UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Pūrongo Toitū te Taiao
2022 UC Sustainability Report

manaaki tangata, manaaki whenua

Hei Whakaupoko i ngā Kōrero | Executive Summary 3
Ngā mihi| Acknowledgements 4
Message from the Tumu Whakarae | Vice-Chancellor Cheryl de la Rey 5
Message from the Pro-Vice-Chancellor, Sustainability 7
1 Whakamahuki o te Mahere Toitū te Taiao | UC Sustainability Planning Overview 9
Context and Drivers 9
Sustainability Policy 9
Sustainability Plan 2020-2030 11
UC Sustainability Plan summary 11
Sustainability Governance 12
2 Teaching & Learning 13
Develop system to identify and record SDG related courses 14
3 Research Programme 16
4 Becoming Carbon Net Neutral 20
Carbon reduction 21
Carbon sequestration and/or off-setting 22
Climate change resilience and adaptation 22
5 Environmental Sustainability 23
Transport Planning 24
Cycle Planning 24
Electric Vehicles 25
Biodiversity 25
Biodiversity Plan 25
Waterways Monitoring 29

Water Use 30
Birdlife 31
Waste Profile 33
2022 Waste Profile 33
2022 Waste Audit 33
Compostable Packaging 33
Waste Plan Update 34
Furniture disposal 37
Sustainable Food and Drink Planning 38
Fair Trade 38
Milk 39
6 Grow our Sustainability Networks 40
Sustainable Development Goals Summit Series 41
Tītohu Tūroa | Sustainability Showcase 41
Sustainability Events and Student Engagement 41
Paper purchasing 42
Tāpiritanga | Appendices 43

Hei Whakaupoko i ngā Kōrero | Executive Summary

This report uses the Sustainability Chapter of the University of Canterbury's Strategic Vision 2020-2030 as the basis for measuring UC's progress against its sustainability targets.

During 2022, the formation of the Sustainability Committee, a subcommittee of Academic Board, began improving transparency around the University's contributions to sustainability in research, and teaching and learning. Progress also continued on carbon reduction programmes, notably with ground works for the Science Precinct's ground source heat pump commencing. The biodiversity programme got underway in earnest, with considerable student support. Finally, the Sustainability Showcase with Christchurch City Council, many student-focused sustainability events and participation in the national programme of Sustainable Development Goals Summits further embedded our commitment to engagement for sustainability locally and nationally.

Ngā mihi| Acknowledgements

Tari Toitū te Taiao | Sustainability Office would like to thank these individuals for their help and reporting contributions: Professor Jan Evans-Freeman, Matt Morris, Chloe Sutton, Associate Professor Michaela Balzarova, Matt Young, Wayne Walsh, Seamus Moran, Rory Lennox, Elysia Harcombe, Dr Frances Charters, Tony Sellin, Jenny Ladley, Kavit Sharma, Professor Jim Briskie, Ashley Dai.

Photography: Erica Austin, Thung Chutrchaivech, Corey Blackburn, Malcolm McRae, Chloe Sutton, Fiona Glennie, Andrew Chen.

Message from the Tumu Whakarae | Vice-Chancellor Cheryl de la Rey

Kia ora,

It is my pleasure to present the University's twelfth annual Sustainability Report.

2023 is our 150th anniversary, and as we look back over the last 150 years with a sense of pride in how the University has overcome major challenges to grow and develop into one of the world's top ranked institutions, we also draw inspiration in our resolve to tackle the challenges facing us presently and in the future.

It is clear that there is a need for an urgent response to global sustainability challenges. Close to home 2023 commenced with what Prime Minister Chris Hipkins described as the 'most significant weather event New Zealand has seen this century'. Cyclone Gabrielle tore through the north island, devastating homes and businesses and critical infrastructure, and leaving a trail of destruction that will likely cost billions of dollars to remedy. A national state of emergency was declared; it is only the third time in New Zealand's history this has been done. These extreme weather events bring into sharp relief the need to prepare our communities better for what is coming, while also doing what we can to mitigate climate change.

Universities must play a critical role in securing a liveable, more sustainable future for all. The University of Canterbury's Sustainability Plan spells out how we intend to rise to these challenges, and this year's report explains the progress we made during 2022.

