



UNIVERSITY OF
AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

Sustainable Development Goals Report 2023



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FOREWORD

'I orea te tuatara ka puta ki waho.' (Māori whakatuaki, proverb)

A problem is solved by continuing to find solutions.

Tēnā koutou

This report details Waipapa Taumata Rau's actions in response to the Sustainable Development Goals (SDGs) – the target for which is less than seven years away. These actions show that it is only by working together that we make real progress. Yet there is much more to do.

The United Nations 2023 SDG report highlights what it calls a universal lack of progress toward achieving the goals, in the face of global challenges. It points out areas for urgent action to rescue the SDGs and achieve meaningful progress for people and the planet by 2030.

Partnerships – detailed in SDG 17 – are a critical foundation for that progress. Our University actions show what partnerships can be achieved within our University, local community, regionally, nationally and globally.

We are dedicated to doing more by strengthening existing partnerships and by forging new partnerships to accelerate sustainability actions through our teaching, learning, research, and international connections.

The UN report tells us that it is the world's poorest and most vulnerable who are experiencing the worst effects of unprecedented global challenges.

While we look back on last year's achievements, we also look forward. Our partnerships must focus on sustainability and justice. As we close in on the 2030 target date for the SDGs, our actions must respond to the needs of people facing the greatest threats.

Nāku iti noa, nā

Professor Dawn Freshwater

Vice-Chancellor





Struggling families need money not blame

Professional Teaching Fellow and registered social worker Eileen Joy recently completed her doctoral thesis on child protection in New Zealand. Her research involved interviews with a variety of current and former social workers at Oranga Tamariki, New Zealand's state child welfare agency, about the period of intensive policy change that occurred in the 2010s, as well as a detailed analysis of the policies themselves.

Some key findings of her work were that many of these professionals were explicitly encouraged through policy and practice to

ignore familial poverty in their work, and that deprivation and poor outcomes for children were tacitly blamed on poor parenting, rather than on a lack of material resources.

Eileen argues that, "Just ordering parents to go to parenting classes won't do it. It's incredibly stressful not being able to pay your bills. I would challenge any parent to parent well under that level of pressure."

She also notes a tendency to focus on the first few years of life only, ignoring the resilience of children outside this age bracket, and their capacity to heal and recover from early

trauma if given the right support. The current policy framework also places unsustainable pressure on parents on low incomes, particularly young, Māori mothers, judging the quality of their parenting by their inability to shield their children from external pressures that are outside their control.

In using her research to advocate for change, Eileen leaves us with the question: "If we truly care about children, why are we punishing them through their parents?"

Building financial literacy in Pacific communities

PhD candidate Victoria Ongolea, having recently graduated with a Master of Social and Community Leadership, is now embarking on a study aiming at improving financial literacy and leadership amongst Pacific peoples in Aotearoa New Zealand.

Building on her experience working for not-for-profit budgeting services, she wants to investigate how Tongan families view and define wealth, what the relationship is between social well-being and financial well-being for these individuals, and how they can protect and grow their assets while remaining true to their cultural values.

Growing Up in New Zealand

Research commissioned by the Productivity Commission, using data from the longitudinal Growing Up in New Zealand study, has found that children in New Zealand are twice as likely to fall into material poverty than to climb out of it, as they grow older.

The study provides important data around social and economic mobility in New Zealand, and challenges the prevailing narrative around the nature and causes of poverty. This research forms part of a body of work that aims to help those experiencing persistent disadvantage in Aotearoa, by identifying policy gaps and potential improvements.

Measuring the stress of moving house

Dr William Cheung from the Business School collaborated with business analyst Daniel Wong on a study into stress experienced by adults moving house in the Auckland region.

They found that chronic stress leads to more frequent movement, and that moving frequently could, in itself, provoke higher levels of stress. They also report that tenants of social housing had much higher baseline levels of stress than either homeowners or renters, but that moving house affected homeowners more intensively than renters.

Although perhaps surprising, they note that homeowners often have less flexibility in their relocation than renters, and they often have the added stress of managing a mortgage.

Sustainable Development Goal 1:

END POVERTY IN ALL ITS FORMS EVERYWHERE



67
publications based on
UoA queries

28%
national share of publications
based on UoA queries

38
publications based on
Elsevier mapping

14
courses based on
UoA queries



Sustainable Development Goal 2:

END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION, AND PROMOTE SUSTAINABLE AGRICULTURE

2 ZERO HUNGER

217
publications based on UoA queries

24%
national share of publications based on UoA queries

64
publications based on Elsevier mapping

17
courses based on UoA queries

Unexpected benefits from free school lunches

Kelly Garton, a research fellow at the University of Auckland, reviewed data from the Ka Ora, Ka Ako Healthy School Lunch programme, with the findings just recently published. The research found Ka Ora, Ka Ako can enrich school environments, boost local economies, enhance availability and affordability of healthy foods and encourage innovations, such as sustainable packaging. "It's like dropping a rock in the pond and

getting all these ripples that go out from the child to their family, to the school to the community and the local food system," says Professor Swinburn from Waipapa Taumata Rau, University of Auckland.

Currently, Ka Ora, Ka Ako provides free healthy lunches to all 220,000 learners in New Zealand's, but in the 2023 Budget, the programme was only extended for a year, facing an uncertain future after that. "The

research shows there's a good case for increased well-being and improved dietary habits for kids stemming from the act of eating together, all sharing the same meal.", says Garton.

The research was published in Policy Quarterly, with co-authors Professor Boyd Swinburn, recent PhD graduate Pippa McKelvie-Sebileau, Coordinator Chelsea Riddell, Dr Rachael Glassey, Dr David Tipene Leech and Dr David Rees.

Genetic technologies to climate-proof our crops

Andrew Allan, a professor of biological sciences at the University, is working on a five-year \$14.5m Endeavour-funded project called 'The Flowering Crisis: Confronting a Changing Climate's Threat to New Zealand's Tree Crops'.

He says, "My biggest worry is can we breed new cultivars for an altered climate and will we be quick enough? The crops of the near future will need to withstand everything from higher temperatures to new pests and diseases that will establish themselves in a far less temperate Aotearoa New Zealand, as well as bursts of erratic weather.

"Cyclone Gabrielle certainly sounded a warning, wiping out apples, wine grapes, kiwifruit, kūmara and many other crops."

In March 2023, Andrew was elected as a Fellow of the Royal Society Te Apārangi, in recognition of more than 30 years researching plant genetics.

Ancient grain key crop for climate emergency

After ten years of research into quinoa, Dr Fan Zhu, a lecturer in the Faculty of Science, believes quinoa is likely to play a significant role in providing food security for a large proportion of the global population.

"Quinoa is a complete protein, containing all nine essential amino acids. In comparison, most of the staples such as rice and wheat have either lower protein content and/or are incomplete in the make-up of essential amino acids.", he says. Quinoa has survived and germinated in experiments simulating the harsh conditions of outer space, therefore it could have potential to stand up to climate change.

As temperatures rise and extreme climate patterns occur more frequently, regular crops are likely to fail across vast swathes of land, but these are often places where it will be possible to grow quinoa.

Soilsafe Aotearoa helps our gardens grow

Soilsafe Aotearoa is a citizen science programme started by the School of Environment in the University's Science faculty, in partnership with GNS Science and Australia's Macquarie University. Senior lecturer Emma Sharp was awarded a University of Auckland Research Excellence Award in 2022 for her work co-leading Soilsafe Aotearoa.

In her video submission for the award, she explained how people send a soil sample to the team and it is tested to ensure there are no problems with the soil quality. In return, the data will help to build a picture of future food production in urban settings.

In 2022, the Soilsafe programme was awarded \$150,000 from the Ministry of Business, Innovation and Employment Curious Minds fund to engage young people in STEM subjects.





Sustainable Development Goal 3:

ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

3 GOOD HEALTH AND WELL-BEING

2,248
publications based on UoA queries

33%
national share of publications based on UoA queries

924
publications based on Elsevier mapping

501
courses based on UoA queries

Life for pre-teens in Aotearoa New Zealand

In 2023, the Growing Up in New Zealand (GUINZ) longitudinal study published new research about life in early adolescence.

The research is based on data from thousands of diverse young people and their families who have taken part in the study since before the children were even born. The latest findings were published in reports called 'Now We

Are Twelve' and provided insights into the material well-being of the young people and their families. The snapshots looked at ethnic and gender identity; housing; food insecurity; mental health; relationships; disability; and school engagement. The GUINZ study's research is unique as it looks at changes in the same children across their life course.

As well as the reports, indepth data is available for research to improve the well-being of young people and their families.

The study will connect with young people as they grow into adulthood and are at least 21 years old. It is conducted by the University of Auckland's UniServices, funded by the New Zealand government and administered by the Ministry of Social Development.

New centre elevates Pacific and global health research

Te Poutoko Ora a Kiwa, the Centre for Pacific and Global Health, was launched at a ceremony at the University in 2023, hosted by the Faculty of Medical and Health Sciences.

The centre's mission is to transform and positively impact health for Pacific peoples in Aotearoa New Zealand, the Pacific region and globally, through high-quality and implementable research.

The centre is co-directed by established health researchers, Associate Professor Sir Collin Tukuitonga, Associate Professor Judith McCool and Dr Roannie Ng Shiu. Former director-general of health, Professor Sir Ashley Bloomfield, chairs the advisory board.

'Te Poutoko Ora a Kiwa', means health and vitality in leadership. Current research projects include the Pacific mental health survey and the Pacific contribution to the Covid-19 response.

