and climate change, especially in the food system and land use. The report and its recommendations have been a major contributor to the push for healthy, sustainable food systems.

## INFANT FOOD SECURITY

New Zealand reports poor childhood nutrition-related statistics. Children experiencing food insecurity have poorer health outcomes. Researchers at the University's Department of Paediatrics, Child & Youth Health are dedicated to enhancing the understanding of the causes of, and solutions to, food insecurity amongst children in New Zealand. Dr Deborah Schlichting and her colleagues' food security index for children has informed government work on household food insecurity and is directly influencing efforts to tackle child poverty in New Zealand.

## SUSTAINABLE FOOD PRODUCTION

University of Auckland scientists are working on developing more sustainable food production methods. Projects include the use of waste by-products from food processing e.g. fruit peel, pomace and fish waste. Some of our students were finalists in the 2018 'Global Students Fighting Hunger: New Food Product Development Competition' at the 19th World Congress in Food Science and Technology by the International Union of Food Science and Technology (IUFoST), the biggest and most well-regarded Food Science and Technology event in the world. The students used fish waste to develop a Māori style bread and were sponsored by Moana New Zealand, the largest Māori-owned fisheries company in New Zealand.



**11,487**

publications 2009-2018

**26%**

of all New Zealand publications  
2009-2018 (based on SDSN keywords)

## METHANE MITIGATION

Mitigating greenhouse gas emissions from livestock is crucial for improving the sustainability of farming. In New Zealand methane from livestock accounts for 33% of the country's greenhouse gas emissions. Researchers from the University are targeting specific enzymes from methane-producing microbes to stop the growth of rumen archaea, the root cause of livestock methane emissions.

## BUDGIE MEAL

Budgie Meal is a concept that was first used at the University in the early 1990s, offering staff and students on a budget the opportunity to purchase a cheap, but substantial meal from an array of food outlets across campus. The majority of our retailers now have a Budgie Meal available on their menus. The meals are \$6.50 or under and consist of protein, vegetables and carbohydrate.





Distinguished Professor Jane Harding with study participants

# Ensure healthy lives and promote wellbeing for all at all ages

**3** GOOD HEALTH AND WELL-BEING

  
**3 IN EVERY 10**  
 Of our graduates receive a health-related degree  
**30%**  
 Graduates in Health Profession

## CHILDHOOD OBESITY PLAN

New Zealand has the second-worst obesity rate in the Organisation for Economic Cooperation and Development (OECD). Working on the Government's Childhood Obesity Plan to meet a new national health target, Dr Yvonne Anderson (Liggins Institute) worked with local health boards (Taranaki District Health Board and Sport Taranaki) to deliver multidisciplinary assessment and intervention programmes for children and adults that bring healthcare to homes, targeting Māori communities and low socioeconomic groups. The programme resulted in improved health reports and developed new methods of assessing childhood obesity.

## SMOKING CESSATION

Tobacco smoking kills more than 8 million people each year, the majority (80%) of these in low- and middle-income countries, where tobacco-related illness and death further exacerbates poverty and inequalities. Researchers at the University's National Institute of Health Innovation are working on numerous tobacco cessation projects with both a national and global focus. Amongst the many projects are: contribution to the development of the mCessation handbook for the World Health Organisation on mobile phone-based support for smoking cessation by Associate Professor Robyn Whittaker, used by many countries to implement large scale mCessation programmes; smoking cessation programmes testing novel products for NZ, with a focus on Māori who smoke, led by Associate Professor Natalie Walker; a low-cost primary care smoking cessation and smokefree homes intervention among tribal people in rural South India, and with Zhejiang University, China, a social media-based smoking cessation intervention targeting Chinese adult men, around half of whom are smokers, both led by Professor Chris Bullen.

## IMPROVED OUTCOMES FOR NEWBORNS

Research into neonatal hypoglycaemia by Distinguished Professor Jane Harding (Liggins Institute) has led to new treatment methods for newborn babies with low glucose levels, a condition that can cause developmental delay, brain damage and lowered education outcomes later in life. Professor Harding's research findings have changed medical practice globally and halved rates of New Zealand neonatal intensive care admissions for babies with this condition. In 2019 this work earned Professor Harding the Rutherford Medal from the Royal Society of New Zealand, New Zealand's highest science honour.

## COMBATting TROPICAL DISEASE

University of Auckland researchers from the Maurice Wilkins Centre for Molecular Biodiscovery, in collaboration with the Drugs for Neglected Diseases Initiative in Geneva, have developed a new drug, DNDI-0690, for the often-fatal tropical disease Leishmaniasis. The drug is currently in clinical trials. This disease affects people in 98 countries, with two million new cases in 2018, and causes up to 50,000 premature deaths yearly.

## MENTAL HEALTH AND ADDICTION

Professor Ron Patterson from the Faculty of Law chaired the New Zealand Government Inquiry into Mental Health and Addiction, which consulted widely with the community to identify unmet needs and make recommendations for a better mental health and addiction system. As part of its response to the Inquiry, the Government has committed to establishing an independent Mental Health and Wellbeing Commission that will contribute to better mental health and wellbeing outcomes for people in New Zealand.

## ADDICTION RESEARCH

A landmark \$5 million donation as part of the For All Our Futures Campaign has enabled the appointment of a fully endowed Chair in Addiction. The Chair, Professor Benedikt Fischer, has built a multidisciplinary team that will strengthen New Zealand's expertise in this important area of health and also influence Government policies to deal with addiction problems (alcohol, drugs, gambling).

## IMPROVED OUTCOMES FOR STROKE SURVIVORS

The University's Centre for Brain Research is world leading in neuroscience research, giving hope to the one in five New Zealand families affected by brain disease. Research into the neuroscience of stroke recovery by Professor Winston Byblow (Department of Exercise Sciences) has led to the development of a device that can accelerate the hand and arm recovery of stroke survivors. Working with Professors Cathy Stinear (School of Medicine) and Alan Barber (School of Medicine), Professor Byblow's research has led to a biomarker-based algorithm to make accurate predictions within days of a stroke for three month outcomes for individual patients. The algorithm is being adopted as part of stroke rehabilitation clinical practice nationally and internationally to improve patients' experience, therapist confidence and the efficiency of stroke rehabilitation service.

## MENTAL HEALTH SUPPORT FOR STUDENTS AND STAFF

The University offers free mental health support to both students and staff. For students with diagnosed mental health conditions the University offers ongoing, long-term support through its Student Disability Services. For students with urgent mental health issues there is access to counsellors and psychologists at University Health and Counselling. All staff have access to a free counselling service and the University runs staff seminars on Mental Health and Wellbeing at work.



**10,485**  
publications 2009-2018

**30%**  
of all New Zealand publications  
2009-2018

**50%**  
internationally co-authored publications  
2009-2018

*Note: publication metrics are all based on SDSN keywords*



**18:1** Student: Academic Staff ratio  
EFTS : AFTE

# Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

**4** QUALITY EDUCATION

**1,755** publications 2009-2018

**31%** of all New Zealand publications 2009-2018

**43%** internationally co-authored publications 2009-2018

*Note: publication metrics are all based on SDSN keywords*

“ All the SDGs come down to education...”

Malala Yousafzai

## THE LEARNING SCHOOLS MODEL

Research into improving student outcomes for culturally and linguistically diverse communities by Professor Stuart McNaughton, Associate Professor Mei Lai, Dr Rebecca Jesson and Dr Aaron Wilson (Woolf Fisher Research Centre) has led to the development of a whole-school intervention model (The Learning Schools Model). Over the past more than 15 years, the Model has been implemented in five countries and more than 400 schools, and has improved student outcomes in literacy and in the attainment of high school qualifications.

## EQUITABLE OUTCOMES FOR DISADVANTAGED STUDENTS

An experimental project by Professor Christine Rubie-Davies showed that all teachers could be trained to become high-expectation teachers resulting in increased achievement for all students with particular gains among Māori, Pacific and low socioeconomic status students. The findings from this study have led to Professor Rubie-Davies' high expectation principles being adopted by dozens of schools in New Zealand and in five other countries. Professor Rubie-Davies was made a Fellow of the American Psychological Association in 2019 and was awarded a University of Auckland Research Excellence medal in 2018.