Research led by Distinguished Professor Steven Ratuva's exemplifies the kind of research contribution our academic staff are making to find solutions to the 'wicked problems' we collectively face. The $4.6m (NZD) Pacific Ocean and Climate Crisis Assessment (POCCA) is a multi-disciplinary project in collaboration with the University of the South Pacific, funded by the Ministry of Foreign Affairs and Trade. During 2022, together with over 100 researchers from 16 countries who are involved in the project, the research team is seeking a way to frame future climate proofing policies for the Pacific and Aotearoa New Zealand.

We also remain strong in our teaching and learning contributions to sustainability. The new Bachelor of Social and Environmental Sustainability and Bachelor of Environmental Science have been very well received by the student community. Indeed, Environmental Science students are leading important hands-on work protecting our campus environment – an incredible testament to their passion for this subject. Sustainability is prominent throughout the curriculum and in all Faculties, and students are also increasingly interested in expanding their learning through informal channels, as can be seen by their consistently strong involvement in sustainability related events and activities.

We also commenced a significant piece of work to understand climate-related risks to our physical infrastructure. Stage One of this project, completed in 2022, followed a best-practice methodology to identify high level risk categories, the basis for more fine-grained analysis in 2023. Mana whenua and student input was a critical component of this assessment. At the same time, we have been working to align our carbon reporting with both the Carbon Neutral Government Programme, and with the New Zealand Climate Standards which came into force at the start of this year.

There is much to contribute as we anticipate the kind of world we are creating. I remain inspired and gratified by what the UC community is achieving and will contribute in the future.

Ngā mihi
Professor Cheryl de la Rey

Message from the Pro-Vice-Chancellor, Sustainability

Since I was appointed to be New Zealand's first Pro-Vice-Chancellor Sustainability in October 2021, our programme of work to support our sustainability strategy has expanded considerably and the many achievements are reflected in this 2022 report.

Our sustainability work focuses on the areas of teaching and learning, research, building networks and campus operations. In 2022 we commenced an analysis of our courses to match them to one or more of the United Sustainable Development Goals (SDGs) to understand which ones include these as a topic or principle, and late in 2022 we awarded fourteen new PhD scholarships for research focussing on one or more of the SDGs.

Progress is strong on the coal boiler conversion, and drilling has commenced outside the Science precinct to start the introduction of Ilam campus heating by using ground source heat pumps. Our carbon footprint continues to decrease and the cessation of coal burning will accelerate our progress in this important area.

In 2022 the University was a finalist in the Australasian Green Gown Awards for our work on hosting the SDG Summit. Globally, many universities are increasingly concerned with reducing their own carbon footprint and contributing solutions to climate change. Canterbury is leading the way with many of our initiatives we present in this report.

In October 2022 it was my very great pleasure to welcome speakers from the Christchurch City Council to jointly present talks with our staff on sustainability initiatives in the region, as part of the 1st University Sustainability Showcase. I should like to acknowledge everyone, both from UC and the City Council, who helped me bring this event to fruition.

Ngā mihi
Professor Jan Evans-Freeman
Pro-Vice-Chancellor, Sustainability

1 Whakamahuki o te Mahere Toitū te Taiao | UC Sustainability Planning Overview

1 Whakamahuki o te Mahere Toitū te Taiao | UC Sustainability Planning Overview

Context and Drivers

It is widely acknowledged that we are living through a period of extreme challenge. Present modes of human living and habitat exploitation are driving multiple, interlocked crises, including the collapse of ecosystems, the rise of global pandemics, open hostilities related to energy security and the breakdown of the earth's climate systems. The United Nations Sustainable Development Goals (SDGs) have been developed to meet these and other challenges.

These 'wicked problems' require new and bold thinking, and for this reason universities are considered by the United Nations to 'have a critical role in helping society achieve the Sustainable Development Goals'. The 'SDGs require deep and radical transformations in each country. Incremental approaches will not be enough to tackle the urgent and complex challenges outlined by Agenda 2030. In order to play a leading role in these transformations, universities will also need to evolve.'[1]

In addition, we know that our students and staff expect us to take action on sustainability issues.

In light of this unprecedented context, the University of Canterbury has revised its sustainability policy and is updating its various sustainability plans to ensure that rapid transformation in what is taught and researched, and in our operations, can be achieved to meet these challenges. Urgent work to adapt to climate change and reduce our carbon emissions, drastically reduce waste and protect our ecosystems is advancing. We also acknowledge that far more is needed.