Ground-breaking therapy for Māori kaumātua with dementia

Dr Makarena Dudley (Te Rarawa, Te Aupōuri, Ngāti Kahu), a researcher at the Centre for Brain Research at Waipapa Taumata Rau, tailored a type of Cognitive Stimulation Therapy (CST) specifically adapted for Māori kaumātua (elders). This project and therapy, Haumanu Whakaohoo Whakāro Māori, involved collaboration between clinical neuropsychologist Dr Tai Kake (Ngāpuhi), Alzheimers NZ's Dementia Learning Centre Director Dr Kathy Peri and School of Medicine Associate Professor Gary Cheung.

"There is very little support available for whānau living with mate wareware [dementia] in the community, and it's essential for participants to have fun and enjoy the sessions," Makarena says. "CST can address the gap by providing a platform for whānau to engage in a programme that has the potential to slow down the progress of mate wareware (dementia), in an environment that is embedded in tikanga Māori and te ao Māori."

Advanced AI set to teach clinicians empathy

Psychology doctoral candidate Monika Byrne from the Faculty of Science is using conversational AI to build virtual patients that will teach medical students how to be empathetic.

"Empathy leads to better outcomes for the patient, better adherence to the treatment plan. It also reduces stress and burnout for healthcare professionals and improves their job satisfaction," Monika says.

This project is done in collaboration with scientists at the University of Florida's Virtual Experiences Research Group, who have been building virtual patients for around two decades.

Using AI will not replace the need to train with actors or real patients, but will give students the ability to practise with empathy before their clinical placements. It will also save universities money compared with using actors and aims to be engaging for students by gamifying learning.



Sustainable Development Goal 4:

ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

4 QUALITY EDUCATION

395
publications based on UoA queries

34%
national share of publications based on UoA queries

113
publications based on Elsevier mapping

127
courses based on UoA queries

TeachWell: supporting excellence in teaching and learning

TeachWell is the University of Auckland's new digital portal designed to support academic staff in their teaching practice. Launched in February 2023, it brings together a wealth of resources created by Ranga Auaha Ako | Learning and Teaching Design Team and the faculties, as well as drawing on international best practice and evidence-informed scholarship.

The original concept was championed by the Education Office and Organisational Development and then co-designed with a working group of the University's academics and professional staff. The concept was then fully realised by Ranga Auaha Ako Learning and Teaching Design Team.

Designed as a virtual 'one-stop shop' it provides high quality learning support, through TeachWell Consult, a just-in-time service, through a suite of self-access

resources, and through opportunities to connect with wider community of teachers.

The digital portal takes its inspiration from the original TeachWell framework for teaching at the University. As Graeme Aitken, Emeritus Professor, Faculty of Education and Social Work, and one of the original champions, suggests: "The term TeachWell was used to capture both senses of the word 'well' - to teach in the best way possible, and as a framework for developing a reservoir (well) of resources to support teaching."

Feedback from staff highlights how TeachWell makes it to share resources and learn from colleagues around the University. For many, a particularly useful element of TeachWell is a section on case studies, which highlights teaching practices that academics can implement in their own teaching. Examples include ideas on how to increase student

engagement using video feedback, creating a culture of learning by upskilling Graduate Teaching Assistants and many course-specific case studies from courses as diverse as dance and engineering.

"We are keen to keep adding to the case studies, showcasing and sharing innovative teaching practices that teaching staff can glean ideas from," says Dr Gayle Morris, Director Learning and Teaching.

The site is updated regularly, to ensure staff have access to up-to-date information about teaching and learning and to spark ideas for course and programme design.

"In creating TeachWell, we were guided by the metaphor of 'all boats rising'. In other words, not describing the peak of excellence that few will reach but rather describing teaching in a way that is both effective and achievable for all staff," says Graeme.

Students mentor staff on commuting solutions

Aspire is the University's annual professional development conference for staff, with talks and workshops on a range of topics that enable participants to develop their skills and capabilities. In 2023, three students from the University's inaugural Future17 cohort joined Professor Gillian Lewis, director of the Sustainability Hub, to lead a workshop on Design Thinking and sustainable travel.

As part of Future17, the students had been mentored by academics to develop a solution to a global sustainability challenge. At the Aspire workshop, the students became mentors to help staff devise solutions to a local sustainability challenge. The students presented the Design Thinking steps to their audience, and then worked with groups to apply that approach to the issue of encouraging more sustainable modes of transport to commute to campus.

"Commuting is a complex matter for individuals and our staff as a collective," says Gillian. "Our student leaders did a fantastic job of sharing what they had learned about collaboratively approaching tricky sustainability questions. The workshop was an opportunity for staff to not only contribute to solving sustainability issues that directly affect them, but to also engage in lifelong learning."

Learning opportunities through Te Ao Haka

In 2023, a new subject, Te Ao Haka, was introduced to Aotearoa New Zealand's secondary school curriculum at NCEA level.

Te Ao Haka provides opportunities for students to engage with te ao Māori and te reo Māori - and intrinsic to this is identity. Te Ao Haka complements the Tikanga-ā-iwi (Social Science) achievement standards already in place. Tikanga-ā-iwi's development was led by Hēmi Dale (Te Rarawa, Te Aupōuri), principal lecturer at Te Puna Wānanga, the School of Māori and Indigenous Education at the University.

"Te Ao Haka provides opportunity for innovation and creativity at the highest level," says Hemi. "We should maximise learning opportunities around that."

In February 2023, Waipapa Taumata Rau was the sponsor of the national kapa haka festival, Te Matatini, held at Eden Park.

Hēmi says in kapa haka, compositions are informed by contemporary issues and call people to action.

"This was an opportunity for each group to showcase their tikanga ā iwi through te reo."

Innovation in learning, teaching and curriculum

Mel Wall, geography tutor in the School of Environment, won a Te Whatu Kairangi Tertiary Educator Award in 2023, for innovation in learning, teaching and curriculum.

Specialising in teaching controversial curricula, Mel's approaches have been highly successful. She runs active classrooms where relationships matter and students draw on their own identities and experiences. Embedded into her teaching are what's know as the 'Four R's': respecting students for who they are; being relevant to their world views; ensuring reciprocity in relationships; and helping students take responsibility for their learning.

"In teaching geopolitics, contested histories and geographies of exclusion, issues such as nationalism, race, gender and class can enter the classroom," Mel says. "Students have skin in the game in terms of their experiences, identities, and cultures, so they tend to be much more engaged in their learning."

Trust and confidence build through this relational teaching, boosting student success.

"For a Māori student, the University can be an alienating space... What helped to change this for me was Mel, through what she taught and how she taught," says one of her students.

Teacher Education in Schools expanded

The University of Auckland has expanded the Teacher Education in Schools Programme for online students wanting to become secondary teachers, with seven new schools across Auckland and Northland joining the programme in 2023, in addition to the six participating in 2022.

The Faculty of Education and Social Work partners with secondary schools to offer the programme, which allows students to study for the Graduate Diploma in Teaching (Secondary), with the added benefits of being immersed in a school community. As well as learning alongside experienced teachers, participating in school activities and generally taking part in school life, students are allotted time to access the online teaching programme run by the faculty, in the same way as other online students.

Although based at one host school, students are able to complete their second practicum at a different school within the consortium, providing the opportunity to experience different school communities. Places on the programme are funded by the Ministry of Education and through philanthropy, with free fees and a \$10,000 stipend to help with expenses.

An evaluation of the programme found that the financial support had made a difference in enabling students to participate. Students also reported a strong sense of belonging at their host schools, and noted how the relationships they built with school staff were important when they were making decisions about future employment.

Study on teacher expectations sparks change in education

Research by Professor Christine Rubie-Davies at the Faculty of Education and Social Work has sparked transformational change within schools throughout New Zealand.

Her research found that students with high-expectation teachers made the equivalent of two years' academic growth during the school year, whereas students with low expectation teachers made negligible gains.

Teachers with high expectations were defined as those who believed that all their students would make significant gains, relative to their achievement at the start of the year, while teachers with low expectations believed that their students would make little progress.

Professor Rubie-Davis's book on how to become a high-expectation teacher is now required reading for teachers in many New Zealand schools and has led to the development of a professional learning programme.

The research has resulted in changes to policy, with several key agencies now actively discouraging grouping students by ability. Students throughout New Zealand are benefiting from this research, regardless of their school, decile, age, gender or ethnicity.

Programme boosts Pacific education outcomes

Level Up is a free two-day programme for Year Nine students in South Auckland, motivating and inspiring Pacific learners within the community.

Through Level Up, Pacific high school students spend time at the University's Te Tai Tonga Campus and the City Campus.

"The concept of Level Up comes from a popular saying among youth. It encourages young people to be determined and desire the best when setting their future goals and aspirations," says Project Lead Sara Toleafoa. "Our programme is focused on three areas where students will reflect on how to apply this concept of 'level up'. The first, is the importance of Pacific identity, the second is levelling up as a Pacific navigator and the final is your Pacific future."

In 2023, the team hosted ten schools with a total of 92 students. Salome Wright, the schools' liaison, worked with deans and career advisers to choose students whom they believed could benefit from the programme. The programme gave students a taste of life on campus, the facilities the University offers and an understanding of how to navigate the tertiary environment.





Professor Christine Woods

A year of empowering enterprising women

In 2023, the University marked one year of the **Aotearoa Centre for Enterprising Women**, launched in October 2022.

The centre's director, Professor Christine Woods, holds the inaugural Theresa Gattung Chair in Women and Entrepreneurship.

With the support of Ms Gattung, Christine and other researchers in the centre are working to understand the experiences of female entrepreneurs in New Zealand. This type

of research can benefit both the individual women themselves and the wider economy, with Christine pointing to a large body of evidence that female entrepreneurs often generate better return on investment than their male counterparts, but struggle to attract venture capital as easily.

Examples of work being undertaken in the centre include new undergraduate and MBA graduate courses on women in

entrepreneurship, research by deputy director Dr Janine Swail into how women can better engage with finance, and research by Christine herself into how women can internationalise their businesses.

