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Cover image by Nicholas Gartner, winner of the 2021 Sustainability Photo Competition.



# FROM THE DIRECTOR

The COVID-19 pandemic was still ever-present through 2021. The continued restrictions it created, the extra workload, and the constant replanning were exhausting, but it was less shocking than in 2020. For much of the year, we were able to refocus on our sustainability objectives. The progress presented in this report is encouraging, and it is always good to take a step back from the day-to-day work to reflect on what has been achieved over the past year.

I feel more optimistic about our chances of achieving a sustainable future than I ever have in my career. Our New Zealand government is making sustainability issues a greater priority and the general public seem more engaged and open to change. The tide is turning. Here at Te Herenga Waka—Victoria University of Wellington, our commitment to sustainability has transitioned from aspiration to reality. Flagship projects such as the Living Pā redevelopment of our marae precinct signal that the University is embracing sustainability. Our students continue to bring enthusiasm and challenge us to do more.

My team, and the wider University, now has the pleasant problem of keeping up with demand for sustainability, rather than struggling to get it on the agenda. While that change is exciting, we can't let the opportunity slip. The environmental crises the world faces are immense and we need to rapidly grow our capacity to respond to them. My job is to mobilise the resources, expertise, and passion of the University to maximise our contribution to a sustainable future. Time is of the essence and there are still plenty of challenges, but we know it can be done.

Ngā manaakitanga,

Andrew Wilks Manutaki, Toitūroa—Director, Sustainability

## AT A GLANCE

Globally ranked in 2021\*

=236th

of the world's 18,000 universities\*

**Top 1%** 

of the world's universities for 20 subjects and in the top 2% of universities overall

In the world's top 100 for 11 subjects

and Literature, Geology, Hospitality and Leisure Management, Law, Library and Information Management, Linguistics, Performing Arts, Philosophy, Politics and International Studies, Psychology

Top ranked university

for intensity of high-quality research (latest Performance-Based Research Fund evaluation). More than 2,200 publications resulting from our researchers' work were published in 2021 (2,178 publications in 2019)

500 EFTS\*\*

The increase to the number of Māori students since 2013, an increase of **33%** 

**311** EFTS\*\*

of Pasifika students since 2013, an increase of **40%** 

\*QS World University Rankings 2021 \*\*Domestic equivalent full-time students



\$27.8<sub>M</sub>

invested in scholarships by the University



**95**%

of teachers were assessed by students as 'good', 'very good', or 'excellent'

Equivalent full-time students

16,931

**Government funded** 

1,311

2,329 staff (full-time equivalent)

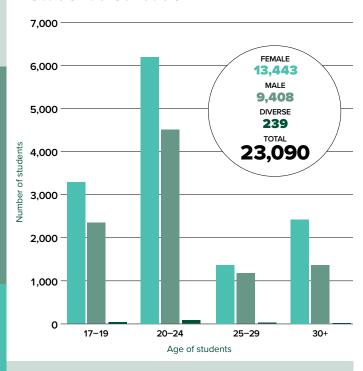
1,147

teaching and research staff

Total revenue

**Total expenditure** 

#### Student distribution<sup>1</sup>



\$89.0<sub>M</sub>

**External research income** 

\*\*\*16,925 SAC funded and 6 STAR funded <sup>1</sup>Student distribution by headcount



# **2021 BY THE NUMBERS**



#### **WOMEN ON SENIOR LEADERSHIP TEAM**

42% (down from 46% in 2020)



#### **MĀORI STUDENTS**

11.9% (up from 11.5% in 2020)



#### PASIFIKA STUDENTS

6.5% (up from 6.1% in 2020)



#### STUDENT **VOLUNTEER HOURS**

9.563 (up from 9,290 in 2020)



### **SUSTAINABILITY-FOCUSED MEDIA RELEASES**

30 (resulting in 38 media stories)