Sustainability Policy

The UC Sustainability Policy frames the values and principles guiding the University's work towards creating a sustainable community and campus, while contributing towards solving global sustainability challenges.

The Policy affirms the following:

[1] Sustainable Development Solutions Network, 'Accelerating Education for the SDGs in Universities', https://www.unsdsn.org/dialogue-series-on-the-sdsn-report-accelerating-education-for-the-sdgs-in-universitie-the-institutional-transformation

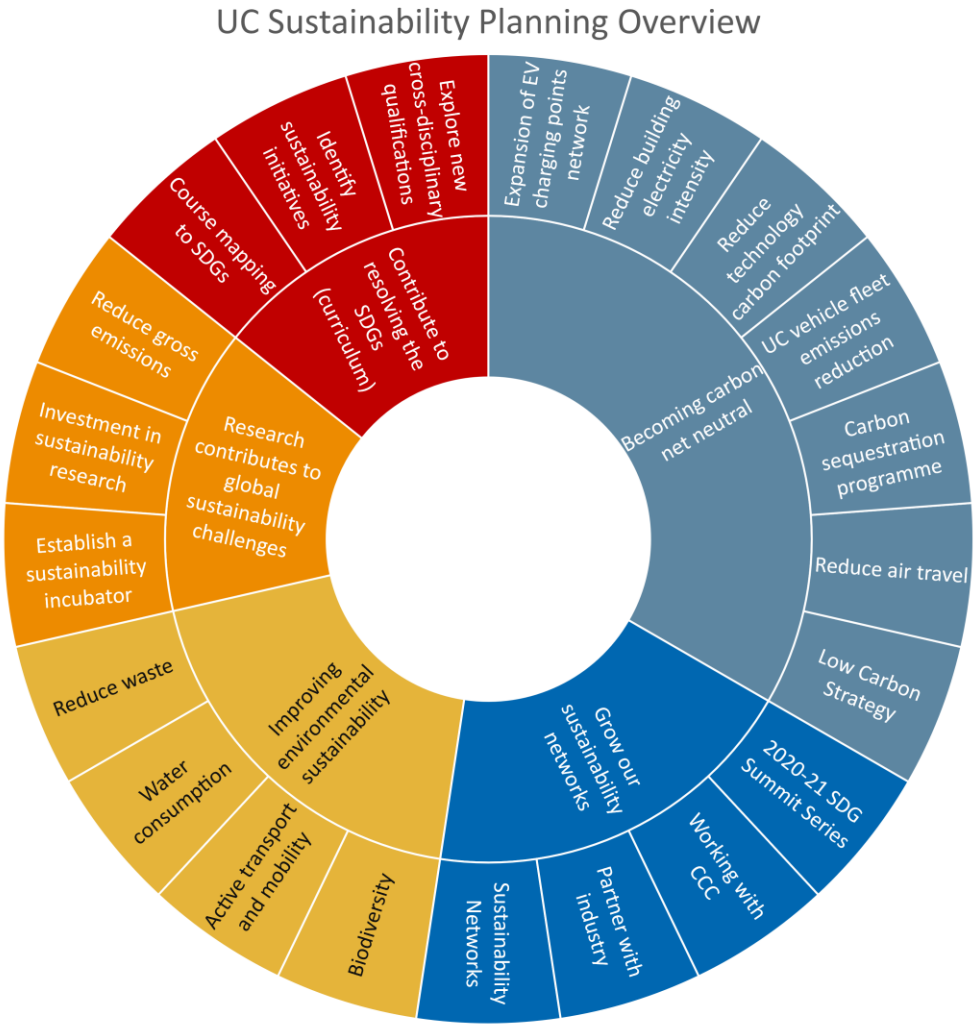
- the University has a genuine desire to weave sustainability into the working culture and vision of the University.

- The University strives to achieve real change, using the transformative potential of the United Nations' 17 Sustainable Development Goals (United Nations website) as a basis for teaching, research and operational performance. The University views sustainability as a broad, multi-faceted concept in which ecological, social, cultural and economic systems mutually reinforce and support one another into the long term. In particular, the University supports the notion of 'strong sustainability', in which the 'econo-sphere' rests within the 'socio-sphere', which in turn is dependent on a strong 'bio-sphere'.