Students create programme tackling issues of consent

A group of University of Auckland students and alumni (Jasmine Gray, Laura Porteous, and Genna Hawkins-Boulton) founded a social enterprise called Let's Talk Consent, to improve education on consent and combatting sexual violence. They note that there is no legal requirement in New Zealand for schools to have an educational programme on sexual harm and consent, something they want to change.

Supported by a seed grant and mentoring from the University's Velocity \$100k Challenge in 2022, they've been creating training and accreditation programmes, and have travelled to Milan to present their work to a forum organised by the United Nations Sustainable Development Solutions Network.

Ecologist recognised for mentoring

Associate Professor Cate Macinnis-Ng of the School of Biological Sciences, was recognised for her work mentoring women in science by the Association for Women in the Sciences.

The Dame Miriam Dell Award recognises outstanding mentoring efforts that go beyond a person's usual paid role, and that help to support and retain women in science.

Robogals – hacking the STEM diversity issue

The University of Auckland branch of Robogals organised a Science and Engineering day for eight to 12-year-olds at Kura Matahuna Unleash Space, in the University's Centre for Innovation and Entrepreneurship.

The event allowed the participants to try out a variety of hands-on STEM projects with their friends, parents, or mentors. Robogals works to promote the engagement of women and gender-diverse children and teenagers with scientific and engineering topics, and to encourage them to explore these areas outside the classroom.

Sustainable Development Goal 5:

ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

5 GENDER EQUALITY



86

publications based on UoA queries

31%

national share of publications based on UoA queries

67

publications based on Elsevier mapping

24

courses based on UoA queries



Sustainable Development Goal 6:

ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

6 CLEAN WATER AND SANITATION

113
publications based on
UoA queries

23%
national share of publications
based on UoA queries

74
publications based on
Elsevier mapping

21
courses based on
UoA queries

University signs agreement with Watercare

The University of Auckland and Watercare signed a memorandum of understanding (MOU) to formalise 20 years of collaboration between the two institutions.

The agreement aims to encourage joint efforts in addressing issues affecting Tāmaki Makaurau Auckland, to exchange guest lectures, share data, and provide opportunities for student development.

“It is no coincidence that the most globally impactful water utilities also have strong collaborations with their local universities as this advances research and innovation and creates and attracts a skilled workforce,”

says Apra Boyle Gotla, head of innovation at Watercare Services.

Professor Kobus van Zyl, from the Faculty of Engineering, said the MOU provides the University with essential data and samples, so that students can work on real-life problems while delivering valuable results for the Auckland region and New Zealand.

The MOU is monitored by representatives of both the University and Watercare, with regular reporting ensuring the partnership is on course on its agreed principles to serve the public good and find solutions to the current infrastructure challenges.



Dr Erik Lithander, Deputy Vice-Chancellor Strategic Engagement, and Steve Webster, Chief Infrastructure Officer for Watercare.

Alumnus awarded Gates Cambridge Scholarship

Engineering honours graduate Michael Allison is studying for his MPhil in Engineering for Sustainable Development at Cambridge after winning a Gates Cambridge Scholarship.

He has already used his research on engineering and life sciences to start a company, Waitality. Its goal is to develop engineering technologies to improve water management in New Zealand and the Pacific.

“Water management impacts everyone,” he says. “In wealthier countries, clean water flowing from faucets and efficient wastewater disposal is taken for granted. But climate change is causing water scarcity, and severe storms are increasing flooding.”

Michael is a member of the HERA Industry Advisory Group driving a sustainable construction sector transformation. He says resilient infrastructure solutions positively affect the lives of many people in need.

“My goal is to make a significant positive difference for the largest number of people. Humanitarian engineering is an excellent way to achieve that, ensuring engineering is applied effectively and equitably.”

Innovative idea to purify water

International scientists, including Waipapa Taumata Rau’s Associate Professor Lokesh Padhye, of the Faculty of Engineering, aim to find new ways to clean up water. The research team is developing a portable device that can treat a range of different contaminants.

“This is relevant when treated wastewater is sourced for drinking water,” says Lokesh.

“The prime example is Auckland drawing water from Waikato River, which has treated sewage from Hamilton and other upstream towns. [The] Waikato river is highly polluted and contains ... pesticides, pharmaceuticals, heavy metals and other potentially toxic compounds.”

The portability of the device will make it easy to share with rural households or neighbouring Pacific Islands.

University partners with hapū to build freshwater knowledge

The University of Auckland has partnered with Winiata Marae near Taihape to combine mātauranga Māori and Western knowledge. Through this partnership, samples from Winiata rivers were taken to improve water management and quality.

“The biological water quality measurements indicate that ... it is likely safe for recreational activities like swimming, and possibly eating tuna (eel) from these environments if properly cooked, but certainly not suitable for direct consumption,” says Dr Wei-Qin Zhuang, from the Department of Civil and Environmental Engineering.

Winiata Marae kaumātua, Jordan Haines-Winiata, says, “Our partnership has allowed us to recognise the need to conduct more frequent and long-term monitoring of water quality. This is how mātauranga and science can really work well together and make a difference.”



Sustainable Development Goal 7:

ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

7 AFFORDABLE AND CLEAN ENERGY



137

publications based on UoA queries

36%

national share of publications based on UoA queries

121

publications based on Elsevier mapping

11

courses based on UoA queries

Solar energy collaboration wins Energy Excellence Award

A collaboration between the University of Auckland and solarZero, a New Zealand solar energy services provider, has received recognition at the Energy Excellence Awards. The partnership is aimed at expanding solar energy adoption in Aotearoa and it was recognised with the **Innovation in Energy Award**, presented to solarZero at an event in Christchurch in August.

Associate Professor Nirmal Nair and his Power Systems research team from the Faculty of Engineering have been working

alongside solarZero since 2021 to enhance the readiness of the national power grid for the future.

By the middle of 2024, solarZero anticipates that more than 15,000 of their systems will be registered to contribute reserves, offering up to 80 megawatts of reserve capacity.

"Ultimately, this is all public good research," says Nirmal. "We are developing technology not just for New Zealand but also the world, and finding solutions towards rapidly decarbonising as we speak."



Associate Professor Nirmal Nair (second from left) has been working with solarZero to prepare New Zealand's electricity grid for the future.

A whirlwind way to generate clean power from waste heat

Around half the world's energy usage is dissipated as wasted heat. Spearheaded by Dr Neil Hawkes (Mechanical Engineering alumnus) and supported by UniServices for the initial phases of patent development, Vortex Power Systems is a groundbreaking innovation to transform low-grade waste heat into eco-friendly electricity through the creation and use of an atmospheric vortex. The whirlwind-like vortex generates power.

As a student, Neil participated in Velocity, the entrepreneurship development programme run by the Business School's Centre for Innovation and Entrepreneurship, to help him turn his ideas into a company.

Study explores EV-lane charging potential

A study is investigating the impact of wireless electric vehicle (EV) charging pads on a segment of the Auckland motorway. It examines aspects such as economic feasibility, charging lane length, effects on traffic flow and energy consumption. Dr Selena Sheng, a research fellow from the Business School, says the dynamic wireless charging pads are integrated into the road and use electromagnetic induction to charge EVs while they are in motion.

Doctoral candidate Ramesh Majhi, the lead author of the study, explains: "As existing plug-in stations can only handle limited EVs at a given time, with the increase in charging demand, the wireless in-road facility will soon become more competitive compared to

the current plug-in charging stations due to savings in costs associated with travel time, delay, and charging time."

Decarbonising the University's energy supply

The University is committed to engaging with and influencing suppliers to improve the carbon performance of the energy it requires for its activities. Sustainability and carbon attributes are part of the electricity tendering process for selecting suppliers, and efforts to decarbonise the energy supply saw significant progress in 2022.

The University continued to phase out gas boilers for electricity, which led to a 7.5 percent decrease in natural gas consumption (measured in kWh). The overall consumption of electricity was 4.3 percent lower than the 2019 baseline. In terms of carbon emissions for the overall category of energy and fuel, the drop was 23 percent.

In October 2022, the University increased the portion of certified carbon-zero electricity supply to around 50 percent and continued to use Renewable Energy Certificates on the remaining procured electricity.

Our efforts to curate the energy supply (including fuel) has seen an overall decrease in emissions by 23 percent from the 2019 baseline. We consumed 13 percent fewer kWh of energy (electricity and gas) per square.

By procuring 100 percent electricity with some form of carbon neutrality association, the University formally expresses its commitment to clean energy and support to phase out fossil fuel use in electricity generation in Aotearoa.

Solar and EVs: a match made in 'clean-energy' heaven?

Dr Le Wen, a research fellow at the Energy Centre, and fellow researchers have revealed that households that had installed residential solar were more likely to purchase EVs.

"Our study shows that solar panel uptake has the potential to encourage the adoption of EVs by providing sustainable charging solutions," says Dr Wen. "This is an area that policymakers should pay attention to. Because solar panels are positively associated with EV uptake, developing policy packages that can promote the uptake of both would benefit emission reduction and help achieve the net-zero carbon target by 2050."





Sustainable Development Goal 8:

PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

8 DECENT WORK AND ECONOMIC GROWTH

70
publications based on
UoA queries

18%
national share of publications
based on UoA queries

74
publications based on
Elsevier mapping

34
courses based on
UoA queries

University announces new reporting for pay equity

The University acknowledges the importance of addressing pay gaps for women, Māori, Pacific peoples, and peoples of diverse ethnicities. We published a preliminary pay gap analysis in March 2023, with a more comprehensive analysis due in December. Following the methodology recommended by Stats NZ, we have identified a 10.8 percent

gender pay gap for women, which contrasts with the national gender pay gap of 9.2 percent in 2022.