## BOOSTING LEARNING OUTCOMES IN LOW DECILE PRIMARY SCHOOLS

Educational researchers at the Woolf Fisher Research Centre have partnered with the Manaikalani community of learning schools to enhance the learning outcomes of primary school children in low-income communities. The programme, which has a focus on digital learning, has resulted in improved learning outcomes for 15,500 students, especially in writing.

## EDUCATION FOR ALL

The University is committed to increasing access, retention and achievement for Māori, Pacific and low socioeconomic status students (currently underrepresented in university study), and has in place a number of programmes to support the achievement of students in the compulsory sector, access to university study, and achievement at university.

## Raising Achievement in the Secondary School Sector

- **STEM Online NZ:** The University provides free interactive learning and teaching resources for STEM subjects, designed to support classroom teaching by harnessing technology in an innovative new way to compensate for STEM teaching shortages. These highly interactive resources help teachers, particularly those who are not subject specialists, teach STEM subjects. They do not replace teachers but are designed to support teachers and engage students with content that is fun, relevant, contextual and exciting. In total, 148 schools in NZ are using the resource. Over 3,000 students have registered to use the resources (for NCEA STEM content) since they became available in late 2017. Additional funds raised through the For All Our Futures Campaign will enable the continued growth of this programme.
- **UniBound:** this programme has two streams: (1) UniBound 'Summer' which aims to assist Māori and Pacific school leavers with their academic

preparation and familiarisation with university prior to commencing (assuming they meet entry requirements) (116 participants in 2018); and (2) 'Unibound TFC' supports Māori and Pacific students in the tertiary foundation programme during the semester. Support includes mentoring, additional wānanga/study days, advocacy and general pastoral care (51 participants in 2018).

- **Pacific Academy:** a new programme designed to improve the preparation of Pacific high school students for university study, particularly in numeracy, literacy, study skills and academic engagement. The programme is delivered in partnership between the University and six South Auckland high schools and involves tutoring to university-bound Year 13 students by expert teachers and co-delivered by high performing upper-level undergraduate Pacific tutors.
- **Buchanan Programme:** This new programme, supported by funds raised through the For All Our Futures Campaign, supports promising students across four low-decile South Auckland secondary schools to achieve university entrance by providing academic support to lift achievement in subjects for entry to university.

## SUCCESS AT UNIVERSITY

The Tuākana tutoring and mentoring programme is designed to help Māori and Pacific students fulfil their academic potential while at the University by providing an environment that supports students via tutorials, workshops, study groups and sessions with tutors and mentors.

## SOUTH AUCKLAND CAMPUS

In 2020 a new University of Auckland campus will open in South Auckland promoting access to increased study options for communities in South and East Auckland, as well as help strengthen community partnerships. The new campus will make the pathway to university easier for South Auckland students, some of whom experience barriers to university study (e.g. transport, traffic and time challenges).

## NEW DESIGN PROGRAMMES

The University of Auckland will launch a brand new suite of Design programmes in 2020 for students who aim to be part of positive change through design that puts sustainability and responsibility at its core. The programme components are designed in accordance with the United Nations' 17 Sustainable Development Goals and the World Economic Forum's nine technology portfolios and allows University of Auckland students to align positive values with emerging technologies. Design graduates will have the capacity to impact and lead change in all sectors of industry, government and community.

## ENERGY ECONOMICS

The University's Energy Centre offers a range of public lectures and a free summer school programme to students and anyone working in energy. The summer school programme, which is delivered in collaboration with businesses, deals with key issues facing New Zealand including dependence on imported liquid fuel, developing and integrating renewable sources of energy, public transport and climate change.

## STUDY OF SUSTAINABILITY

The University offers a range of courses with a focus on sustainability. For example, a major in Global Environment and Sustainable Development is offered as part of the Bachelor of Global Studies, and the University has introduced a new module (level 1-3 courses) on Sustainability which is offered to Arts and Science students. The latter includes a General Education course open to all students. The Faculty of Science is also the first of our faculties to offer sustainability awards of up to \$2,000 for post-graduate students to undertake research projects that serve to improve sustainable practices within the University or their communities.



**78%**

Female first degree graduates in medicine areas.

**56%**

Female students at the University of Auckland

# Achieve gender equality and empower all women and girls



**56%**

of all University professional and academic staff (FTE) are women.

“ Gender equality is more than a goal in itself. It is a precondition for meeting the challenge of reducing poverty, promoting sustainable development and building good governance.”

Kofi Annan,  
Seventh Secretary-General of the United Nations (1997-2006)



**1,789**

publications 2009-2018

**37%**

of all New Zealand publications 2009-2018

**58%**

internationally co-authored publications 2009-2018

Note: publication metrics are all based on SDSN keywords

## WOMEN IN LEADERSHIP PROGRAMME

The University offers a year-long programme that provides opportunities for women to develop personal leadership skills. Specific objectives include increasing the numbers of women in senior positions, enhancing opportunities for women to be recruited and retained in under-represented areas, fostering formal and informal learning as well as mentoring and career development for women. There has been an increase in the proportion of women in senior academic positions from 25% in 2011 to 34% in 2018, and the proportion of women in senior professional positions has increased from 41% in 2011 to 52% in 2018.

## WOMEN IN STEM

The University is taking action to address the underrepresentation of women in STEM subjects as students and within the STEM workforce. As an example, the Faculty of Engineering has adopted a goal of increasing first-year female undergraduate enrolments to at least 33% (from the current 27%), and they have partnered with a number of major New Zealand companies to support this goal. The Faculty also has a number of outreach programmes to encourage more girls to consider an engineering career.

## WOMEN AS ENTREPRENEURS

The University's Centre for Innovation and Entrepreneurship has actively sought to increase participation of women through role modelling with communication campaigns, actively recruiting more women volunteers as mentors and speakers, and initiating social innovation programmes proven to appeal to women. Women now represent 52% of participants in programmes delivered by the Centre for Innovation and Entrepreneurship, up from 23% in 2015.

## GENDER ANALYSIS AND GOOD GOVERNANCE

Professor Jennifer Curtin (Politics and International Relations) is undertaking research to design gender analysis training modules and a gender responsive budgeting initiative for New Zealand. Funded by a Ministry of Business, Innovation and Employment Smart Ideas Fund Grant, this project draws together quantitative data disaggregated by gender, ethnicity, and age as well as insights from diverse groups of women in communities and from policy advisors in central and local government. With additional input from a network of international experts from the UK, Australia, Canada and the OECD, Professor Curtin's objective is to identify new practices to ensure gender and other factors are taken into account at all stages of the policy-making process and build the capability of policy advisors and advocacy groups to embed gender analysis. The aim is to ensure that the future development and delivery of government programmes and services are better able to address the inequalities faced by diverse groups of women in New Zealand.





# Ensure availability and sustainable management of water and sanitation for all

**6 CLEAN WATER AND SANITATION**



**1,990**

cubic meters of freshwater saved per year through recycling water for flushing toilets at the University's Business School.

## ENHANCING RESILIENCE TO WATER STRESS

Climate change, increasing population and urbanisation are posing significant challenges across the South Pacific where almost 10% of deaths in children under five are attributable to water-related causes. The Oceania Water Research Consortium (OWRC), based at the University, focuses on finding novel, sustainable, and low-cost solutions for addressing water and wastewater treatment challenges for these underprivileged communities. The network consists of academics from across the University of Auckland and collaborators from universities across the South Pacific.

## WATER ACCOUNTING SYSTEM

Water is imperative for the sustainability of life, the environment and the economy, and therefore it is critical that decisions on water accounting are based on reliable and objective information. The Dean of the University's Faculty of Business and Economics, Professor Jayne Godfrey, developed with colleagues a general-purpose water accounting system, which has been adopted in Australia. This system could help inform decision-making to improve the quality of New Zealand's waterways.