## STUDENT **SCHOLARSHIPS** OFFERED IN **SUSTAINABILITY TOPICS**

(worth \$59,500)



## RESEARCH **PUBLICATIONS IN ENVIRONMENTAL SUSTAINABILITY**

568 (up from 505) in 2020)



## **COURSES OFFERED IN ENVIRONMENTAL** SUSTAINABILITY

109 (up from 96 in 2020)



#### **ENROLMENTS IN ENVIRONMENTAL SUSTAINABILITY COURSES**

5,905 (up from 5,509 in 2020)



## **GROSS CARBON EMISSIONS**

9,250 tonnes (down 52% from 2017 baseline)



#### **WASTE TO LANDFILL**

458 tonnes (up from 395 tonnes in 2020)



#### **TREES PLANTED**

2,400 (up from 1,000 in 2020)

# **OUR APPROACH AND COMMITMENT TO SUSTAINABILITY**

With the world still in the grip of COVID-19 for the duration of 2021, its impact has continued to be felt across practically every part of Te Herenga Waka-Victoria University of Wellington. But the pandemic has also shown the huge potential of collective action and the power that behaviouralchanges can have in the face of a critical situation. In the context of sustainability, we know we need to work together to reduce environmental degradation—we understand what needs to be done and we already have the tools to make it happen. Human health and wellbeing is dependent on a healthy natural environment—a more sustainable society will provide people with greater resilience for future pandemics.

But change on this scale requires unswerving leadership. Here at Te Herenga Waka, we accept our responsibility as critic and conscience of society to lead by example. That's why we are committed to making a positive difference when it comes to societal, economic, and environmental concerns. Our world-class research. teaching, and knowledge transfers, as well as our day-to-day operations, reflect this.

Our iho (essence) is that we are a global-civic university with our marae at our heart. The Living Pā project to redevelop our marae complex responds to this iho and provides an exemplar for how we can fulfil our responsibility as kaitiaki. Bringing together mātauranga Māori and sustainability philosophies, it is conceptulised and designed to achieve the highest environmental standards and to be a place for communities to reconnect with nature. In a single project, the Living Pā contributes to our sustainability

outcomes across all functional areas of the University, providing inspiration for us all.

Our leadership in the area of sustainability is reflected in the University's commitment to the United Nations' Sustainable Development Goals (UN SDGs). Te Herenga Waka has pledged to be part of the global effort to deliver the SDGs by 2030.

The University's Wellington School of Business and Government (WSBG) is an advanced signatory to the UN's Principles for Responsible Management Education (PRME), an initiative that promotes sustainability and the SDGs in business schools globally. The 2021 PRME report highlights WSBG's ongoing commitment to upholding the SDGs and encouraging sustainability and ethics through a range of initiatives.

The University's strength in the area of sustainability has been recognised internationally—we are in the top 200 universities worldwide in the Times Higher Education University Impact rankings, which measure how universities are contributing to the UN's SDGs. Te Herenga Waka was ranked 17th for SDG 7—Affordable and Clean Energy, and 20th for SDG 16—Peace, Justice and Strong Institutions.

As encouraging as it is to be recognised for our work, it is not our main motivator. Our sustainability efforts through teaching, research, community engagement, and operations practices go back years, and Te Herenga Waka remains steadfastly committed to the cause because we understand the immense value and potential benefits these endeavours have. Our society depends on it.



Illustration of the Living Pā by stantialIstudio.co.nz

# LEARNING, TEACHING, AND RESEARCH

The pandemic has forced us to change the way we deliver our teaching and collaborate with our research partners. It has taken an extraordinary effort from our staff and students to adapt to the extraordinary circumstances but, throughout it all, we have been dedicated to maintaining our high academic standards. The environmental crises we face have not paused while we grapple with the pandemic. We still need our researchers to be discovering new knowledge and innovative solutions and we still need graduates with the skills to navigate our transition to a sustainable future. In 2021, we continued to build the sustainability content in our curriculum and increased our research focus on issues of environmental sustainability.