Taking ownership of these numbers is crucial for the University to pinpoint areas of focus and to initiate efforts to address underlying systemic issues contributing to these disparities.

Dr Guillermo Merelo, Associate Director of Diversity, Equity and Inclusion says: "This is only the beginning of our journey in creating a sustainable people culture, where everyone feels their contributions are equally valued in our complex organisational ecosystem."

Researcher hatchery

The University's Centre for Innovation and Entrepreneurship (CIE) launched a 12-week hatchery programme, free of charge, for our academic staff and doctoral students to help them to understand how their research might be applied in a social or commercial context.

The programme is part of the University's commitment to helping researchers bring their innovative work to the wider community.

Exploitation of migrant workers

Professor Francis Collins and Associate Professor Christina Stringer have published a transdisciplinary report, as part of a government-contracted project. It looked at employers exploiting migrant workers by playing on the workers' emotions and their sense of lacking freedom, to engage in unlawful or illegal employment practices.

More specifically, they found that the workers' emotional state contributed to inducement into exploitation, entrapment in that situation, and finally, the long-term maintenance of that exploitation. The research speaks to the need for reform in immigration law, moving away from viewing migrants only in terms of their economic value.

Aspire 2023 conference

Every year, the University runs the Aspire conference for professional (non-academic) staff. The conference serves several purposes – it is an opportunity for people from different organisational units to interact, network, and learn from one another.

It also provides a valuable platform where non-academic staff members can experience activities that are more common in academic circles, such as facilitating working groups, presenting projects and posters, and exchanging ideas on best practice.

In 2023, 560 staff attended, hearing from a wide range of speakers and participating in a variety of activities.



Sustainable Development Goal 9:

BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALISATION AND FOSTER INNOVATION

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



122

publications based on UoA queries

30%

national share of publications based on UoA queries

144

publications based on Elsevier mapping

17

courses based on UoA queries

Māori perspectives extend notion of conscious capitalism

In collaboration with Associate Professor Jason Mika from the University of Waikato, a group of researchers from the University of Auckland Business School – Professor Carla Houkamau, Dr Kiri Dell, and Dr Jamie Newth – have examined how an emerging Māori theory of value can contribute to a more sustainable, equitable and inclusive approach to business. Although the group caution that Māori businesses cannot be pigeon-holed, they

nevertheless found some common threads. For example, Māori business owners tended to have an intergenerational approach to wealth creation, and were often interested in creating value in a broader sense than simply financial profit. More specifically, a traditional Māori perspective encouraged entrepreneurs to adopt a wider definition of ‘stakeholder’ than was commonly used in Western business,

taking into account the environment itself, as well as past and future generations of people. The researchers say that this approach stems in part from the Māori view that the earth itself is an ancestor, from which all humans can trace their descent, and that this perspective can make a positive contribution to the notion of ‘conscious capitalism’.

Business needs to nurture the brand eco-system to stay relevant

Emeritus Professor Rod Brodie has produced a large body of research into how a business’s brand is at the heart of how it creates value. A particular focus of his work has been on how a brand is no longer just a simple trademark, but rather an emergent property of the ever-shifting interaction between the business and its stakeholders.

According to this framework, attempts to control the brand using a top-down, managerial approach run the risk of alienating stakeholders or misaligning the actions and behaviour of the business with the image it wants to create. By acknowledging the role that the community has in brand co-creation, a business can maximise the contribution of that brand to value-building.

Breakthrough fix identified for earthquake-prone buildings

A cost-effective solution to strengthen New Zealand’s most at-risk buildings has been identified by researchers at the University of Auckland. Doctoral candidate Victor Li, Dr Enrique del Rey Castillo and Dr Rick Henry from the Faculty of Engineering found that wrapping weak spots in concrete walls with carbon-fibre strips can strengthen high-rise buildings to resist earthquakes well beyond the demands of the building code.

The research was funded by Toka Tū Ake EQC to help find the most efficient and cost-effective ways to strengthen thin concrete walls. The findings are likely to draw significant interest in the engineering sector as over 100 multi-storey buildings in Wellington’s CBD alone are well below modern code.

“Up until now there has been no guidance on how these walls could be strengthened, but our research has shown that with the carbon fibre solution, the wall cannot buckle in the out of plane direction,” says Victor.

“Thanks to the input from people working in the industry, we have delivered something that can be put to practical use right away,” he says.

Practising engineers will now have the scientific data to use the new technology with confidence to repair old walls.

Entrepreneurial excellence awarded

At the 2023 Triple E awards in Barcelona, the University of Auckland received the runner-up award for Entrepreneurial University of the Year (Asia Pacific), and Professional Teaching Fellow Peter Rachor was a finalist for the Entrepreneurial Educator of the Year (Asia Pacific).

Professor Susan Watson, Dean of the Business School, noted that Peter’s work integrating innovation and entrepreneurship across seven faculties had yielded significant results, while Deputy Vice-Chancellor Strategic Engagement Dr Erik Lithander, drew attention to the significant investment that the University has made in recent years, aimed at creating an environment where staff and students can grow as innovators.

Australasian trade ties that bind

In February, the University’s Public Policy Institute hosted an in-person event entitled ‘Trans-Tasman, Regional and Global Initiatives for Sustainable Trade Futures’, focusing on international trade, and featuring high-profile guest speakers from industry, government and academia. As well as discussing Oceanic and East Asian trade ties, the event also featured panels on the green economy and Indigenous trade.



Sustainable Development Goal 10:

REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES



286
publications based on
UoA queries

31%
national share of publications
based on UoA queries

147
publications based on
Elsevier mapping

60
courses based on
UoA queries

Disability Action Plan

Waipapa Taumata Rau, University of Auckland, is committed to addressing barriers that limit participation and success for people with disabilities. The University, guided by its strategic plan *Taumata Teitei* and the New Zealand Tertiary Education Commission, has developed the Disability Action Plan (DAP) to support students and staff with disabilities to succeed.

The DAP consists of five workstreams:

- **Workstream 1: Student experience**
Improving student experience through a sense of belonging. Responsive provision of support for students.
- **Workstream 2: Learning and teaching**
Delivering accessible and inclusive learning and teaching platforms and practices.
- **Workstream 3: Staff capability and expertise**
Working towards a disability-confident workplace and improving awareness and capability across the learning and teaching environments.
- **Workstream 4: Systems and policies**
Ensuring evidence-based decision-making, including regard for intersectionality,

physical accessibility standards, and contributing to internal and external reporting requirements.

- **Workstream 5: Leadership and governance**
Ensuring successful governance, implementation, and reporting of the Disability Action Plan.

The DAP is an iterative document with workstream owners constantly reviewing tasks and deliverables to improve both measurement and reporting outcomes. Some of the key indicators that will help keep track of the DAP are the proportion of students and staff with disabilities, retention and completion rates for students with disabilities, and disabled student and staff experience survey results.

Fofonga: a commitment to address inequities in Pacific research

Senior lecturer and Pacific Scholar Seuta’afili Dr Patrick Thomsen is the inaugural director of Fofonga for Pacific Research Excellence, a platform to bring Pacific researchers together at Waipapa Taumata Rau.

“Fofonga’s goal is to build Pacific research leadership and excellence, while acting as a landing place and home for all Pacific researchers at Waipapa Taumata Rau, where they can connect to our whanaunga across the whole University, to our communities, our government agencies, our whanaunga in the Pacific region and abroad,” Patrick says.

The first major project for Fofonga is the development of the Pacific Early Career Academic Network, to boost the pipeline of Pacific academics into continuing positions as senior academics at New Zealand’s universities. It also aims to grow Pacific research leadership at the University of Auckland.

How well are Māori doing amidst the te reo boom?

Dr Kiri Dell (Ngāti Porou), a senior lecturer from the Business School won a fast-start grant from Te Pūtea Rangahau a Marsden to investigate the effects of te reo revitalisation strategies on Māori well-being.

“Maintaining Māori well-being amidst the transition to a te reo speaking country is critical for this nation’s positive social transformation,” Kiri says.

Kiri will analyse media and will look at both affirming and opposing content that reacts to public reporting of high-profile Pākehā and non-Māori consumption of te reo.

She will also conduct interviews to inform understanding of the many facets of te reo identities, enabling the researchers to centre Māori voices. Both the analysis and interviews will help Kiri and her team understand how Māori identities are constructed and maintained in relation to te reo Māori and the ways people are affected.

Rainbow survey sounds alarm for mental health

Coordinated action across key areas is needed to ensure young Rainbow community members are not only safe, but can thrive, according to the first national survey of Rainbow youth in Aotearoa.

The survey was published as a report and a research paper, with work led by Dr John Fenaughty from the Faculty of Education and Social Work at the University. It was developed by and for Rainbow communities across Aotearoa.

“One in six participants said they didn’t feel safe at school or at their polytechs or universities,” says John. “One in eight said they had moved towns or cities to feel safer as a Rainbow young person; almost two thirds said they had thought about killing themselves in the previous 12 months and a majority reported having self-harmed in the past year.”

Additional and specific disparities were also identified for Māori participants, including those with Oranga Tamariki involvement.



Endangered Māori construction methods pass modern seismic testing

Professor Anthony Hoete (Ngāti Awa, Ngāti Ranana) from the School of Architecture and Planning has proven that endangered Māori construction techniques can withstand major earthquakes.

He is using this knowledge to help rebuild the Tānewhirinaki whare tīpuna (ancestral house) in the Bay of Plenty, which was destroyed in a 7.8 magnitude earthquake in 1931.

In collaboration with University colleagues, Anthony used an endangered construction technique called 'mimiro' to create a full-scale timber structure, and tested the prototype against earthquake requirements for modern buildings.

"Our seismic tests showed the structure can withstand much stronger earthquakes

than the one that caused critical damage to the original whareniui (meeting house) in the Napier earthquake," Anthony says.