## URBAN WATER MANAGEMENT

Researchers at the University's Faculty of Engineering are developing innovative solutions to mitigate the effects of urbanisation and the changing climate on urban waterways. Collaborations with industry and overseas universities have resulted in the development of new and innovative stormwater designs for improved water quantity and quality. Amongst other things this work has informed stormwater design by New Zealand councils. Associate Professor Asaad Shamseldin (Civil and Environmental Engineering), who leads this work, is Vice Chair of the International Association for Hydro-Environment Engineering and Research (IAHR) Sustainable Development Goals Working Group, which works towards ensuring the availability and sustainable management of water and sanitation for all.

## WATER PURIFICATION

The cost-effective removal of pollutants from drinking water or wastewater streams is a major international area of focus (e.g. the EU Water Framework Directive). Continuous emergence of new pathogens and industrial pollutants makes water purification a formidable challenge. An efficient water purification system that both disinfects pathogens and decontaminates chemical micro-pollutants is an unmet need. Professor James Wright and Dr Viji Sarojini from the Centre for Green Chemical Science focus on developing a new generation of multifunctional membranes for water purification that will enable the simultaneous removal of dilute pollutants (endocrine disruptors and pesticides) and waterborne pathogens. The research uses a patent-protected technology and is supported through funding from the Royal Society Marsden Fund and philanthropy.

## FRESHWATER MANAGEMENT

Dr Karen Fisher (School of Environment), together with her colleague Dr Meg Parsons, are working with Ngāti Maniapoto, local councils and the regional farming community to examine efforts to restore the freshwater management of the Waipā River. The two researchers are looking at ways of managing the environment in relation to the environmental health of the Waipā and in relation to a Māori perspective of stewardship.

## WATER MANAGEMENT

The University is committed to reducing water use and as a result total water usage is today slightly less than at the peak in the early 1980s, despite having tripled our student numbers and our floor area being two and a half times greater. In fact, our buildings use 62% less water per square metre of gross floor area than they did in 1981. Water savings are achieved by using water-efficient operating plant and equipment in our buildings, encouraging staff and students to be smart about water use, and by recirculating water used for heating and cooling our buildings.

## SUSTAINABLE WATER USE

In addition to more traditional water-saving measures the University is also adopting innovative ways of sustainable water use. In 2016, the University's Newmarket Campus won the Arthur Mead Award for the Environment and Sustainability (conferred by the Institute of Professional Engineers New Zealand) for its sustainable building and systems design, including sustainable water use. Instead of potable mains water supplies, the Campus uses natural springs and bore water for heat exchange for process cooling water systems, cooling tower make-up and irrigation. Some of the water is injected back into the aquifer system from which it came to protect the natural resource for sustainable use. Newmarket Campus water conservation by the bore water systems is about 10,000 to 15,000 cubic metres a year. Another example of sustainable water use practice is the collection of water from the roof of the Business School for flushing toilets, saving on average 1,990 cubic metres of fresh water per year.



Water consumption per square metre of gross floor area



**2,520**  
publications 2009-2018

**21%**  
of all New Zealand publications  
2009-2018

**54%**  
internationally co-authored publications  
2009-2018

*Note: publication metrics are all based on SDSN keywords*



# Ensure access to affordable, reliable, sustainable and modern energy for all

**7** AFFORDABLE AND CLEAN ENERGY



**55%**

internationally co-authored publications 2009-2018 (based on SDSN keywords)

“ If you move from coal to solar energy, [it is] better for the environment, better for your health, and [leads to] more jobs even five times as more.”

Erik Solheim,  
Executive Director of the UN Environment, Under-Secretary-General of the United Nations (2016-2018)

## THE GEOTHERMAL INSTITUTE

The Institute is a hub for renewable energy research connecting researchers across the University who explore science, engineering, business, social and legal questions involved in geothermal energy development. The Institute works with geothermal companies and iwi groups to help ensure geothermal resources are managed sustainably.

## LOW COST RENEWABLE ENERGY

The discovery of cheap and simple technologies for storing electrical energy is critical for satisfying the energy needs of future societies. Associate Professor Geoff Waterhouse (School of Chemical Sciences), in close collaboration with investigators in the MacDiarmid Institute (a national

Centre of Research Excellence), is developing efficient electrocatalyst systems for H<sub>2</sub> fuel production from water, CO<sub>2</sub> reduction to hydrocarbon fuels, and rechargeable metal-air batteries. These technologies have the potential to allow a transition away from fossil fuel energy use in the transportation sector, help mitigate global warming by capturing and valorizing CO<sub>2</sub>, and lower the cost of rechargeable batteries for electric vehicles. This research is funded through a number of Ministry of Business, Innovation and Employment Grants and philanthropic donations, and supports the New Zealand Government's goal of making New Zealand carbon neutral by 2050. The impact of Associate Professor Waterhouse's research was recently recognised by his inclusion on the Web of Science Group 2019 list of the world's most Highly Cited Researchers.

## ENERGY CENTRE

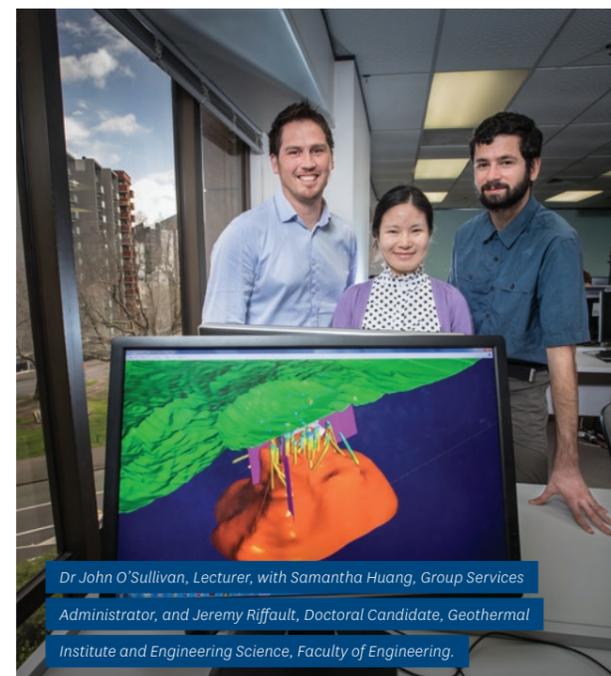
The Centre provides research policy analysis, educational programmes and public outreach to help business and government confront energy issues of national significance to New Zealand. It brings together industry, policy makers and community actors, ensuring the high relevance of its work. Three broad areas of focus include: energy markets; resource and environment markets; and transport economics. A particular research focus has been on renewables and increasingly energy-efficient transport, including public transport and electric vehicles.

## POWER SYSTEM GROUP

The University's Power Systems Group is working to realise digitally enabled, carbon-free and disaster cyber-secure electrical power systems to meet existing and emerging needs. In partnership with local and global industry and research partners they are working on innovations like Smart Grid, peer-to-peer energy trading, decentralised and resilient solar-battery energy systems, Microgrid, Nano grid and the electrification of transport.

## AUCKLAND ROOFTOP SOLAR POTENTIAL

The Energy Centre worked collaboratively with the Auckland Council and the Centre for eResearch to develop an online tool to estimate the solar potential of rooftops, allowing homeowners to determine the best spots to place panels and also giving them an indication of how much solar power they would use and how much they could sell back to the grid.



**2,173**

publications 2009-2018

**29%**

of all New Zealand publications 2009-2018 (based on SDSN keywords)



# Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

**8 DECENT WORK AND ECONOMIC GROWTH**

## FIRST ENERGY MANAGER

The University was the first in the country to appoint an Energy Manager, whose role is to plan and implement, in partnership with relevant user groups, energy-saving projects and develop an institutional strategy and plan for accelerating further progress in reducing energy and water consumption.