Most of our students engage with sustainability issues during their time at university through activities and clubs on campus, our extracurricular leadership programmes, or their programme of study. We continue to introduce new courses or programmes that have a sustainability focus. In 2021, our Wellington School of Business and Government introduced a new minor in Business Ethics and Sustainability Management, in which students critically analyse the UN's SDGs from a diverse range of perspectives and learn to apply the principles of sustainability and business ethics in the private, public, and not-for-profit sectors in Aotearoa New Zealand and globally.

Across the University, we offered 109 courses with a strong focus on environmental sustainability in 2021, up from 96 in 2020. These 109 courses are spread across all nine of our faculties and include both undergraduate and postgraduate courses. While it is good that we continue to introduce more sustainability content, the 109 courses offered are still only 5.4 percent of all the courses provided by the University. Furthermore, while it is positive that we have sustainability-focused courses available in all our faculties, half are taught in the Wellington Faculty of Science, with far fewer in the other faculties. To solve the sustainability challenges we face as society, we need multidisciplinary perspectives—we can't just rely on the scientists.

Pleasingly, there are clear signs that students are eager for the additional sustainability content in the curriculum. Enrolments in the sustainability-focused courses offered in 2021 were 5,905, up from 5,509 in 2020. This increase continues the trend of recent years, where enrolments in those courses have increased by 109 percent compared with 2015.



Image by Huzaifa Zubairi, honourable mention, in the 2021 Sustainability Photo Competition.

In 2021, despite the restrictions of the pandemic, we maintained our excellent research performance in issues of environmental sustainability. We continued to provide a lot of internal funding to researchers for sustainability-focused research. However, a strategic driver for the University is to increase our external research income. In 2021, we received 59 external research grants worth \$62 million for research work on environmental sustainability issues. This included significant funding to continue to host the MacDiarmid Institute, a national centre of research excellence that specialises in sustainable material science.

We use the global research databases Scopus and SciVal to track research activity related to the UNSDGs. Of the 1,700 articles, chapters, conference papers, or books that we published in 2021 (as tracked by Scopus/SciVal), 568 of them were related to the SDGs (up from 505 in 2020). This included 82 publications related to SDG 11—Sustainable Cities and Communities, and 79 publications related to SDG 13—Climate Action.

Some of the research highlights from 2021 include:

Te Herenga Waka marine biologist Dr Christopher Cornwall was awarded a prestigious Prime Minister's Science Prize for his research on the impacts of climate change on the marine environment. His work, which looks at the effects of ocean acidifcation caused by increasing anthropogenic carbon dioxide concentrations in seawater, earned him the \$200,000 MacDiarmid Emerging Scientist Prize. Dr Cornwall is the third researcher from the University to win that prize, and his success follows the awarding of the top Prime Minister's Science Prize to a team from the University's Te Puna Pātiotio—Antarctic Research Centre the previous year.

- An all-woman research team from Te Puna Pātiotio— Antarctic Research Centre headed to the ice in November to collect data at the Ross Ice Shelf. The ice shelf plays a key role in limiting ice loss from Antarctica, meaning it was important to understand how sensitive it was to changes in climate, team leader Alanna Alevropoulos-Borrill said. Data collected would help scientists predict future ice loss and how much the Ross Sea catchment would contribute to sea level rise if the entire catchment collapsed it could potentially raise global sea levels by as much as 12 metres. Ms Alevropoulos-Borrill, a PhD candidate, said it was a privilege to be leading an all-woman team. "We hope to change the dominant image of the 'polar explorer' and tell more stories about the women who work in the harsh conditions of the Antarctic continent."
- A number of sustainability-focused innovations developed by researchers at Te Herenga Waka have been brought to the world through the University's research commercialisation arm, Te Paewai—Wellington UniVentures. These start-up companies include Liquium, which is revolutionising ammonia production through cleaner, greener processes. Vice-Chancellor Grant Guilford said the University's researchers were working tirelessly to address a range of challenges, including climate change, in order to find ways to improve the lives, health, and happiness of people the world over. "Through commercialisation of their research, we can help our talented researchers bring their ideas into the places where they can help our global communities to thrive."