- Acknowledging the global ecological crisis, the University will, with urgency, ensure that the University's research, teaching and learning, community engagement and operational plans align with the United Nations' 17 Sustainable Development Goals (United Nations website) and Greenhouse Gas Emission commitments (Ministry for the Environment website).

- The University is committed to facilitating actions to address environmental, cultural, social and economic sustainability within the University. This includes actively promoting inclusive and barrier-free education, and a working culture that celebrates all forms of diversity.

- The University actively encourages work (including through teaching and research) inorder to achieve the United Nations' 17 Sustainable Development Goals (United Nations website) to solve local and global sustainability challenges.



Sustainability Plan 2020-2030

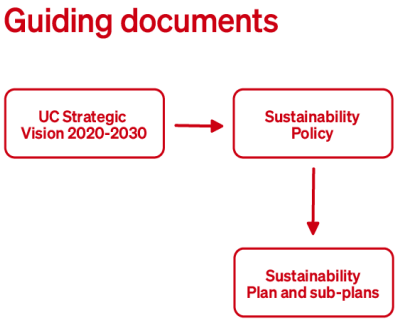
The Sustainability Plan (which follows the UC Strategic Vision 2020-2030) outlines the projects that will be undertaken to enact the policy principles outlined in the Sustainability Policy. These priority areas and projects were identified through an extensive engagement with the UC staff and student community throughout 2020, and therefore comprises of those issues considered material to the whole University.

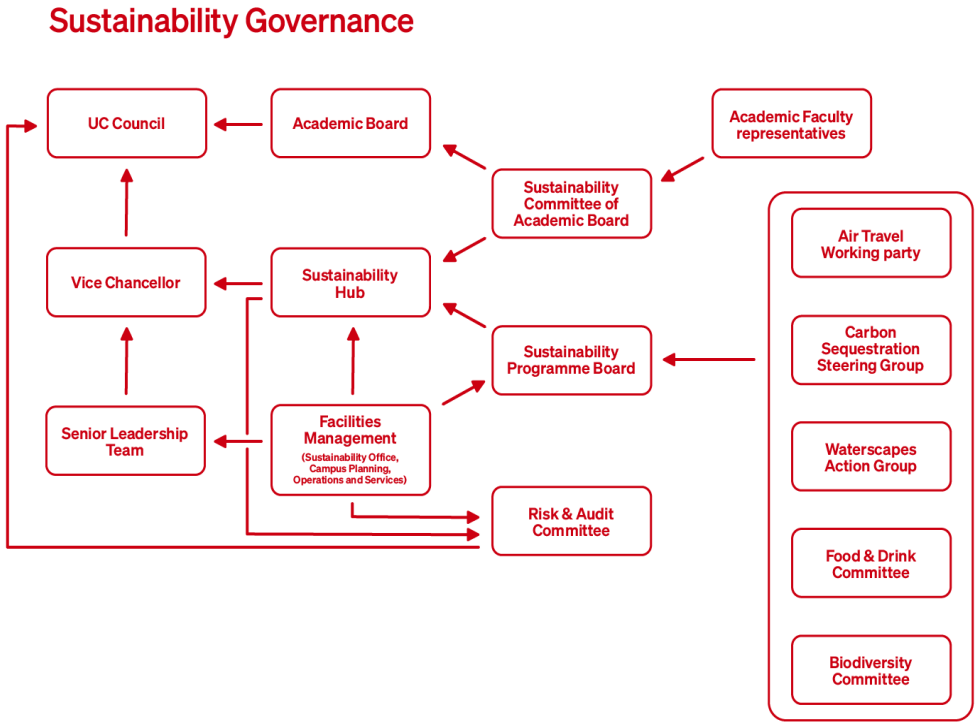
This 2022 Sustainability Report provides an update on each of these projects.

UC Sustainability Plan summary

1. Weave opportunities for students to learn and contribute to resolving the Sustainable Development Goals through UC teaching.
2. Ensure that UC research contributes to resolving global sustainability challenges.
3. Establish a Carbon Neutrality Initiative that will ensure that UC will be carbon net neutral by 2030.
4. Measurably and substantially improve the environmental sustainability of UC.
5. Engage with local, national and global networks.

An overview of the Sustainability Plan is shown on page 9.