## BUSINESS FORMATION AND JOB CREATION

The need to diversify the New Zealand economy and create more high-value jobs is indisputable. The University plays an important role in business formation and job creation in New Zealand and globally. A clear focus on commercialising the research findings of our researchers has a direct impact on business formation and job creation in New Zealand and globally. Recent research has confirmed a high rate of business formation amongst our graduates and their businesses enjoy high rates of growth and survival rates above the national average.

## WORKER EXPLOITATION

Most countries have policies to facilitate safe and orderly migration, but more work remains to be done to protect migrants' rights and socioeconomic wellbeing. Funded by the Human Trafficking Research Coalition which comprises the Prescha Initiative, Stand against Slavery, Hagar and ECPAT (End Child Prostitution and Trafficking), Associate Professor Christina Stringer (Department of Management and International Business) is conducting research on worker exploitation of migrants in New Zealand. She has identified a pressing need to address migrant exploitation with some migrant workers found to be working 90 hours a week for as little as five dollars per hour and being paid for 45 hours. The results challenged the New Zealand Government to take serious action on migrant exploitation, which is currently the subject of a Government review.

## A STATE OF THE NATION REPORT FOR HABITAT III

A highly collaborative group carried out research to address an important gap in research on sustainable urbanisation ahead of Habitat III, the United Nations conference held every 20 years on sustainable urbanisation. The report examined the sustainability of New Zealand's cities and communities and provided a benchmark statement which can be used to assess progress. The report included contributions from UNITEC, Auckland University of Technology and the Universities of Otago, Waikato, Massey, Lincoln and Cambridge; as well as from economist Shamubeel Eaqub, the Ecological Foundation, Compass Housing Services and the Wellington Region Emergency Management Office.

## GRADUATE EMPLOYABILITY

University of Auckland graduates are sought after employees, as reflected in the University's #1 ranking in New Zealand and in the top five of Oceania universities in the QS Graduate Employability Rankings 2020.

## STUDY PROGRAMMES

The University has a responsibility to educate responsible and ethical leaders. Our Business School is triple-accredited and a signatory of the Principles of Responsible Management Education (PRME), a UN-backed global initiative developed to promote corporate social responsibility and sustainability in management education. The Principles of Responsible Management Education are embedded in the strategies, teaching and research of the Faculty of Business and Economics, and disseminated throughout the University.



Associate Professor Christina Stringer



**10,386**  
publications 2009-2018

**27%**  
of all New Zealand publications  
2009-2018

**54%**  
internationally co-authored publications  
2009-2018

*Note: publication metrics are all based on SDSN keywords*



# Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE

**53%**  
internationally co-authored publications  
2009-2018 (based on SDSN keywords)

## RESILIENT INFRASTRUCTURE

The resilience of lifeline networks like electricity, transportation and water is critical in enabling society to recover rapidly after a major disaster. Associate Professor Liam Wotherspoon (Department of Civil and Environment Engineering) is developing tools to assess the performance of spatially distributed infrastructure networks subject to extreme natural hazards. Working closely with relevant stakeholders, the programme is developing new methods to quantify system level performance of infrastructure networks when subject to natural hazards. Robust quantification of infrastructure network resilience, and better understanding of pre-disaster mitigation as well as post-disaster repair strategies will minimise the consequences of infrastructure network inoperability. The project aims to inform design and building codes and promote resilience benefits for construction practices that go beyond code compliance. This work is part of the Built Environment Theme under the National Science Challenge: Resilience to Nature's Challenges, which is led by Associate Professor Wotherspoon.



**6,267**

publications 2009-2018

**26%**

of all New Zealand publications  
2009-2018 (based on SDSN keywords)

## CENTRE FOR INNOVATION AND ENTREPRENEURSHIP

The University's Centre for Innovation and Entrepreneurship (CIE) offers a range of innovation, entrepreneurship and commercialisation programmes that support our students (and in some cases staff) to grow their entrepreneurial mindset and capabilities. CIE programmes have seen significant growth in student participation, from 800 in 2015 to 2,557 in 2018 (320% growth; 6% of the student population). Amongst the many programmes on offer are:

- **Velocity:** a programme of events, workshops and competitions that equip students and staff with the skills and capabilities to turn their ideas into a thriving business or, in recent years, increasingly, social enterprises. Since its inception in 2013 the Velocity Programme has produced over 120 start-up ventures that have created over 700 jobs.
- **Get Good Done:** Get Good Done is an ideas hackathon focused on social entrepreneurship where students and staff create ideas to solve the biggest environmental, social, and cultural issues of our time in line with the Sustainable Development Goals.
- **Solve It:** Students and staff come together in a two-week corporate innovation challenge to create solutions to significant problems and real-world challenges experienced by local organisations/businesses. At the most recent Solve It this included challenges formulated by Hynds, Auckland Transport and Auckland District Health Board. Since 2016, 244 students have participated in Solve It.

## FOSTERING INNOVATION

The University's technology transfer company UniServices connects government and industry with leading researchers to develop effective solutions that address real-world challenges. In the past five years, UniServices has licensed 306 patents, generated 653 invention disclosures and raised \$148 million through spin-out companies. The University of Auckland Inventors Fund (recently launched by UniServices) offers University staff and students access to an evergreen, open-ended \$20 million investment fund for the development of technologies for commercialisation, and seed-capital for ventures started out of the University, averaging ten new companies per year. The University has numerous purpose-built research and lab facilities that industry can access through co-location arrangements.



Get Good Done event by the University



# Reduce inequality within and among countries

**10** REDUCED INEQUALITIES



**OVER 700**  
refugee students at the University

“ Real human beings take precedence over partisan interests, however legitimate the latter may be”

Pope Francis

## GROWING UP IN NEW ZEALAND

Based at the University of Auckland’s Centre for Longitudinal Research - He Ara ki Mua, the Growing Up in New Zealand study follows the lives of 7,000 New Zealand children from womb to 21 years of age. The study, which involves a multidisciplinary team of researchers, is led by Associate Professor Susan Morton (School of Population Health), and conducted in collaboration with researchers from Otago, Massey and Victoria universities. The study provides comprehensive insight into the lives of our children – their health, education, cultural influences and community life – and advances understanding of what drives inequities in life course outcomes. The study engages with 16 government agencies and provides evidence that inform policies to improve population wellbeing and reduce inequalities.

## REFUGEE SETTLEMENT

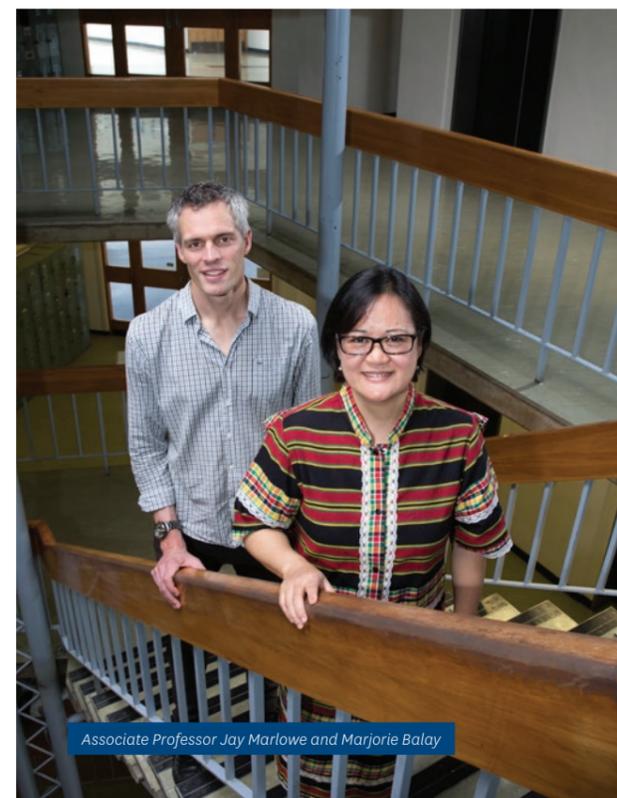
Associate Professor Jay Marlowe (Faculty of Education and Social Work) is undertaking research on the resettlement of refugees in New Zealand that investigates the lives of refugees in an increasingly mobile world. His research examines whether current policies and practices on refugee resettlement, developed for a prior age, have kept pace with changing times and needs. Professor Marlowe’s work will map refugee experiences in New Zealand across employment, welfare, health and education to provide knowledge and evidence to support refugee resettlement and the development of effective policy and practice.