Team leader Alanna Alevropoulos-Borrill in Antartica, part of the first all-woman research team from Te Puna Pātiotio— Antarctic Research Centre.

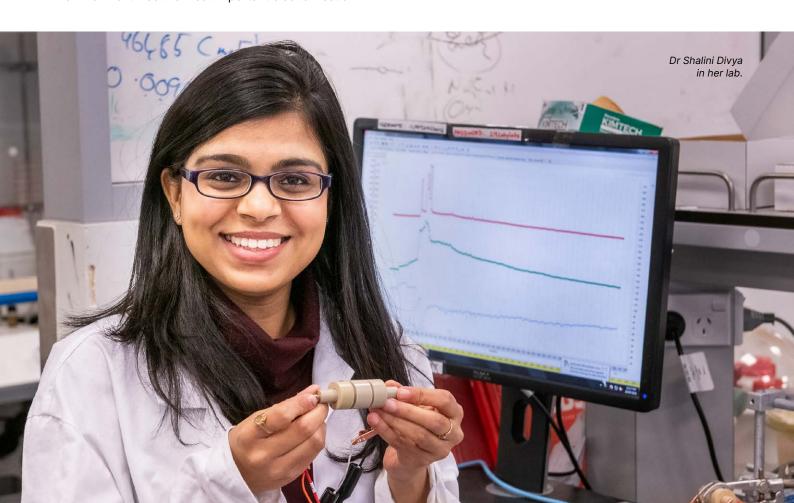


- With the help of Te Paewai—Wellington UniVentures, a Te Herenga Waka alumna has been recognised for her years of work creating sustainable batteries. Dr Shalini Divya won a Kiwinet Breakthrough Innovator Award for her research on creating a more affordable, safer, and more sustainable alternative to existing lithium-ion battery technology. Her research culminated in the creation of a new material to be used in aluminium-ion batteries that outperforms most available energy storage materials. Dr Divya launched the start-up company Tasmanlon to take her research to market. "When the sun doesn't shine or the wind doesn't blow, we need batteries to store renewable energy reserves to help make our energy use more sustainable," she said. "Sustainable batteries to support renewable energy will also help secure the energy needs of communities around the world, which is a huge step in lifting people out of poverty."
- New research was published showing more effort needs to be made by climate-change campaigners to tackle the public's lack of urgency on the issue. Dr Sam Crawley, a PhD graduate from the University's Political Science and International Relations programme, found that people saw climate change as an important issue, but not the most important. As part of an online survey he conducted in the United Kingdom, he asked respondents to rank eight issues (climate change, crime, the economy, education, healthcare, immigration, poverty, and terrorism) from most to least important. He found that 38 percent ranked climate change as least important, with a further 15 percent placing it seventh out of eight. Dr Crawley found similar results in other countiries across the European Union, and in New Zealand fewer than 5 percent of respondents in a 2017 study said the environment was the most important election issue.

Our academic staff from all parts of the University are undertaking ground-breaking research on issues and innovations that will help protect our environment and enhance the lives of people. The challenge we have is one of impact. It is not enough to simply generate exciting new knowledge. We need to ensure that knowledge generates positive change—that it is reaching the right people and that it is influencing decision-making—so we have to be both excellent researchers and effective communicators. It is a big challenge, and sometimes the impact may take years to become evident, but we must remain dedicated to the cause.



Image by Angelicia Anthony Thane, people's choice winner in the 2021 Sustainability Photo Competition.



## **ENGAGEMENT**

With Wellington in the fortunate position of having a largely lockdown-free 2021, staff, students, and the wider university community were able to take advantage of that relative freedom through a range of sustainability-focused engagement activities on and off campus.