Sustainability Governance

Implementation of the Sustainability Plan is overseen by a Sustainability Programme Board. Governance of the Sustainability Programme sits across multiple bodies within the University structure, and these are mapped out on page 10.

The Vice-Chancellor reports regularly on progress on the Sustainability Programme to the University Council. These reports can be viewed here.

In addition, the University is considering how best to frame its sustainability reporting in the future. As such the University has reviewed a number of existing national and international reporting tools, frameworks and standards. In particular, careful consideration has been given to the newly released New Zealand Carbon Standards issued by the External Reporting Board.

2 Teaching & Learning

Weave opportunities for students to learn and contribute to resolving the Sustainable Development Goals through UC teaching.

2. Contribute to resolving the SDGs (curriculum)

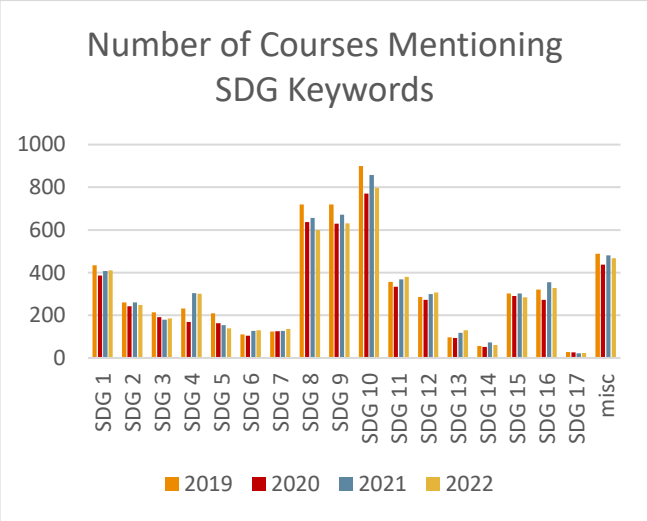
Develop system to identify and record SDG related courses

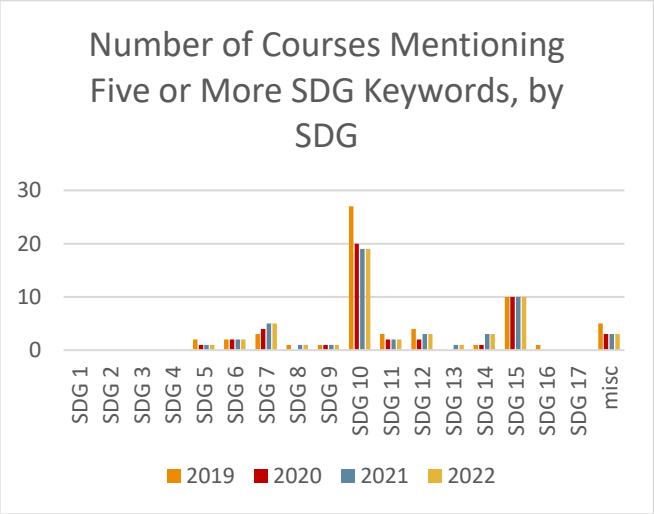
During 2022 strong progress was made on a process for ground-truthing the extent of the University's contribution to the SDGs through its teaching programmes. This work commenced through a new Sustainability Committee, which is a subcommittee of Academic Board. The work will continue through 2023.

Previously UC has used a set of keywords (developed by Sustainable Development Solutions Network and Australasian Campuses Towards Sustainability) and run them against UC course descriptions, to identify which courses support the SDGs. The task now is to refine and improve this measurement system. In the meantime, UC is continuing to use the system we have used for the previous three years: a piece of software that searches the aforementioned keywords on course descriptions provided in the Course Information System.

There has been a decline in courses teaching to the SDGs since 2021, though this is still more than in 2020 (a total score of 5557 compared to 5198 in 2020). As mentioned last year, there is a propensity for false positives in this system, so we have also presented data for those courses mentioning at least five different keywords for each SDG. Once again, this demonstrates that UC's teaching is strongest against SDG 10: Reduced Inequalities and SDG 15: Life on Land.