## UNDERGRADUATE TARGETED ADMISSION SCHEME (UTAS)

In its commitment to meet its responsibilities under the Treaty of Waitangi and achieve equity outcomes, the University has designed a policy under the Undergraduate Targeted Admission Scheme (UTAS) to increase access to undergraduate study for Māori and Pacific students, and students from low socioeconomic backgrounds or refugee backgrounds. Under the policy, the University reserves a number of places for students under each category, who can apply via the process specified.

## STUDENTS FROM REFUGEE BACKGROUNDS

As New Zealand increases its refugee quota to 1,500, the University (with over 700 refugee students) remains committed to providing equal opportunities for students from refugee backgrounds. The University’s Equity Office has policies and processes in place to support these students, and also collaborates with external organisations to help students from refugee backgrounds with admission processes and language, academic, disability, health and spiritual support. The University has also set up scholarships specifically for refugee students to help them meet their academic aspirations while they settle into their new life.



Associate Professor Jay Marlowe and Marjorie Balay



**5,870**  
publications 2009-2018

**27%**  
of all New Zealand publications  
2009-2018

**52%**  
internationally co-authored publications  
2009-2018

*Note: publication metrics are all based on SDSN keywords*



The Bike Fest

# Make cities and human settlements inclusive, safe, resilient and sustainable

**11** SUSTAINABLE CITIES AND COMMUNITIES

**93%**

of University students use public transports, walk or cycle to get to the University, according to Auckland Transport Survey 2018

## THE FUTURE CITIES RESEARCH HUB

Led by Professor Errol Haarhoff and Dr Paola Boarin (both in the School of Architecture and Planning), the Hub promotes research collaborations and cross-disciplinary approaches leading to evidence-based understandings and design innovations for sustainable future cities. The research domains are broad and include, for example, improving health and wellbeing through built environments, especially more dense urban environments. Much of the Hub's research is funded by the National Science Challenge: Building Better Homes, Towns and Cities. The Future Cities Research Hub will host the next Association of Pacific Rim Universities Sustainable Cities and Landscape Conference in September 2020.

## FUTURE TRANSPORTATION

Academics in the University's Faculty of Engineering are undertaking leading-edge research on dynamic charging roadways, i.e. wireless charging technology that charges electric vehicles as they are being driven or are parked, and will help in providing solutions for sustainable transportation needs of our future cities. Funded by a Ministry of Business, Innovation and Employment (MBIE) Endeavour Fund Grant of almost \$12 million over 2017-2022, this work, which builds on the already hugely successful research and commercialisation of EV charging technology by Professors Grant Covic and John Boys, involves a number of New Zealand companies, including Vector, Downer, and JuicePoint along with the Ministry of Transport, New Zealand Transport Agency (NZTA) and Auckland Transport.

## BICYCLES FOR BETTER CITIES

The Future of the Bike project explores how innovations in both bicycle technologies and city planning can improve urban sustainability in New Zealand. The project models the impact of electric vehicles and e-bikes on the efficiency of our transport system, and examines 'bikelash': why communities might object to cycle lanes and how this might be addressed. The project is a collaborative venture between academics at the University of Auckland (Professor Alistair Woodward and Dr Kirsty Wild), the University of Otago, and transport consultancies Mackie Research and Dovetail Research. The project is funded by a grant from MBIE.



**7,198**  
publications 2009-2018

**24%**  
of all New Zealand publications  
2009-2018 (based on SDSN keywords)

**54%**  
internationally co-authored publications  
2009-2018 (based on SDSN keywords)

Note: publication metrics are all based on SDSN keywords

## GENERATION ZERO

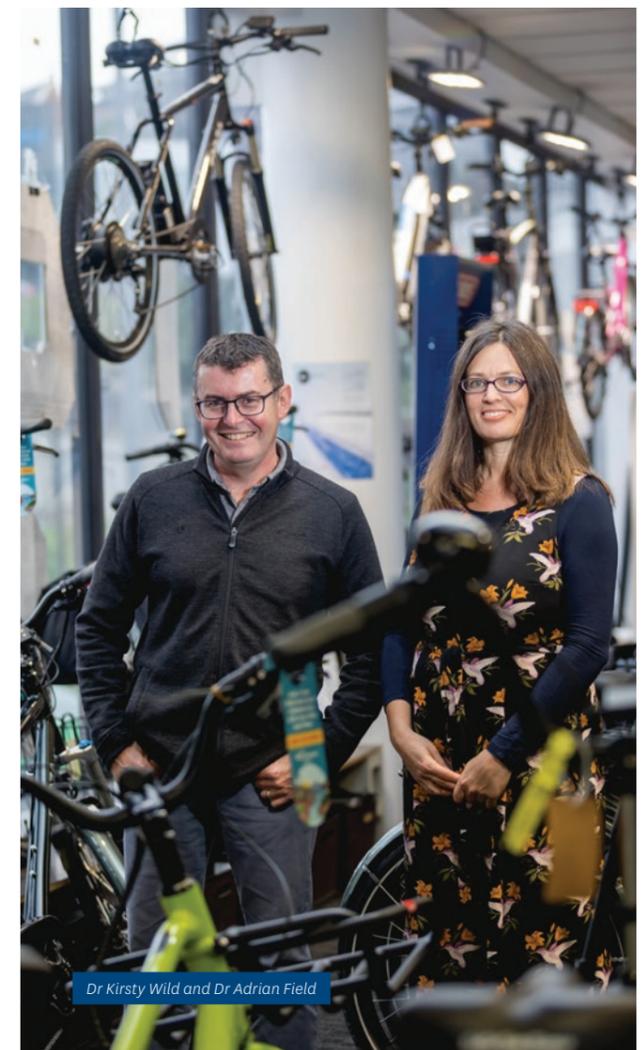
A youth-oriented advocacy group with strong University of Auckland student representation campaigned extensively for the Zero Carbon Bill, which has now become law in New Zealand. The University provided the group with a platform for their work by inviting them to participate in our national Sustainable Development Goal (SDG) Summit, as Stakeholder Group members, speakers, panel discussion members and as volunteers. They played a significant role in enabling the University to have a strong youth voice in the Summit.

## SUSTAINABLE TRANSPORT

The University is committed to promoting the use of sustainable modes of transport, and encourages staff and students to use active modes of transport, such as walking and cycling, and public transport. A 2018 survey by Auckland Transport showed that 93% of University students use such forms of transport to get to and from their campus.

## AUCKLAND BIKE CHALLENGE

The University has increased staff participation in the annual Auckland Bike Challenge and came first in the large organisation category in 2018 and 2019. The University is continually improving the cycling facilities on its campuses (e.g. bike storage, bike maintenance station).



Dr Kirsty Wild and Dr Adrian Field



Chefs from the University kitchen

# Ensure sustainable consumption and production patterns

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

**52%**

internationally co-authored publications 2009-2018 (based on SDSN keywords)

“ We need to paint a better world, articulate a better future that doesn't involve wilful consumption.”

Will Day,  
Chairman, Sustainable Development Commission (2009-2011)

## ETHICAL FASHION

The fashion industry is one of the world's most polluting industries and one plagued by labour rights abuses. Associate Professor Maureen Benson-Rea (Management and International Business) and Associate Professor Michael Lee (Marketing) are leading research into how firms are responding to the need for social and environmental sustainability across their supply chain and looking at ways to improve ethical standards in the industry.

## REDUCING PETROCHEMICAL USE

The overwhelming majority of chemical products are prepared from non-renewable fossil carbon sources. Dr Cameron Weber is using his expertise on alternative solvents that have minimal environmental impact to investigate new approaches for the development of a bark biorefinery – extracting and preparing useful products from sustainably sourced tree bark – as part of a collaborative team of researchers from the University of Auckland and Scion, and funded by a \$1.0M MBIE Research Programme grant.