A major project that will eventually see thousands of native trees being planted by our community got under way in July. Growing Our Future is a flagship initiative that will help Te Herenga Waka reach carbon zero by 2030. The University has committed to planting 100,000 trees over the next 10 years, starting with an 11 hectare site in Ohariu Valley that is being leased from the Wellington City Council. The project serves a dual purpose—not only will it help us meet our zero carbon goals, but it will also allow research into the best combination of native species for rapid reforestation, to achieve carbon sequestration as well as wider benefits to soil health and biodiversity. The project kicked off in July with a three-day planting mission in which more than 300 volunteers from across the University planted 2,400 trees at the site. The effort was helped by Conservation Volunteers New Zealand and Wellington City Council, with sponsorship from Rotary New Zealand.

A week of events full of fresh thinking about ways to create a more sustainable world was held at the University in May. Toitū te Ao—Sustainability Week was a chance for students and staff to come together and learn something new about sustainability and environmental issues at Te Herenga Waka, while also having fun. Sustainable markets, a coastal clean-up, the launch of a worm farm, vegan cookery classes, a recycling drive, a cycle tour of an organic urban farm, and the low-waste SustainaBall were just some of the activities throughout the week.

A competition to find the best sustainability photographers among the University's staff and students was held in July. Submissions had to capture the essence of how Te Herenga Waka contributes to a sustainable future and protects both the environment and human wellbeing. Entries depicted the various ways the University shares knowledge about what can be done, how we research new opportunities to do things differently, and how we make improvements to reduce our ecological footprint through our day-to-day operations. Judges selected first, second, and third placegetters, and a prize was also awarded to the winner of a People's Choice award.

Green Impact, a fun and flexible programme that enables staff and students to take practical action to make the University more sustainable, has had more than 50 staff and student teams take part across our three campuses, completing more than 500 sustainable actions. The award-winning UN programme started at Te Herenga Waka in 2019 and rewards people for taking action to support sustainability goals. Teams from libraries, faculties, schools, and central service units have taken part in Green Impact, with efforts ranging from adding potted plants to desks, choosing tap water over bottled, shutting office blinds and curtains each evening to prevent heat loss, or changing their default search engines to one that plants a tree for every 50 searches. Some teams held fundraisers, while others delivered sustainability-themed lectures as part of their course programmes. Teams were audited by students to verify their work, with 100 percent of participating groups reporting positive changes in the pro-environmental behaviour of staff.



Our engagement activities also extend to our relationships with external partners. The sustainability challenges we face as a society require collaborative solutions and the support of the wider community. Just some of the work we are doing with our stakeholders in the wider community is highlighted here.

- A joint effort to support capability and outreach in the renewable energy sector was announced in November between Te Herenga Waka and Te Kura Matatini o Taranaki—Western Institute of Technology at Taranaki (WITT). The agreement will support joint programmes and micro-credentials; collaboration between staff, students, and others; shared research facilities; and secondary-school outreach in the field of renewable energy. The aim, according to Professor Dale Carnegie, the University's dean of Engineering, is to develop innovative solutions to reduce New Zealand's carbon emissions. "Alongside our iwi and industry partners, this collaboration combines our collective skills and expertise and brings together an amazing team focused on solving one of the greatest challenges of the coming decades." The chief executive of WITT, John Snook, said WITT was committed to becoming an energy education centre of excellence in Aotearoa. "Working with the University and sharing our knowledge and expertise means we can be more effective at co-creating real solutions for the challenges ahead and bringing opportunities for our students and the region."
- Research being led by Te Herenga Waka aims to develop new technology that will make zero-emission electric passenger aircraft a reality. A three-way memorandum of understanding between Air New Zealand, the University's Paihau—Robinson Research Institute, and Te Paewai—Wellington UniVentures is expected to culminate in the development of superconducting electric motors for the global aviation industry. The agreement is a step towards Air New Zealand's goals of net zero emissions by 2050 and putting low-carbon aircraft on shorter domestic and regional flights in