He worked with senior lecturer and Māori architectonic researcher Dr Jeremy Treadwell on an interpretation using digitally cut timber portals and sailing equipment. The timber portals use interlocking compression joints, instead of bolting parts together. Ropes are used to pull the structure to the ground like a tent. Anthony also collaborated with the Faculty of Engineering to pull the vertical portals sideways and test the horizontal strength of the structure.

The origins of mimiro can be traced back to the ships and strong sail lashing that ancestors used to travel across the Pacific.

"They had a deep knowledge of building and creating strength and tension in structures, so we have recreated those techniques that have been lost and use them to give our whareniui greater seismic resilience," Anthony says.

The team worked with Ngāti Ira o Waioweka, who built the original Tānewhirinaki whareniui. The local hapū (subtribe), Ngāti Ira, is integral to the project, and many local community members assisted in the construction and testing. The project was funded by Toka Tū Ake EQC, supported by QuakeCoRE, and the Endangered Wooden Architecture Programme at Oxford Brookes University.

Sustainable Development Goal 11:

MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

11 SUSTAINABLE CITIES AND COMMUNITIES

260
publications based on UoA queries

27%
national share of publications based on UoA queries

150
publications based on Elsevier mapping

92
courses based on UoA queries

Living roof sprouting on Engineering building

A green roof on the Faculty of Engineering building is part of a trial to facilitate the uptake of green roofs in New Zealand. Green or 'living' roofs have a host of environmental benefits: they can be used to help manage stormwater runoff, improve air quality and provide a natural habitat for wildlife.

They can also help to combat rising temperatures in the fight against climate change.

"The extreme weather we've seen this year has highlighted the urgent need to accelerate climate change mitigation and adaptation work," says research lead Associate Professor Asaad Shamseldin.

"Increasing green spaces and making our cities spongier is essential to reducing the impact of weather events like Cyclone Gabrielle and the floods we saw in January."

The project is a collaboration with Auckland City Council to understand the benefits that living roofs can provide compared to conventional roofs. Assad and a team of engineering students will use seven small-scale experimental plots to test different

configurations of planted soil build-ups and use the data to inform future green roof designs in New Zealand.

"A lot of the research about living roofs comes from overseas, so we need to figure out what plants work best in our climate and local conditions," he says. "One of the long-term aims of the project is to investigate the concept of productive landscapes and whether we can use this living roof as a way of producing food."

Researchers test 'cool roofs' in hot spots

The University is leading a collaborative project trialling 'cool roofs', a passive cooling system with the potential to improve well-being, boost productivity and lower carbon emissions.

The trial is in Niue, Mexico, India and Burkina Faso – countries that are particularly vulnerable to heat-related health impacts.

"We've selected four sites that are representative of climate hotspots around the world and put together a really great team of scientists, industry and institutional collaborators to conduct this research," says

co-lead researcher Dr Aditi Bunker from Te Poutoko Ora a Kiwa, the Centre for Pacific and Global Health, and Heidelberg Institute of Global Health. The University of Auckland team will work most closely with Niue.

"The climate crisis will lead to increased air temperatures in Niue, plus sea level rise, with major impacts on people's lives and livelihoods, including their health and well-being, sleep patterns and productivity," says Associate Professor Sir Collin Tukuitonga, co-director of Te Poutoko Ora a Kiwa.

"This study will help us understand the impact of reducing heat in people's homes on their health and well-being."

Researchers will talk to community leaders about the acceptability of cool roof technology and how best to roll it out. "We want to employ local staff to implement cool roofs and empower the local population to take ownership and drive this project," Aditi says.

The art of Rainbow pride

Postgraduate art history students Tyler Jerrom and Shania Pablo curated *Queer Ethos*, an art exhibition featuring 28 works from the University of Auckland Art Collection, with references taken from Gilbert Baker's pre-commercialised rainbow flag of 1978 and Daniel Quasar's inclusive pride flag of 2018.

Notable artists on show included queer artists Yuki Kihara, Catherine Opie, Rodney Fumpston and Shannon Novak, as well as well-known names like Bill Hammond, Billy Apple, Robyn Kahukiwa and Gordon Walters.

Tyler says the themes and values the queer community has embodied in the Rainbow flag are not exclusive to queer art, but universal: "New Zealand's most well-known and prolific artists have also explored such themes as spirituality, magic, nature and femininity. The rainbow in all its visual and metaphorical glory is part of what it is to be human."

'Park and ride' to 'bike or scoot, and ride'

Researchers at the School of Architecture and Planning have received Waka Kotahi (NZ Transport Agency) Innovation funding for a project that aims to make it easy for commuters to, rather than park and ride, scoot or bike and ride.

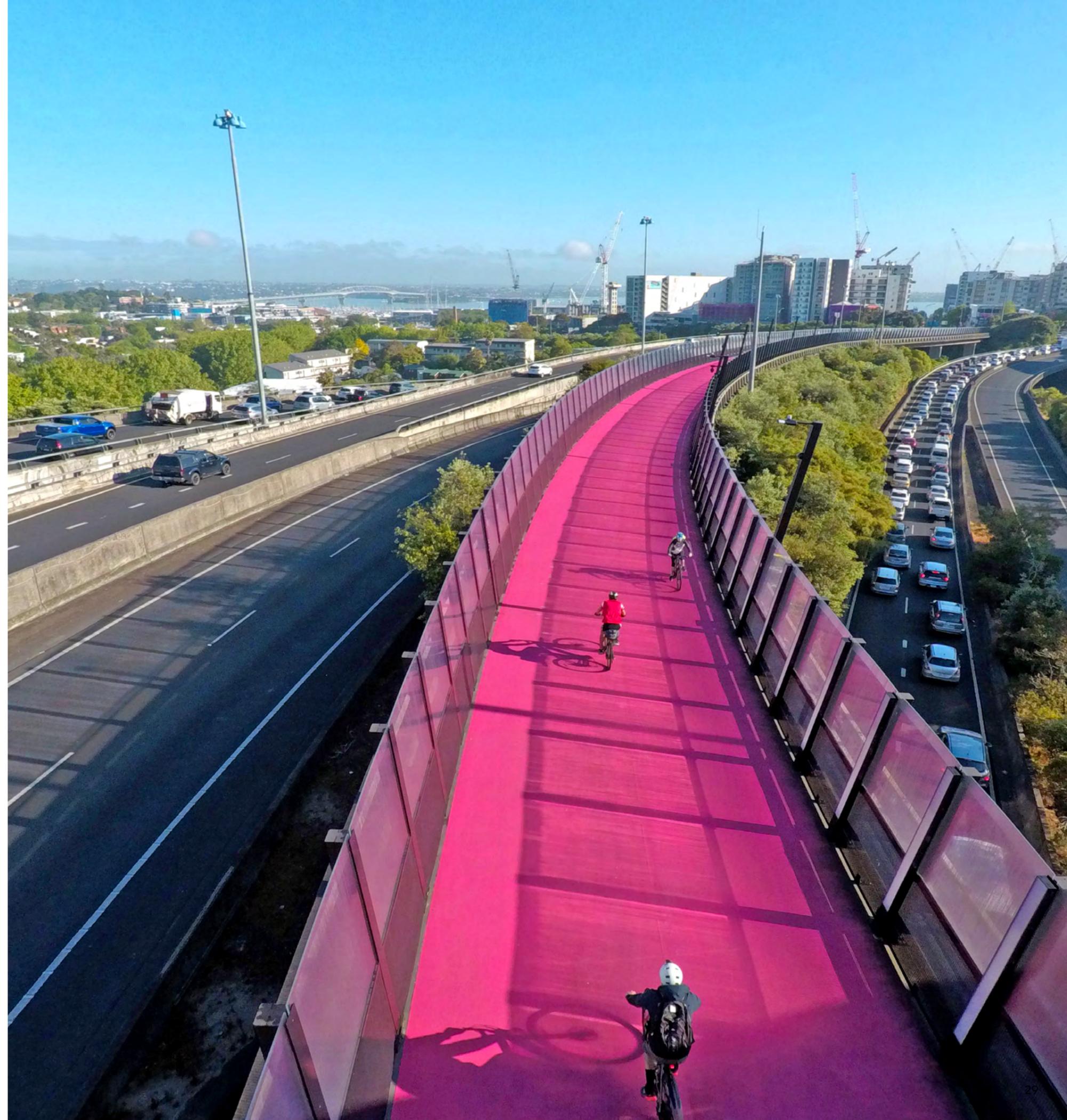
"Car trips to and from public transport are among the highest polluting vehicle trips," says principal investigator Dr Tim Welch.

"Often, these trips by car are under five kilometres, begin with a cold engine and are driven at slower speeds – all of which equate to higher rates of pollutant and greenhouse gas emissions. Bikes or scooters would easily replace those short car trips."

The project will involve setting up a station-based micro mobility hub, with e-scooters, e-bikes, and powered bike racks within a three-minute walk of a station, or a 10-minute ride from the station.

The six-month trial started at Glen Eden rail station in November 2023. It is an area where the inhabitants do not necessarily have access to e-scooters, pushbikes, or e-bikes, or to secure places to park them.

The project aims to solve what is known as the 'last and first mile' problem around public transport, not by reinventing the wheel, but by using technologies that exist but aren't typically available in the outer suburbs.





Researchers tackle the medicinal cannabis industry's waste problem

University of Auckland researchers have found a sustainable solution to help tackle the medicinal cannabis industry's waste problem. As an illegal drug outside of its medicinal use, there are strict government controls over the handling of cannabis waste, and most of it ends up in landfill.

In collaboration with South Island-based producer Greenlab, and support from Callaghan Innovation, the researchers are developing processes that will transform

cannabis waste into valuable resources by destroying active cannabinoids in the waste and then turning the material into solid or liquid fertiliser that can be used to help grow new cannabis plants.