## GREEN BUILDING

Sustainable design and building principles are incorporated into all University developments. The new Science Centre building is a prime example of sustainable design. The high-tech facade with double glazing and sophisticated, energy-efficient heating, cooling and air handling systems minimises heating and cooling requirements, and comprehensive metering tracks and corrects inefficient use of energy and water. Recent 'tuning' of the building to ensure all systems like lighting and ventilation operate at maximum efficiency has led to energy savings of 6.2%, and given the building a higher NABERSNZ rating (a system for rating the energy efficiency of office buildings in New Zealand).

## RESPONSIBLE PROCUREMENT

The University is committed to ethical procurement practices as outlined in its procurement strategy. Procurement staff include sustainability in the non-price attributes against which tenders are evaluated.

## SUSTAINABILITY AND ENVIRONMENTAL PROGRAMME

The Programme has added another 'R' – Rethink - to its 3Rs - Reduce, Reuse, Recycle. Under 'Rethink', the University has taken measures to engage staff and students to think about over-consumption of energy and paper. A number of paper saving initiatives have contributed to a large decrease in paper use, which has more than halved since monitoring started in 2006, saving a pile of paper twelve times the height of the Auckland Sky Tower.

## PAPERLESS CLASSROOM PROJECT

The Paperless Classroom Project team has re-engineered the content, materials and processes of two core undergraduate courses in the Faculty of Business and Economics. Each course enrolls between 1,800 and 2,300 students and used around 72,000 A4 sheets each semester. Class exercises were revised to remove the need for physical workbooks and replace them with whiteboards and electronic resources. Worksheets were replaced with reusable laminated sheets and assignment submissions made completely digital. The successful initiative is now inspiring other programmes and courses to go paperless.

## REDUCING FOOD WASTE

The University is working towards getting all 'on campus' commercial kitchens (including catered student halls) and food retailers to minimise food waste and separate waste for composting to divert waste from landfills. Since 2017 this initiative has diverted 292 tonnes of food waste from landfill. Staff and students in faculties are similarly working to divert waste from landfill by using the on-site composting facilities. For example, staff and post-graduate students in the Faculty of Business and Economics have been composting food waste which is then used in the on-site vegetable and flower garden.

## SINGLE USE PACKAGING REDUCTION

The University's Campus Life division has partnered with the Sustainability and Environment team to launch the Single Use Reduction pilot (SURE), which aims to work with five key food retailers on campus to help reduce the amount of single-use packaging. In order to minimise the need for plastic water bottles the University is also working to ensure that water fountains are available across all campuses.

## SUSTAINABLE EVENTS

The University is moving towards incorporating sustainability principles into all events. It has recently developed a Sustainable Events Guide which is being rolled out across the institution. The National SDG Summit 2019 hosted at the University was an exemplar event and included locally sourced, vegetarian food. The Summit generated zero landfill food waste and the event's emissions, including participants' travel, were mitigated by contributing to a local restoration and revegetation project.



**3,385**

publications 2009-2018

**22%**

of all New Zealand publications 2009-2018 (based on SDSN keywords)



“ There is no ‘Plan B’ because we do not have a ‘Planet B.’ We have to work and galvanize our action”

Ban Ki-moon,  
Eighth Secretary-General of the  
United Nations (2007-2016)

# Take urgent action to combat climate change and its impacts

13 CLIMATE ACTION



The University hosted Prime Minister Jacinda Ardern and the Netherland’s Prime Minister, Mark Rutte, for an interactive session on climate change where the leaders shared their ideas on how to ensure a just transition to a carbon-neutral economy.

## CLIMATE CHANGE ADAPTATION

Poor communities in developing countries face numerous climate-related hazards (e.g. cyclones, floods, droughts) which put pressure on their livelihoods and the environmental ecosystem. There is an urgent need for adaptation strategies for these communities. Professor Andreas Neef (Department of Development Studies) has recently led a four-year research project to identify successful community-based disaster risk management and climate change adaptation that can serve as best-practice models for other communities in the Asia-Pacific region. The project was funded by the Asia-Pacific Network for Global Change Research and involved researchers from the University of Auckland, the University of Western Australia, the University of Sydney, the University of the South Pacific, the Royal University of Phnom Penh and the Ministries of Rural Development and Environment in Cambodia.

## PERSONAL ACTION TO COMBAT CLIMATE CHANGE

Taking personal action is imperative to creating a more sustainable society thereby combatting climate change. Inspiring people to live more sustainably is at the heart of the work of Professor Niki Harré (Department of Psychology), who has published books on the topic and engages extensively in talks and workshops to inspire others. Other academics that have been inspiring others to take action to reduce their carbon footprint, are Professor Shaun Hendy (Department of Physics) and Professor Quentin Atkinson (Department of Psychology), who adopted a year of no flying to draw attention to the behaviour changes needed to transition to a low-carbon economy. Professor Hendy has recently published a book on his year of no flying #NoFly - Walking the Talk on Climate Change.

## CRAFTING EFFECTIVE AND ETHICAL CLIMATE CHANGE LEGISLATION

Recent research by Ms Prue Taylor (School of Architecture and Planning) has contributed to the development of New Zealand’s climate change legislation. This work has been supported by collaboration with colleagues at the Grantham Research Institute on Climate Change and the Environment at the London School of Economics.

## HOSTING CLIMATE DIALOGUE

The University hosts a number of events that foster awareness and dialogue of climate change risks, impacts, adaptation and mitigation. For example, the University hosted the New Zealand Prime Minister Jacinda Ardern, and the Prime Minister of the Netherlands, Mark Rutte, for an interactive session on climate change where the leaders shared their ideas on how to ensure a just transition to a carbon-neutral economy. Likewise, the Auckland University Engineering Association (AUEA) hosted an event that investigated preparation in Auckland for the potential impacts of climate change. The Auckland Council and industry were part of a panel discussion.

## CLIMATHON 2017

The University’s Centre for Innovation and Entrepreneurship brought together students, staff and the community to brainstorm, pitch and discuss solutions to climate change-related issues worldwide in a 24-hour ideas ‘hack’. This was the first time the event, held simultaneously in over 100 cities worldwide, had taken place in New Zealand.

## FOSSIL FUEL DIVESTMENT

The University of Auckland Foundation which has responsibility for investing the University’s funds, has committed to a zero fossil fuels exposure in its investment portfolio over time, using the Carbon Underground 200 List of Companies as the measure. An interim target has been set to reduce total assets invested in these companies to 0.5% or less by the end of 2020.

## ENERGY CONSUMPTION

The University’s energy use has remained relatively stable over time despite an extensive building programme, which has significantly enhanced our gross floor area. The new buildings are designed to be energy efficient with many energy saving initiatives in place e.g. energy-efficient operating equipment, lighting, and energy-saving behaviours by staff and students.

## TREE PLANTING

University staff members take part in tree planting initiatives that provide carbon sinks and bring back natural biodiversity. For example, staff have participated in department- or faculty-led tree planting initiatives on places such as Motutapu and Motuihe island. During Volunteer Impact Week, University staff also took part in the Ko te Pukaki Restoration project, a restoration project run by Ngāti Whātua to return 35 hectares of its land at Bastion Point back to its original forested state.



**1,978**

publications 2009-2018

**22%**

of all New Zealand publications  
2009-2018

**60%**

internationally co-authored publications  
2009-2018

*Note: publication metrics are all based on SDSN keywords*



Bryde's whale feeding Hauraki Gulf

Photo Courtesy: Stephanie Behrens, University of Auckland

# Conserve and sustainably use the oceans, sea and marine resources for sustainable development



**62%**

internationally co-authored publications 2009-2018 (based on SDSN keywords)

## INSTITUTE OF MARINE SCIENCE

The Institute produces research that enhances the understanding of the marine environment drawing on expertise from departments and faculties across the University and partners with organisations such as the National Institute of Water and Atmosphere (NIWA), the Cawthron Institute and the Ministry for Primary Industries. Among other things:

- the Institute undertakes long-term monitoring of the marine environment and marine populations, ecosystems and habitats, to document and understand change, and inform and improve management practices.
- the Biodiversity Research Group conducts research that informs the design of networks of marine reserves, thereby protecting the biodiversity in our oceans that are currently suffering from over-fishing, pollution and climate change.