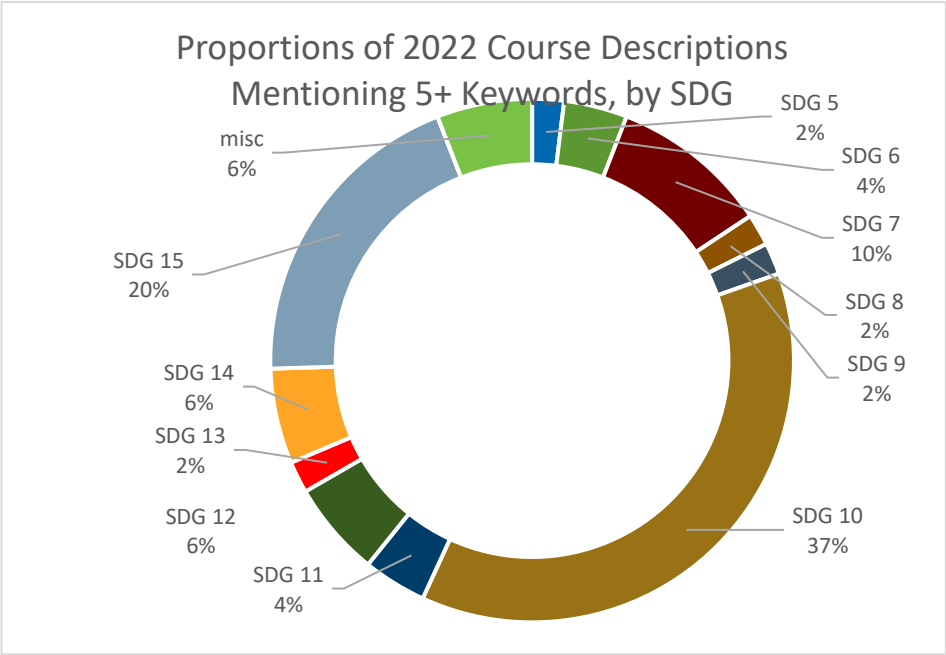
In addition, we have once again presented those courses mentioning the most SDG keywords in their course descriptions.





NUMBER OF KEYWORDS MENTIONED IN CIS	COURSE CODE	COURSE NAME
20	MAOR172	Science, Māori and Indigenous Knowledge
19	BIOL274	Principles of Ecology
18	LLAW300	Pacific Legal Studies
18	GEOG402	Resilient Cities
17	FORE447	Environmental Forestry

16	ENGR621	Energy, Technology and Society
15	CLASS222	Wealth, Work and Wages in the Ancient Mediterranean World



Case Study: MGMT-MKTG230, MGMT335, MBAM605
Michaela Balzarova

The courses MBAM605 Impact led Enterprises, MGMT335 Business and Sustainability, and MGMT-MKTG230 Business and Society and the Environment not only deliver content related to the relevant UN SDG goals, but also contribute to the attainment of these goals. All three courses introduce key concepts in sustainability and business that are relevant to SDG 12: Responsible Consumption and Production. This assists students in developing innovative solutions to address global challenges and thus contributes to SDG 9: Industry, Innovation and Infrastructure.

In addition to this, the social and economic components of these courses explore the social and economic dimensions of sustainable development, thus contributing to SDGs 1, 8, and 10, which focus on poverty reduction, decent work and economic growth, and reduced inequalities, respectively. Furthermore, the courses cover key challenges for making sustainability a reality, which are relevant to SDG 17: Partnerships for the Goals, by emphasising the essential role of collaboration between businesses, governments, and other stakeholders in achieving sustainable development.

Assessments in these courses also challenge students' critical thinking skills by asking them to identify innovative solutions that contribute to SDGs. For example, an assessment for MBAM605-2023 explores the New Zealand Agricultural Emission Pricing Scheme, which aims to address the country's greenhouse gas emissions primarily coming from the agricultural and energy sectors. The SDGs targeted in this assessment recognise the Scheme’s contribution to the goals of SDG 13: Climate Action and SDG 15: Life on Land.

3 Research Programme

Ensure that UC research contributes to resolving global sustainability challenges.

The University of Canterbury's Strategic Vision 2020-2030 identifies three areas of work in its sustainability research stream:

1. Reducing gross carbon emissions
2. Investing in key areas of research that might assist UC to solve global sustainability challenges
3. Establishing a research student sustainability incubator.

UC's second SDG Report provides a snapshot of some of the research projects underway at UC that contribute to the SDGs. This report can be found here. A selection of media stories about research projects at the University related to sustainability can be seen here.