- the next decade. The Paihau—Robinson Research Institute is leading a seven-year programme called the Advanced Energy for Transport Platform with a grant from the Ministry of Business, Innovation and Employment. Robinson's Professor Rod Badcock said superconductors were the cornerstone of the institute's research for the past 20 years, and they were the only technology powerful or light enough to propel aircraft. "We have brought together a team of researchers from across New Zealand and internationally to work together on this challenge. We need deep connections with our partners in industry if the research is going to have a real impact. Air New Zealand is our source for real-world flight data and aviation industry considerations that inform all our work."
- Wellingtonians had a chance to get up close and personal with all kinds of sea creatures and learn about exciting marine biology discoveries happening right on their doorstep at the annual open day of Te Toka Tū Moana — Wellington University Coastal Ecology Lab (WUCEL) in March. Visitors of all ages were able to interact with marine animals, see research equipment in action, and ask WUCEL scientists anything they wanted to know about marine biology. Interactive displays, including a touch tank full of fascinating sea life, were very popular with the visitors. Lab director Associate Professor Nicole Phillips said, "Open days give our researchers a chance to share our discoveries and how we go about trying to answer some challenging questions. It's a great way to get people thinking about the serious issues that affect our marine environment."

The increasing engagement with sustainability issues among students and staff and with our wider community is encouraging. But we are often preaching to the converted when it comes to sustainability. The people we see at events, or working on projects with us, are normally the early adopters. The big challenge is trying to engage the masses, who tend to like the idea of sustainability but need more encouragement to act on it.



# **OPERATIONS**

While Te Herenga Waka continues to make great strides in the area of sustainability through our research, teaching, and engagement, we are also conscious of our obligation to incorporate this kind of environmental focus into our day-to-day operations. With 23,000 students, 2,300 staff, and more than 280,000 square metres of buildings, the University has a large ecological footprint. This makes it imperative that we do whatever we can to minimise the resources we use, improve how we contribute to biodiversity, and actively reduce our impact on the climate.

Like many other large organisations, a positive side effect of the COVID-19 pandemic has been an improvement to the University's sustainability by significantly reducing our environmental footprint. Air travel dropped by more than 90 percent, and online teaching meant fewer people came to the University in person, resulting in a reduction in commuting and the use of consumables, electricity, gas, paper, and water on campus.

A study by Te Herenga Waka environmental psychologist Dr Wokje Abrahamse and her Master's student Elizabeth Frude into the habits of students and staff during lockdown revealed three notable lifestyle changes. Firstly, people were found not to shop as much, and even after lockdown lifted, they showed a strong preference for supporting local businesses. This applied to food consumption in particular—many people allocated more time to cooking at home instead of opting for takeaway meals, which is not only healthier but also uses less packaging. The second change was that lockdown also proved the viability of working and learning from home, which makes us more adaptable and resilient to

future events. Many people continued to see benefits in working from home even when lockdown was lifted and, as a result, demand for parking on campus has fallen considerably. The third change noted in the study was that lockdown saw more people running, walking, and cycling, giving them an appreciation for how pleasant neighbourhoods were with few automobiles on the roads. Study interviewees reported health benefits and financial savings from using active, zero-carbon modes of transport.

The challenge for us all is to ensure these sustainable lifestyle changes stick. To that end, the University is continuing to encourage active transport for commuting, and is providing guidance for all staff on flexible working arrangements. We have also continued to deliver teaching both online and in person.