## DUMPING OF MARINE FISH

A report on wide-scale under-reporting and dumping of marine fish in New Zealand waters over six decades was published by Dr Glenn Simmons (Faculty of Business and Economics) and colleagues and resulted in the Minister for Primary Industries launching a review of fisheries management.

## THE GOAT ISLAND MARINE DISCOVERY CENTRE

An interactive, interpretative centre that enables school children and members of the general public to learn about the marine environment and the research activities of the Institute of Marine Science. The Centre is based at the University's Leigh campus, and includes high definition videos, interactive displays, a touch tank and sound tunnel that provide fun and a wealth of information about the marine environment.

## SAVING CRITICALLY ENDANGERED BRYDE'S WHALES

With fewer than 200 left, Bryde's whales are critically endangered. These whales feed close to the surface and are therefore at risk of ship strike. Luckily mortality due to ship strike is now very rare due to active management measures informed by the work of marine biologist, Associate Professor Rochelle Constantine (School of Biological Sciences) and her team, who have worked with the shipping industry to devise plans for ships to slow down in areas frequented by the whales. As a result not a single whale has been killed in the Hauraki Gulf by ship strike since 2014, compared to 43 deaths over the previous 18 years.

## SHARK-FIN BAN

The PhD research by 'Shark Man' Riley Elliot (Institute of Marine Science) into the migrations, breeding and pupping grounds, trophic role and catchability of blue sharks in New Zealand waters contributed to the 2014 banning of shark-finning in New Zealand waters. Before the ban, over 80,000 blue sharks were finned in New Zealand waters each year.

## RESTORING THE ECOSYSTEM IN THE HAURAKI GULF

Shellfish beds are important to the health and resilience of coastal systems, but have been depleted due to overfishing. Dr Jenny Hillman's (Marine Science) research project on the detoxification power of mussels has involved the deployment of 8.2 million mussels in the Hauraki Gulf filtering 2.4 million litres of seawater every single day thereby restoring the ecosystem.

## PROTECTING THE LITTLE BLUE PENGUINS

Scientists at the Institute of Marine Science are working to protect the little blue penguin (Kororā), currently under threat from introduced predators, habitat loss from housing expansion and drowning in commercial fishing nets. A recent appeal raised enough funds to purchase and install more than 100 nesting boxes in a number of locations around the Hauraki Gulf providing a safe home for the penguins to nest.



Associate Professor Rochelle Constantine



**1,584**

publications 2009-2018

**20%**

of all New Zealand publications 2009-2018 (based on SDSN keywords)



“The future will be green, or not at all.”

Sir Jonathon Porritt,  
Environmentalist

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

**15** LIFE ON LAND

**60%**

internationally co-authored publications 2009-2018 (based on SDSN keywords)

### CONSERVATION OF BIODIVERSITY

Research into biodiversity conservation and restoration by Associate Professor James Russell (School of Biological Sciences) has led to widespread implementation of island conservation programmes in New Zealand and around the world. Associate Professor Russell's research has shown that eradication of invasive species leads to major benefits for the conservation of island biodiversity. In 2018 this work earned Associate Professor Russell a Distinguished Service Award from the Society for Conservation Biology Oceania Section.

### SUSTAINABLE FORESTRY SYSTEM

Research at the Mira Szász Research Centre underpins the Te Tai Tokerau Forestry Cluster's vision to create new sustainable forest systems in Northland that are based on both exotic and indigenous forest species, and deliver high-value wood products. The project has received funding from the Sustainable Farming Fund, Ministry of Primary Industries, and also the Faculty Research Development Fund, University of Auckland Business School.

### RESEARCH PARTNERSHIPS

The University's Centre for Biodiversity and Biosecurity and the School of Biological Sciences have a strong partnership with Manaaki Whenua (Landcare Research), a Crown Research Institute that focuses on sustainable management of land resources. The George Mason Centre for the Natural Environment is another Faculty of Science research partnership and covers a diverse range of research areas, such as marine science, green chemistry, environmental change, biodiversity, biosecurity, sustainability, biophysics, computational biology and social-ecology.

### LEGAL RIGHTS FOR SUSTAINABLE USE OF NATURAL RESOURCES

Property rights are an important cause of ecological harm, but can also be a powerful tool to provide effective solutions to environmental and resource use conflicts. Significant new research by Ms Prue Taylor (School of Architecture and Planning) and Professor David Grinlinton (Faculty of Law) considers the legal duty of property owners to use land sustainably, and the emergence of the 'public trust' doctrine requiring governments to more proactively protect environmental values. The work covers international environmental law and the development of a legal order based upon ecological sustainability and New Zealand law and policy and aims to develop creative solutions to respond to the ecological challenges.



**2,819**

publications 2009-2018

**17%**

of all New Zealand publications 2009-2018 (based on SDSN keywords)

### SUSTAINABILITY AS A FUNDAMENTAL PRINCIPLE OF LAW AND GOVERNANCE

Professor Klaus Bosselmann (Faculty of Law) chairs several environmental law organisations, and is a member of the United Nations Knowledge Experts Network, and Legal Expert to the Global Pact for the Environment. Professor Bosselmann has developed and promoted sustainability as a legal principle defined as the duty to protect and restore the integrity of Earth's ecological systems.

### TE AWAROA PROJECT

Drawing from indigenous knowledge and worldviews Dr Dan Hikuroa (Māori Studies) has reframed sustainability in terms of the 'voice of nature'. His work challenges the concept that we have the right to use 'resources'. Working on the Te Awaroa project with Professor Dame Anne Salmond (Māori Studies) and Professor Helen Moewaka-Barnes (Massey University), Dr Hikuroa seeks to reconceptualise the way New Zealanders view natural 'resources'. In this view a forest and its waterways, and a river and its catchment and people are seen as indivisible and are afforded legal personality to strengthen our connections and rebalance our relationship with nature.

### EDUCATION NETWORK FOR SCIENCE

The University's Liggins Institute offers a series of mini-modules on bio-protection, including sustainable agriculture and environmental protection. This is part of the Institute's LENSscience (Education Network for Science), a dedicated science education programme that facilitates the development of understanding of the Nature of Science. The network works through major science-school-community outreach partnerships in New Zealand and the Pacific.



Associate Professor James Russell



Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

**16** PEACE, JUSTICE AND STRONG INSTITUTIONS

**48%**  
internationally co-authored publications  
2009-2018 (based on SDSN keywords)

**CONTRIBUTION TO NATIONAL POLICY MAKING**

University of Auckland academics have been appointed as Chief Science Advisors under successive New Zealand governments. Professor Juliet Gerrard was appointed as the Prime Minister's Chief Science Advisor (PMCSA) in 2018, taking over from Sir Peter Gluckman. The PMCSA advises the Prime Minister on scientific evidence in its broadest sense, acts as a conduit of alerts between the research community and government, and engages in activities to raise the profile of science in Aotearoa New Zealand. Some of the major pieces of work have included: the #rethinkplastic project, advice on antimicrobial resistance, and a briefing to inform recovery after the Christchurch attacks.

**THE EQUAL JUSTICE PROJECT**

The Equal Justice Project is a student-led pro bono charity based in the University of Auckland's Faculty of Law. Its goal is to promote equal justice and access to justice for the most vulnerable groups in society. It is comprised of four teams – Pro Bono, Community, Communications, and Access – that between them undertake legal research for lawyers, work at Community Law Centres and similar facilities, write articles and parliamentary submissions, and hold public presentations and discussions about contentious topics in the law.