"It's a perfect example of bringing the circular economy to the medicinal cannabis sector," says research lead Associate Professor Saeid Baroutian from the Department of Chemical and Materials Engineering.

"Our technology will connect productivity for the sector with environmental, social, legal and cultural acceptability. That is a big step towards true sustainability."

The process of transforming cannabis waste into biofertiliser will reduce methane emissions from landfill and enable valuable resources to be effectively reused.

Sustainable Development Goal 12:

ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



159

publications based on UoA queries

27%

national share of publications based on UoA queries

87

publications based on Elsevier mapping

22

courses based on UoA queries

Kānuka products a potential boon

Nuka Charitable Trust, a start-up company set up by Dr Kiri Dell (Faculty of Business and Economics) and Associate Professor Saeid Baroutian (Faculty of Engineering), received government funding to establish a pilot plant to turn locally grown kānuka plants into gourmet products and help benefit Māori landowners.

The pilot plant will produce 'liquid smoke' and juice from kānuka, sourced from Māori-owned land in Tairāwhiti, benefiting local landowners. "This is a timely project because we need to really embrace our innovation and be creative to address climate change and other global impacts," says Kiri.

"This is a Māori-led project activating the lives we want to create for ourselves."

Kānuka juice can be used as an ingredient for beverages, while liquid smoke has a taste similar to hāngī.

"It has a unique, pleasant aroma and flavour," says Saeid. "It can also be used to protect food products against degradation and enhance their shelf life."

Liggins lab steps up recycling efforts to earn sustainability stripes

Liggins Institute's laboratory has earned the highest level of international sustainability certification.

The research lab is the first university lab in Aotearoa New Zealand to gain My Green Lab certification and only the second lab of any sort across New Zealand.

My Green Lab is a not-for-profit organisation, run by and for scientists, that sets standards for sustainability and supports labs to reach them.

"It has been a matter of educating people about what we were already doing, as well as making some key shifts in laboratory practice," says Liggins technical services manager Eric Thorstensen.

These have included stepping up efforts on recycling and reuse, including sending old lab coats to schools, and ice packs from chilled deliveries to the University's recreation centre to treat injuries.

Other initiatives include the use of inventories and checklists to efficiently use up stock, and reducing energy and water use around the lab. Many of the changes have been simple and just take a shift in awareness.

Waipapa Taumata Rau Sustainable Events Guide

Events bring people together, drive change, and create meaningful and memorable experiences.

The University of Auckland's Campus Life worked with the Sustainability Office to create the 'Sustainable Events Guide', based on best practices outlined in 'ISO 20121 Standard for Event Sustainability Management Systems'.

Since the guide was introduced in 2019, more than 500 event organisers have used it to implement sustainability initiatives for more than 1,100 events.

Masters student addressing barriers to sustainable diets

With rising awareness among consumers about the environmental impact of their supermarket choices, Master of Commerce student Justine Lee is investigating changes in New Zealand household food purchases with the support of a William Georgetti scholarship. "I hope to see sustainable eating play an increasingly bigger role in climate change discussions," Justine says.

For her thesis, Justine is utilising data collected between 2012 to 2020 from Nielsen Homescan, which records and analyses consumer behaviour, including grocery purchases. This will enable her to investigate the corresponding environmental impact of changes in food choices, as well as the determinants and predictability of households purchasing more environmentally-friendly food products.

Justine is keen to make a real difference with her research by influencing policy, and her findings will help inform decision-makers regarding the characteristics of households most able to decrease their environmental impact through changes in food consumption.

"I'll also investigate the claim that eating sustainably puts a dent in the wallet, by comparing the expenditure of households with high carbon footprints to those with low carbon footprints. This understanding will help decision-makers address the barriers to more sustainable diets," Justine says.





Adaptive reuse for green building cuts project's carbon emissions

In September, the newly refurbished Building 201 on Symonds Street was officially opened with a dawn karakia service. In 2024, the building will be a sustainable home for the University of Auckland's Education and Social Work, Arts, and Creative Arts and Industries faculties.

The adaptive reuse project cut its carbon emissions in half by reusing and strengthening the existing structure rather than starting from scratch.

Some of the key environmental and social features of the B201 project include:

- New Zealand's highest 6 Green Star Design and As Built NZ v1.0 Certified Design Rating with all ten innovation points awarded.
- Seismic strengthening, which enables the reuse of the existing building structure, reducing the embodied carbon by over 30 percent.
- Elimination of combustion appliances and fossil fuel use on-site reduces operational carbon emissions by nearly 70 per cent.
- A naturally ventilated central atrium provides a connection to the outside environment.
- A solar photovoltaic system provides around 10 percent of the energy demand.
- A rainwater harvesting system and low-flow fittings are estimated to reduce potable water consumption by nearly 80 percent.
- Window-to-wall ratio is optimised for daylighting on work surfaces.
- Construction waste diversion from landfills set at a target of > 80 percent.
- On-site training and education for construction workers around health, well-being and sustainability.
- Connections to local public transport and prioritisation of low-carbon travel modes and end-of-trip facilities to encourage more cycling and walking.
- A new natively planted green roof on the level four podium.

Covid changed our view of possibilities for the planet

Covid has fundamentally changed how people view the environment, their relationship to it and their vision for the future, according to new research from the University of Auckland.

An appreciation of the environmental benefits of lockdowns, concern about how Covid-related products have contributed to waste and hopes for a greener, pandemic-proof future are key findings of the national survey.

While there has been significant focus on the health and social impacts of Covid to date, this research shows that the pandemic also taught us some crucial environmental lessons.

"Because people have directly observed the benefits of a pause to environmentally detrimental activities, they appear to be more supportive of ways of living that can lead to similar outcomes post-pandemic," says research fellow Dr Komathi Kolandai.

"This pause in human activity made the outcomes of environmental solutions less abstract and showed what can be achieved now, rather than in the future."

It was also clear from the research that people aspired to a greener post-pandemic future and supported a range of measures to achieve it. Komathi says the study confirms that the enforced break in human impact on the climate offers an environmental baseline for advocating for conservation.

The Rongowai mission

The Rongowai mission is an international collaboration to gather detailed environmental data using a scientific payload instrument inside the hull of one of Air New Zealand's Q300 passenger aircraft.

The mission is carried out in partnership with NASA, Air New Zealand, the University of Michigan, Ministry of Business, Innovation, and Employment, the New Zealand Space Agency, Ohio State University and the University of Canterbury.

"We can monitor inundation and flooding events, like the Christchurch flooding last year, monitor precursor conditions that indicate susceptibility to flooding, and do the same in the other extreme for drought events, all by monitoring soil moisture conditions," says Dr Mike Laverick from the Centre for e-Research, which hosts the mission's data centre. "Then all the data we produce is going to be made publicly available so it can have as large and as meaningful an impact towards New Zealand and climate change as possible."

Rongowai is capable of capturing data on a vast scale, and over a long period of time.

"The ultimate goal is, of course, the climate front, which is to make sure that the data generated from Rongowai actually has a real-world impact across research and industry, to help Aotearoa make informed decisions with respect to the environment and driving meaningful change in policy and in practice," says Mike.

University sponsors CANIE Climate Action Week

The University of Auckland was the headline sponsor of CANIE Climate Action Week in 2022. The Climate Action Network for International Educators (CANIE) is a volunteer grassroots initiative formed by international education practitioners from around the world who see the need for the sector to step up and act on climate.

It was an opportunity for anyone working within international education to be connect and learn about key actions the sector must implement to address the climate emergency.

Sessions enabled participants to learn about CANIE and get involved, to be empowered by leaders in the field and hear what other organisations are doing, and to feel supported to take their first steps or continue their journey in climate action.

The event also enabled participants to connect with others in their region, and to join a worldwide community in tackling the climate crisis across the international education sector.

Sustainable Development Goal 13:

TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS



13 CLIMATE ACTION

186

publications based on UoA queries

113

publications based on Elsevier mapping

19%

national share of publications based on UoA queries

43

courses based on UoA queries

Assessing climate futures

As global temperatures rise, ecosystems struggle to keep up and adapt. Weather patterns become increasingly erratic, and new research must be done to comprehend what effect these changes have on our forests.

Ngā Ara Whetū, the University's Centre for Climate, Biodiversity and Society, has allocated funding to support George Perry and James Brock to exploring the future of forests, with a lens on climate change and environmental sustainability.

The project, 'Assessing Climate Futures through Environmental Data Analytics', is a collaborative initiative with Pennsylvania State University to expand the landscape of climate research and environmental conservation.

George says the project's aims are two-fold: "There's the research part, which will be about forests, carbon, and some of the trade-offs involved in allocating land to native forests vs production forests.

"The second part will be curriculum development around environmental data and analysis for students working in the climate and environment space."

Solving the carbon problem with carbon

Professor Ajit Sarmah's research has found that adding biochar to cement mixture can reduce net carbon emissions from concrete by 20 percent. Biochar is produced through a process called pyrolysis, where organic material is heated in the absence of oxygen.

The production of biochar is considered a carbon-negative technology, because it effectively removes carbon from the atmosphere, by locking carbon from naturally biodegrading matter into a highly stable form. Cement production accounts for nearly 8 percent of global anthropogenic carbon emissions, but replacing part of the cement and sand in concrete with biochar can reduce the carbon footprint of construction.





Sustainable Development Goal 14:

CONSERVE AND SUSTAINABLY USE THE OCEANS, SEA AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT



209
publications based on
UoA queries

25%
national share of publications
based on UoA queries

124
publications based on
Elsevier mapping

34
courses based on
UoA queries

Restoring mussel beds with iwi and communities

Aotearoa is leading the world in efforts to restore mussel beds, through a collaboration between the local iwi Ngāti Manuhiri, the University of Auckland, the Nature Conservancy and the Mussel Reef Restoration Trust.