3.1 Reducing gross carbon emissions

This research programme is still to be developed.

3.2 Investing in key areas of research that might assist UC to solve global sustainability challenges

Pacific Ocean and Climate Crisis Assessment

Distinguished Professor Steven Ratuva's research exemplifies the kind of research contribution our academic staff are making to the 'wicked problems' we collectively face. The $4.6m (NZD) Pacific Ocean and Climate Crisis Assessment (POCCA) is a multi-disciplinary project that the Macmillan Brown Centre for Pacific Studies (under the leadership of Distinguished Professor Ratuva) runs in partnership with the University of the South Pacific and which is funded by the Ministry of Foreign Affairs and Trade.

During 2020 to 2022, Professor Ratuva and colleagues built an international research community: over 100 researchers from 16 countries are involved in the project, plus hundreds more members of the wider community. Together, they are seeking a way to frame future climate proofing policies for the Pacific. The team are looking at Pacific responses to climate change through a number of lenses, including indigenous knowledge, the humanities and the sciences. In doing so, they are identifying social, economic, psychological, health, environmental and other impacts on communities of the climate crisis, and what some of the local responses to these have been. They are building on the notion of resilience, adaptation and sustainability. This is the biggest climate research project in the Pacific and is developing the largest database of climate impacts and responses in the region.

Māori perspectives in New Zealand's sustainable energy future

Senior lecturer in Civil Systems Engineering Dr Peer's project engages with Māori iwi and hapū to understand indigenous perspectives on energy, sustainability, and energy transitions. The project 'Māori perspectives in New Zealand's sustainable energy future' supports ongoing research on pathways towards a net-zero energy system, with the goal of integrating mātauranga Māori into planning and evaluating our energy futures in Aotearoa.

Iwi and Infrastructure – Enhancing Indigenous Input to Infrastructure System Development: A case study of Whirinaki, Hokianga, Te Tai Tokerau

Matthew Hughes, Senior Lecturer in Civil and Natural Resources Engineering uses the fund to engage with hapū to investigate water resource resilience under climate change conditions, characterise past and future evolution of critical infrastructure systems that communities need for sustainable economies, and upskill locals in geospatial technologies to enhance their roles as kaitiaki (environmental stewards).

3.3 Establishing a research student sustainability incubator.

Fourteen Ph.D. scholarships were established in 2022 specifically to research areas relevant to the Sustainable Development Goals. The scholarship titles are listed in the table below.

Effectiveness of "Pashe Achhi" (Beside You): a telehealth-driven caregiver and early childhood education model for fostering good health and well-being and quality education for children and parents in resource poor settings
Mana Rangatahi: Indigenous Youth leadership in Climate Adaptation
Achieving more sustainable agriculture by understanding infection processes of the stress resistant broad spectrum pathogen Phytophthora cinnamomi
Materials development, modelling and life-cycle assessment of living walls integrated with greywater treatment
Resilience and Wellbeing of Trans and Gender Non-Conforming People in Service Business Start-ups in Aotearoa New Zealand and India
Building climate resilience, blue carbon, and ecosystem services by restoring marine forests
The power of media representation in achieving peace and justice: A critical examination of West Papuan colonial context

An Exploration of Community Repair and Right to Repair
Mapping “student success” in school science among migrant and refugee populations in Aotearoa New Zealand
The impacts of a low-emissions transport future on urban amenity access, equity, and wellbeing
Forecasting evolving landslide hazard and risk in Aotearoa New Zealand under a changing climate
Animal Assisted Therapy and Child Trauma in Aotearoa New Zealand
Use of magnesium compounds for carbon capture and mineralization
Green asymmetric catalysis for the synthesis of amino acids

4 Becoming Carbon Net Neutral

Establish a Carbon Neutrality Initiative that will ensure that UC will be carbon net neutral by 2030.

4. Becoming carbon net neutral
Establish a carbon neutrality initiative to ensure that UC will be carbon net neutral by 2030.

UC's approach to carbon neutrality and climate change initiatives, although broad-ranging and multi-faceted, can be summarised as being made up of three distinct lines of work:

1. Carbon reduction
2. Carbon sequestration and/or off-setting
3. Climate change resilience and adaptation

During 2022, work progressed in all three of these areas.