**CRIMINAL JUSTICE SYSTEM**

New Zealand has one of the world's highest incarceration rates. Māori are more likely to get arrested than Pākehā, once arrested are more likely to get prosecuted, and once prosecuted are more likely to get incarcerated. Professor Tracey McIntosh's (Ngāi Tūhoe) research addresses the causes of these gross inequalities in our criminal justice system and seeks solutions. She is currently a member of Te Uepū Hāpai i te Ora - the Safe and Effective Justice Advisory Group. Professor McIntosh was awarded the Te Rangi Hiroa Medal (2017 Royal Society Award) for advancing our understanding of enduring social injustices that undermine Māori wellbeing and inhibit social cohesion and meaningful cultural diversity in Aotearoa.

**SUSTAINABILITY LAW AND GOVERNANCE**

Faculty of Law academics are involved with The Planetary Integrity Project, a collaboration between world-leading environmental lawyers to develop legal tools for the Anthropocene era that will ensure humanity can live in a 'safe operating space' within the planet's boundaries. The results of the project will be presented to the United Nations in 2020. The project is coordinated by the New Zealand Centre for Environmental Law at the University of Auckland, which provides leading-edge research and training for sustainability law and governance.

**CAPACITY BUILDING FOR THE PACIFIC**

Ms Prue Taylor (School of Architecture and Planning) partnered with the Secretariat of the Pacific Regional Environment Programme to write the Multilateral Environmental Agreements Negotiator's Handbook, Pacific Region (2018). This handbook is specifically designed to assist diplomats and state officials to achieve their objectives at international treaty negotiations on environmental issues.



**1,090**  
publications 2009-2018

**29%**  
of all New Zealand publications  
2009-2018 (based on SDSN keywords)



Leigh Gerrard, Prime Minister Jacinda Ardern, Professor Juliet Gerrard and Vice-Chancellor Stuart McCutcheon



# Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

**17** PARTNERSHIPS FOR THE GOALS

**53%**  
internationally co-authored publications  
2009-2018 (based on SDSN keywords)

## NEW ZEALAND SDG SUMMIT 2019

The University of Auckland hosted New Zealand's second SDG Summit in September 2019 to bring together people from all sectors to develop and commit to positive action and accountability on the critical SDGs within our broader spheres of influence. The Summit led to the expansion of key partnerships to deliver accelerated action on the 17 SDGs.

## THE LEARNING QUARTER

Across the globe, leading cities are forming partnerships with universities to drive local and national development. The Learning Quarter partners – Auckland University of Technology, the University of Auckland and Auckland Council, are large institutions and employers in Auckland's CBD, committed to stimulating learning, research, cultural and business experiences in the city with a vision to drive the economic, social, cultural and physical development over the next ten years.

## INTERNATIONAL NETWORKS

The University of Auckland is a member of three leading networks of research-intensive universities: the Association of Pacific Rim Universities (APRU), Universitas 21 (U21) and the Worldwide Universities Network (WUN). Together they provide various opportunities for international collaboration among academic and professional staff as well as students at the University, and opportunities for universities to collaborate on contributions to the SDGs. The University is part of a working group consisting of four universities to draft the new Sustainability Statement for U21.

## UN SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK (SDSN)

The University is an institutional member of the UN SDSN, which brings together universities, NGOs, research institutes, international organisations and governments to develop and promote solutions, policies and public education for sustainable development. As part of the UN SDSN, the University has contributed to a guide on 'Getting Started with the SDGs in Universities'. This included developing, piloting, implementing and sharing information on measuring research and teaching contributions to the SDGs.

## BRINGING TOGETHER PARTNERS

The Future Cities Research Hub is currently working on the organisation of the fourth Association of Pacific Rim Universities – Sustainable Cities and Landscapes Conference that will take place in Auckland in 2020. The conference addresses the main topics related to sustainable cities: sustainable urban design, vulnerable communities, food and nutrition security, transitions in urban waterfronts, landscape and human health, urban renewable energy, infrastructural ecologies, smart cities, urban biodiversity, and water and wastewater.

## NATION STATE AND EARTH TRUSTEESHIP

Professor Klaus Bosselmann (Faculty of Law) and Ms Prue Taylor (School of Architecture and Planning) jointly lead a Faculty Research Development Fund project to examine the concept of state sovereignty in the light of global environmental challenges. At the recent UN General Assembly, Prime Minister Jacinda Ardern stressed the fundamental importance of governments acting with 'guardianship' of the Earth. In legal terms, this would require a state obligation to protect Earth's ecological systems (including the atmosphere, oceans, and biosphere) and trusteeship governance using legal mechanisms such as fiduciary duties, public trusteeship doctrine and human rights theory. The project leaders recently co-founded the Earth Trusteeship Initiative, a global coalition of 80 civil society and environmental law organisations aiming for trusteeship institutions at national and international (UN) levels. Professor Bosselmann was also main author of the 'Hague Principles for a Universal Declaration of Responsibilities for Human Rights and Earth Trusteeship' adopted at the Peace Palace in The Hague on 8 December 2018, to mark the 70th anniversary of the Universal Declaration of Human Rights.

**4,000+**  
collaborating institutions worldwide  
(Scopus Data: 2014-2019)



**\$206.9 M**  
Public good research income 2018

**\$76.3 M**  
Private good research income 2018



New Zealand Sustainable Development Goals Summit 2019



# Partnerships for SDG Goals

**17 PARTNERSHIPS FOR THE GOALS**

## About This Report

This report is a summary of the range of activities that the University of Auckland undertakes to meet the United Nations Sustainable Development Goals (SDGs).

Most of these activities can be identified under research, teaching, operations, public engagement and partnerships. We have substantiated the report with metrics (quantitative) and case studies (qualitative).

Publications and related research metrics are reported under each SDG based on an independent and transparent approach – the SDG keywords compiled by the Sustainable Development Solutions Network (SDSN) Australia, New Zealand & Pacific in 2017.

The SDSN keywords were compiled by several universities in Australia and New Zealand, representing the first key step of universities in our region to understand how university activities align with and contribute to the SDGs. Recognising the breadth and interconnectedness of the range of SDG topics, the SDSN adopted a broad and inclusive approach in keywords selection.

Striving to pick a diverse range of initiatives from across the University, we shortlisted the most qualitative case studies that came through comprehensive consultation with key stakeholders undertaking these activities. The case studies indicate their clear contribution to the respective SDG, their impact and their distinctiveness.

This SDG report lists only a few of the many initiatives undertaken by us. Moving forward, we plan to create a platform to showcase our efforts towards the SDGs in a more comprehensive and detailed manner.

### References:

- SDSN Keywords: <http://ap-unsdsn.org/webinar-mapping-university-contributions-to-the-sdgs/>

## University Impact Rankings for the SDGs

The 17 United Nations Sustainable Development Goals were established in 2015. They set a 15-year agenda and call to action for all countries to end poverty, fight inequalities and build peaceful, just and sustainable societies by 2030.

The University of Auckland is ranked No. 1 globally in the inaugural University Impact Rankings by Times Higher Education (THE) which

measure how universities worldwide are performing against the SDGs.

This outstanding result recognises the University of Auckland's commitment to sustainability and making a positive social impact through its research, teaching and knowledge transfer.

Sustainable Development Goal*	Our Ranking
Overall ranking for impact	1st
SDG 3: Good health and wellbeing	1st
SDG 4: Quality education	15th
SDG 5: Gender equality	=6th
SDG 8: Decent work and economic growth	15th
SDG 10: Reduced inequalities	19th
SDG 11: Sustainable cities and communities	11th
SDG 16: Peace, justice and strong institutions	7th
SDG 17: Partnerships for the goals	=1st

\*The inaugural ranking sought information on 11 SDGs. The University of Auckland focused on eight of the SDGs for this first iteration.



The University of Auckland

Private Bag 92019  
Auckland Mail Centre  
Auckland 1142  
New Zealand

[www.auckland.ac.nz](http://www.auckland.ac.nz)