Initial work began over Matariki in 2022 to lay 150 tonnes of kūtai (green-lipped mussels) in the Hauraki Gulf and Pelorus Sound, eventually rising to more than 350 tonnes.

Dr Jenny Hillman, lecturer in Waipapa Taumata

Rau's Faculty of Science, says the quantity of mussels placed at the two sites makes it the biggest mussel restoration effort worldwide in terms of tonnes of adult mussels deployed.

In collaboration with Kelly Tarlton's Marine Wildlife Trust, the project is also now focusing on how to keep baby mussels coming in, recruiting and replacing the released adults.

The University's Institute of Marine Science research team, led by Professor Andrew Jeffs,

provides scientific guidance on the restoration project, and does research into how vital mussel beds are for the health of coastal ecosystems, from providing habitats for distinct species as well as their role as the natural filters for sea water.

The team's research work was recognised with a Research Impact Award at the 2022 Celebrating Research Excellence event at the University.

How maramataka can guide kaitiakitanga of awa and moana

Masters student Te Kahuratai Painting (Ngāti Manu, Te Popoto, Ngāpuhi) has studied the relationship between Ngāti Manu kaitiakitanga and maramataka, and how marine conservation research can be guided by maramataka and grounded in whakapapa.

The maramataka system of Māori knowledge includes tātai arorangi, Māori astronomy, knowledge of the lunar phases, tides and weather patterns. It also includes the timing of the flowering of different trees or the migration of different birds, and the running of fish up and down a river.

Te Kahuratai is now planning to explore these ideas further in a PhD project, to see if the changing climate affects the guidance from ngā wā ō mua many decades ago. He is working with three different manuscripts, one written in the early 1900s, to explore changes over time.

New marine science research vessel a boost

The University of Auckland's new marine science research vessel, *Te Kaihōpara* (the explorer), is a major benefit for scientists working in marine conservation and research.

Te Kaihōpara was launched through the continuous effort of philanthropist Dr Beate Schuler and the University of Auckland.

Te Kaihōpara will enable long-term goals like maintaining ongoing relationships with Ngāti Manuhiri, extending marine reserves through research, and increasing student research opportunities.

It will immediately support projects such as researching kelp resilience, snapper noise stress by boats, the effects of climate change, the feeding patterns of different species, and potential carbon storage in coastal ecosystems.

"As well as supporting research and teaching, this vessel also provides an excellent way for us to get people more engaged and aware of the state of our marine environment and what we can do to improve it," says Professor Simon Thrush, the director of the University's Institute of Marine Science.

Microplastics alter ecosystem in Auckland's Waitematā Harbour

Waipapa Taumata Rau doctoral candidate, Sam Ladewig, explored how microplastics affect intertidal flats in Auckland's Waitematā harbour, a coastal ecosystem inhabited by clams, cockles, crabs, algae and microscopic worms.

Her research found that nature's fundamental cycles, such as the flow of oxygen through the system, are being altered, with uncertain effects.

"Hopefully, this research will encourage people to think twice about their use of plastic and minimise it where they can," says Sam.

The research was published in *Science of the Total Environment*, with co-authors Professors Simon Thrush and Giovanni Coco, Dr Julie Hope and Dr Amanda Vieillard.



Kapish Gobindlal

Sustainable Development Goal 15:

PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS



209
publications based on
UoA queries

17%
national share of publications
based on UoA queries

84
publications based on
Elsevier mapping

38
courses based on
UoA queries

'Forever chemicals' research may aid global clean-up

Dangerous 'forever chemicals' left in the soil from firefighting foam could be destroyed by grinding, according to a proof-of-concept study by University of Auckland scientists collaborating with the US Environmental Protection Agency (EPA).

'Ball milling' – intense grinding by metal balls at extremely high speed – appears viable for decontaminating soil from military bases, airports and refineries around the world where the foam was used for decades, according to the University and Environmental Decontamination (NZ) Limited (EDL).

Contaminant chemicals from the foam, called PFAs, don't break down naturally and have been linked to cancers, reduced fertility, liver damage and other adverse health effects.

Ball milling in a University of Auckland chemistry laboratory destroyed almost 100 percent of the chemicals in soil from a decommissioned Defence Force firefighting training site and in firefighting foam.

Dr Kapish Gobindlal, an honorary academic at the University and the chief scientist for EDL, says their tests resulted in a safe by-product.

Published in the journal *Environmental*

Science: Advances, the research was by Kapish and his PhD supervisors, Professor Jon Sperry and Dr Cameron Weber, of the Centre for Green Chemical Science, collaborating with scientists Erin Shields and Andrew Whitehill from the US EPA.

This accomplishment aligns with the goals of the University's **Centre for Green Chemical Science**, which emphasises environmental considerations. Professor Jon Sperry says, "This is an example of green chemistry that can help communities, the environment and, in fact, the world."

Microplastics in Auckland's air revealed

A research team from the University of Auckland has determined that approximately 74 metric tonnes of microplastics settle from the atmosphere onto Auckland City each year, the equivalent of more than three million plastic bottles descending from the sky.

The scientists applied advanced chemical techniques to detect and analyse particles as minuscule as 0.01 millimetres.

Dr Joel Rindelaub explains that, "The smaller the size ranges we looked at, the more microplastics we saw."

This is significant because the tiniest particles have the greatest toxicological relevance.

Nanoplastics, the smallest particles, have the potential to infiltrate cells, traverse the blood-brain barrier, and may accumulate in organs like the testicles, liver, and brain. This study represents the initial effort to quantify the overall mass of microplastics in a city's air.

The paper's introduction highlights says: "Over the last 70 years, 8.3 billion metric tons of plastic have been produced globally. Only nine percent has been recycled, with the rest either incinerated or released into the environment."

Joel says: "Future work needs to quantify exactly how much plastic we are breathing in."

Light pollution's deadly toll on Auckland seabirds

New Zealand is a biodiversity hotspot containing about a quarter of the world's seabird species and no less than 27 seabird species breed in the Hauraki Gulf.

Biological Sciences PhD student Ariel-Micaiah Heswall is looking at the detrimental impact of light pollution on Auckland's seabirds and has documented it for the first time.

The Sky Tower and the central business district are identified as focal points for fatalities and injuries. Fewer groundings were reported in rural areas compared with the central business district, except for well-illuminated rural regions.

Ariel-Micaiah's study charted the locations where 365 seabirds, apparently disoriented by artificial light, crash-landed between 2018 and 2021, often following collisions with buildings. Tragically, approximately half (185) of these grounded birds died from their injuries.

Light pollution represents a growing concern for various animal species and contributes to the mortality of millions of birds annually.

Kākāpō microbiome adds to parrot's extraordinary quirks

New Zealand's kākāpō is the world's sole flightless parrot. With only 252 of the parrots left alive, researchers welcome any and every clue that could contribute to the preservation of these birds.

Dr Annie West, from the School of Biological Sciences, has explored the parrot's gut microbiome, which comprises an assembly of bacteria and other micro organisms capable of influencing its health and growth. She analysed samples from 67 chicks in 35 nests during her PhD for a study published in the journal *Animal Microbiome*.

Similar to human studies, research into the microbiome is gaining prominence in animal health investigations and is of particular significance for critically endangered species such as the kākāpō.





Professor Claire Charters

Sustainable Development Goal 16:

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

117
publications based on UoA queries

24%
national share of publications based on UoA queries

106
publications based on Elsevier mapping

69
courses based on UoA queries

Law professor Claire Charters in Human Rights Commission role

In March 2023, Professor Claire Charters (Ngāti Whakaue, Ngāti Tūwharetoa, Ngā Puhi and Tainui) was formally appointed to Te Kāhui Tika Tangata, the Human Rights Commission, in a pōwhiri ceremony.

“The pōwhiri was beautiful. I felt very welcomed and it was lovely that the Law School kaiārahi and my Ngāti Whakaue kaumātua were there to hand me over to the Commission,” says Claire. “It meant a lot.”

In her role, Claire provides tangata whenua leadership with a view to enhancing the Commission’s governance. She also advises and supports existing projects and work to advance understanding of Te Tiriti o Waitangi and the United Nations Declaration on the Rights of Indigenous Peoples.

“Progressing Indigenous Peoples’ rights here is about honouring our tūpuna and ensuring future generations can achieve the vision set down in Te Tiriti o Waitangi.”

Claire was appointed as Rongomau Taketake for one year, part-time, so continued her work in the Faculty of Law.

Finding a place to call home: housing after prison

Associate Professor Alice Mills, a criminologist in the Faculty of Arts from the University, led a new report on housing after prison.

Using data from the Department of Corrections, Alice found that those with unstable housing are 4.6 times more likely to be reimprisoned within the first year after release than those with stable housing.

“We can’t afford as a society not to do this,” Alice says. “Recidivism has a high human and economic cost in Aotearoa, which is why everyone who enters prison, regardless of their status, should be given a detailed housing needs assessment, which should be maintained and updated throughout their stay.”

Corrections and its governmental, iwi and community partners now provide more than 1,200 housing places yearly for prison leavers. However Alice says this provision remains patchy and difficult to navigate and relies on individualised approaches to housing that don’t prioritise whānau and whanaungatanga (building relationships).

First five years crucial for refugee success

Researchers from the Centre for Asia Pacific Refugee Studies at the University have been working to understand the importance of the first five years post-settlement for refugees.

They’ve looked at successful economic outcomes, and considered disparities in income and job status between four sub-groups: quota refugees (who are not faring quite as well), convention refugees, asylum seekers, and those who arrive under the family reunification scheme to join other family members.