A major financial commitment by the University will see the redevelopment of the Te Herenga Waka marae complex into a world-leading sustainable building, the Living Pā. The finished complex will be one of the most environmentally sustainable buildings in the world, and aims to transform the way we realise our culture and values by drawing together mātauranga Māori and sustainability practices into its design. The University Council confirmed investment of up to \$45 million in the Living Pā project on 6 December, 35 years to the day that the University's carved wharenui, Te Tumu Herenga Waka, was opened. Work got under way to prepare the site at 42-50 Kelburn Parade earlier in 2021. Deputy Vice-Chancellor (Māori) Professor Rawinia Higgins said the Council's commitment was an exciting milestone for the project. "The overarching vision of the Living Pā has



always been about building our community as a university, reflecting our Te Herenga Waka name. An investment in the Living Pā is an investment in our people—Māori and non-Māori, students, staff, and our wider external communities."

A Sustainability Week initiative resulted in cafés on campus going 'single-use-cup free' by serving takeaway drinks in reusable cups only. Customers were encouraged to either bring their own mug for their brew, borrow one from the university-wide Auraki Returnable Cup scheme, or make the time to stay and drink their coffee at the café. The week-long change collectively saved thousands of disposable cups from heading to landfill, and the initiative proved so successful that from February 2022, all cafés on campus will be serving drinks in reusable cups only. This is a great example of collaborative action, where all the cafés on campus the Hunter Lounge, the Lab, Louis', Milk and Honey, Vic Books, and Wishbone, who are all independent operators —have collectively supported the initiative. It will save hundreds of thousands of cups from landfill each year and engage people on campus with sustainable action every day.

We welcomed thousands of slimy, wriggly new members of the University community with the installation of a set of worm farms outside the Rankine Brown building. The worms are fed on food scraps from offices, and the castings will be used to fertilise campus gardens. The trial was a collaboration between the Sustainability Team and Property Services and is now being expanded across the campus.

Our Property Services team continued to reduce the environmental impact of our campus facilities. This included:

- LED lighting upgrades for the Rankine Brown building and the floodlights at Boyd Wilson field to reduce energy consumption and carbon emissions
- displacing natural gas as a fuel source for 14 Kelburn Parade and our tennis court clubrooms, with cleaner and more energy-efficient electric options. Planning also commenced on removing one of our natural-gas boilers in the von Zedlitz building
- the introduction of our new staff parking strategy, which did away with annual permits for the 23 percent of staff who drive to campus. Instead, staff and students now pay for each day of parking, which better incentivises alternative transport modes or working from home
- the composting of paper towels from bathrooms to reduce waste to landfill and help feed our worm farms
- design work for the refurbishment of the Kirk precinct, including significant upgrades to the thermal performance facade and replacing the heating system with low-carbon alternatives.



The impact of the pandemic was quite different in 2021 compared with 2020. In 2021, we had a full year of borders being closed, so there was less air travel. However, in 2021 we spent far less time in lockdown, so the consumption of water and energy increased slightly, along with waste to landfill. The increased ventilation requirements in response to the pandemic have also contributed to increasing energy consumption.

It will be a very different year in 2022. The borders will open and air travel will return to significant volumes again. But, hopefully, the lessons we have learnt during the pandemic and the operational changes we have made will keep carbon emissions well below pre-pandemic levels.

Environmental performance indicators	2021	2020	2007
Electricity (GWh)	18.6	18.5	23.6
Natural gas (GWh)	16.3	16.0	20.1
Air travel (km)	3.8 million	11.1 million	39.0 million
Commuting by car (km)	4.9 million	4.4 million	10.5 million
Water (m³)	99,000	85,000	178,000
Waste to landfill (kg)	458,000	395,000	522,000
Paper (reams)	12,600	15,500	65,700
Trees planted	2,400	1,000	-
Carbon (tonnes CO <sub>2</sub> e)	9,250*	10,715	19,129

<sup>\*</sup>Preliminary result—yet to recieve third-party verification.



Image by Emma Cullen, third place winner of the 2021 Sustainability Photo Competition.







CAPITAL THINKING. GLOBALLY MINDED. MAI I TE IHO KI TE PAE

www.wgtn.ac.nz/sustainability