Quota refugees already have refugee status before they arrive and go through an initial five-week settlement programme in Auckland; after which they’re automatically New Zealand residents and offered a range of health, education, employment and accommodation support lasting up to two years.

There is a case, looking at this data, for extending this to five years, where marked improvements in income and the percentages of people moving into paid employment happen, says Professor Jay Marlowe from the University. “Although these findings indicate a need for more assistance for quota groups, the team is not suggesting that the Refugee Resettlement Strategy should be limited to quota refugees since it’s clear that all groups follow a similar trend of making positive strides, and this is most pronounced in the first five years,” he says.

“Extending support to all refugee groups could result in quicker and better employment outcomes, even if that would involve higher short-term funding costs, it would be better economically in the long run.”

Treaty inquiry to answer questions

The Waitangi Tribunal honoured Professor Emeritus David V Williams by appointing him to the Tribunal’s kaupapa inquiry ‘Wai 3300’.

“To what extent do Aotearoa’s constitutional and electoral arrangements fit in with the guarantees found in Te Tiriti o Waitangi?”, is one of the important questions David is exploring as part of a new Waitangi Tribunal inquiry, which began in April.

The Tribunal is looking at whether there are ways in which hearing the Māori voice can happen before governments make their decisions and before parliament passes new laws.

Waitangi Tribunal Chairperson Chief Judge Wilson Isaac highlighted David Williams’ long-standing involvement in Tiriti issues and said his legal and historical expertise and experiences added considerable value to the panel.

“It’s what I’ve been talking about, writing about, and teaching about for most of my 46 years as an academic at the University of Auckland,” says David. “Māori are an Indigenous minority, so how can their voice be heard in a meaningful way when the elected majority can always get its way?”



Sustainable Development Goal 17:

STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALISE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT



Students and staff unite to tackle sustainability

The University joined the QS Future 17 programme in September 2022, an educational initiative developed by QS World Merit, the charity arm of Quacquarelli Symonds (QS).

QS Future 17 is led by Exeter University in the UK, where it was initially introduced, and is now expanding its global outreach. The programme brings together students and mentors from universities across Europe, Africa, South America, and Oceania. They collaborate on interdisciplinary projects related to the 17 Sustainable Development Goals. In 2023, the University of Auckland's Future 17 trailblazers includes 20 students and five staff.

QS Future 17 is the first global education programme that focuses on sustainability challenges and bridges higher education

and practical work. Students tap into the expertise and teaching power of experts around the globe, including five academics from Auckland.

The programme also involves New Zealand companies and organisations keen to have students help solve their problems, or work with them to find solutions.

"I can see why the University grabbed the chance to be involved in this. It fits well with the University's values and the direction it's taking," says Andrew Patterson, the University's academic lead for this initiative.

Future 17 is offered through the Business School as a 15-point, stage three course. The University hosted a kick-off event at the Centre for Innovation and Entrepreneurship in February 2023, where students and mentors met for the first time.



Anais Knight, one of the inaugural cohort of Future17 students, receives a certificate from Professor Bridget Kool.

Waipapa Taumata Rau sponsors Te Matatini 2023

Waipapa Taumata Rau sponsored Te Matatini 2023, New Zealand's national Kapa Haka festival. The University's sponsorship aligns with *Taumata Teitei*, its strategy to enhance kaupapa Māori.

Te Matatini 2023 was held in Tāmaki Makaurau at Eden Park in February. It is hosted in a different location each time and it was the first time it had been held in Auckland for 21 years. The biennial event is considered the Olympics of kapa haka – bringing together the country's elite competitors. The competition has seven competitive categories allowing groups to showcase something of significance to where the group is from.

Each of these represents a particular type of Māori performing art, including singing, dancing, chanting, and telling stories connected with customs, ancestors, and histories.

In 2023, the University had around 20 people **taking part**, from staff to students, with many being part of groups that made the top 12 and six kaihaka (performers) being crowned champions.

Agreement signed with university in Vietnam

During a high-level business delegation visit to Vietnam led by former Prime Minister Jacinda Ardern, Professor Dawn Freshwater, Vice-Chancellor of the University of Auckland, signed an agreement in Hanoi with Ho Chi Minh City University of Technology (HCMUT).

The signing between the University's Faculty of Science and the Faculty of Computer Science and Engineering at HCMUT took place at an event hosted by Vietnam's Deputy Minister of Education and Training. The University of Auckland has several existing partnerships with Vietnamese tertiary institutions.

In October 2022, it announced a scholarship for new international undergraduate and postgraduate students from Vietnam, offering up to \$20,000 for compulsory tuition fees.

During the Covid pandemic many international students, including from Vietnam, studied remotely with the University while borders were closed. Says Professor Freshwater: "In this digital age, information is passed on and shared within milliseconds across borders, languages, and faiths. Regional and international collaborations are paramount."

Technology conference addresses climate crisis

The inaugural Blue and Green Technology Conference, a collaborative effort between UniServices at the University of Auckland and the United States Embassy & Consulate New Zealand, was held in December 2022. Notable figures participated from the government and business sectors of both countries, sharing their insights and knowledge.

Several members of the then government spoke via video, including Prime Minister Jacinda Ardern and Minister of Climate Change James Shaw. US Ambassador Tom Udall and Rod Carr, chair of He Pou a Rangi Climate Change Commission took the stage in person.

Themes included trade and finance for change, decarbonisation, building a clean-tech ecosystem, climate and energy justice. Emissions removal was a big talking point. Carr told the group: "Offsets aren't removals. Offsets have become a lie we tell ourselves and a fraud on our children."

ABOUT THIS REPORT

This report summarises a range of activities that Waipapa Taumata Rau, University of Auckland undertakes to meet the Sustainable Development Goals (SDGs). These activities all relate in some way to one of the core elements of the University's function, spanning research, teaching, operations, engagement and partnerships.

We have substantiated the report with quantitative research and teaching-related SDG metrics, as well as a range of qualitative case studies.

The University has continued to work towards reducing inequalities, poverty, and hunger among our staff, students and the wider community, as well as contributing to solutions for a wide range of social, economic, environmental, and health-related challenges.

This year's report is a list of a proportion of our activities and initiatives, capturing both our ongoing commitment to addressing a variety of global challenges, as well as a range of other activities that we have adapted to suit the current circumstances.

We are 100 percent committed to the Sustainable Development Goals and believe the underlying principles of the SDGs are more relevant than ever in the current global climate.

SDG metrics

Publications and related research metrics are reported for each SDG based on a hybrid approach. In addition to reporting research publications captured by Elsevier's 2022 **SDG mapping**, the University of Auckland is also committed to reporting SDG research publications using the 'Auckland Approach', which represents the effort of the University to localise SDG mapping to account for the context within which our research activities take place.

What our method adds is the ability to capture relevant but very locally specific terms. These may include, for example, specific geographical locations, or locally used terms for general academic concepts. This method builds on the SDG mapping partnership with Elsevier, Aurora, and the University of Southern Denmark in which best practices for SDG mapping are shared.

This SDG localisation effort has extended our understanding of the SDG research activities that are unique to the University of Auckland, our Māori and Pacific communities, Aotearoa New Zealand, and the Pacific region. In 2021, the University made a further attempt to generalise the Auckland SDG research mapping approach to understand our learning and teaching activities.

Courses taught in 2020 are mapped onto the SDGs based on metadata contained in the course catalogue. This course mapping effort identified 735 SDG-related courses out of the 2,814 courses offered by the University of Auckland in 2021.

More information about the University of Auckland SDG Mapping project is available at: www.sdgmapping.auckland.ac.nz

Case studies

Striving to pick a range of initiatives from across the University, we shortlisted a diverse set of case studies based on comprehensive consultation with key stakeholders undertaking these activities.

These case studies cover examples of research, teaching, operations, engagement and partnerships, and were chosen because they highlight clear contributions to the respective SDGs involved. This SDG report lists only a few of the many initiatives undertaken by the University of Auckland.

Our sustainability news and opinion pages are regularly updated with the latest information about University of Auckland initiatives and activities towards the SDGs, while our feature repository, Mātātaki The Challenge, explores some of these initiatives in-depth.

The University of Auckland has formal Sustainability Strategy, Te Rautaki Aronga Toitū, as well as a Net Zero Carbon Strategy, Te Taumata Tukuwaro-kore. Both of these documents can be found on our **website**.

UNIVERSITY IMPACT RANKINGS

The 17 Sustainable Development Goals (SDGs) 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.

Launched in 2019 by Times Higher Education (THE), the University Impact Rankings measure how universities worldwide are performing against the SDGs.

The University of Auckland has consistently ranked within the top one percent globally in all ranking years to date. These outstanding results recognise and reaffirm the University of Auckland's strong commitment to sustainability and making a positive social impact through its partnerships, research, teaching, operations, community engagement and knowledge transfer.

In 2023, 1,705 universities were ranked, from 115 countries and regions.

Sustainable Development Goal	Our Rank 2023
Overall ranking for impact	12
SDG 1: No poverty	40
SDG 2: Zero hunger	21
SDG 3: Good health and well-being	=40
SDG 4: Quality education	101-200
SDG 5: Gender equality	11
SDG 6: Clean water and sanitation	11
SDG 7: Affordable and clean energy	42
SDG 8: Decent work and economic growth	101-200
SDG 9: Industry, innovation and infrastructure	60
SDG 10: Reduced inequalities	=21
SDG 11: Sustainable cities and communities	=27
SDG 12: Responsible consumption and production	32
SDG 13: Climate action	22
SDG 14: Life below water	16
SDG 15: Life on land	6
SDG 16: Peace, justice and strong institutions	22
SDG 17: Partnerships for the goals	=39



**UNIVERSITY OF
AUCKLAND**
Waipapa Taumata Rau
NEW ZEALAND



**SUSTAINABLE
DEVELOPMENT
GOALS**

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