Carbon reduction

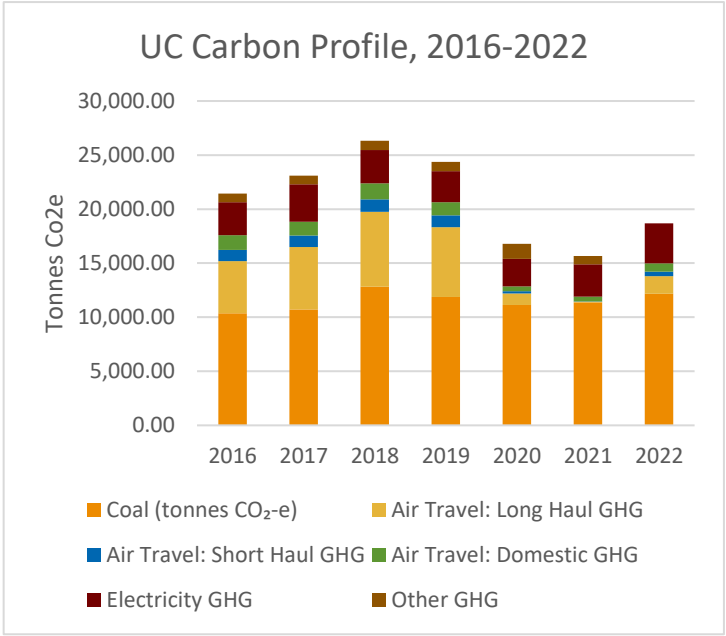
The first area, reducing our carbon footprint as much as we believe is possible at this time, will see UC reducing its carbon emissions to approximately 6,000 tonnes by 2030. Doing this involves the following projects:

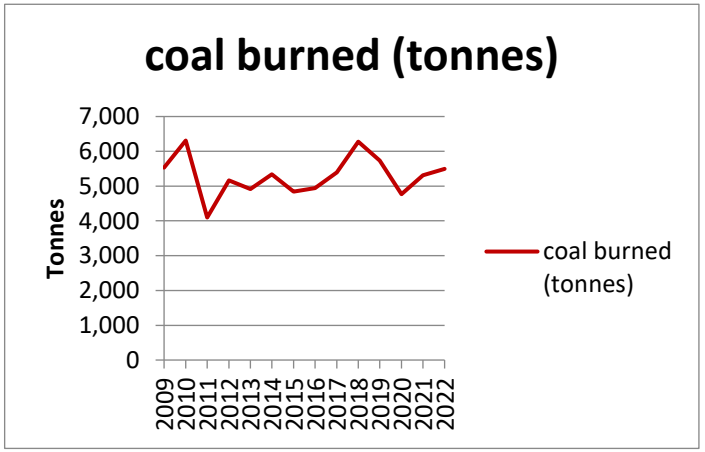
4.1 Low carbon energy strategy programme (removing coal, improving insulation and using ground source heat pumps)

Significant progress on the Ilam Boiler Conversion to remove coal from the Ilam campus (which constitutes about 80% of the coal burnt at UC) and implementation of a new ground source heat pump system to heat all central campus group 4 buildings was made during 2022. The first set of abstraction/reinjection bores have now been completed in full on-site, with the second set planned to begin in March 2023.

A Main Contractor to carry out all the works was appointed in late December, and UC is on track to carry out all the works in connection with both projects within the 2023 calendar year, which will allow all $8M+ EECA funding to be secured.

4.2 Reducing UC fleet vehicle emissions
Following an assessment in 2021, in 2022 Facilities Management purchased six EVs (three passenger and three service vehicles) to replace petrol and diesel vehicles. This brought the UC vehicle fleet to 8% Electric and 14% Petrol Hybrid. We anticipate purchasing additional EVs during 2023.





4.3 Reducing building electricity intensity

In 2021 we researched the market for campus capable A.I. (Artificial Intelligence) Building Performance Analytics Controls to optimise building HVAC plant ready for procurement and installation in 2022. In late 2022 Facilities Management went out to tender for this and engaged Setpoint Solutions to provide UC with CopperTree Analytics Kaizen FDD and Kaizen Energy (Powerful Energy & Building Analytics Software | CopperTree Analytics). A proof of concept to test this system is planned for the Meremere building in early 2023.

4.4 Expansion of EV charging network

In 2022, UC charger provision for Fleet Vehicles was increased in two areas:

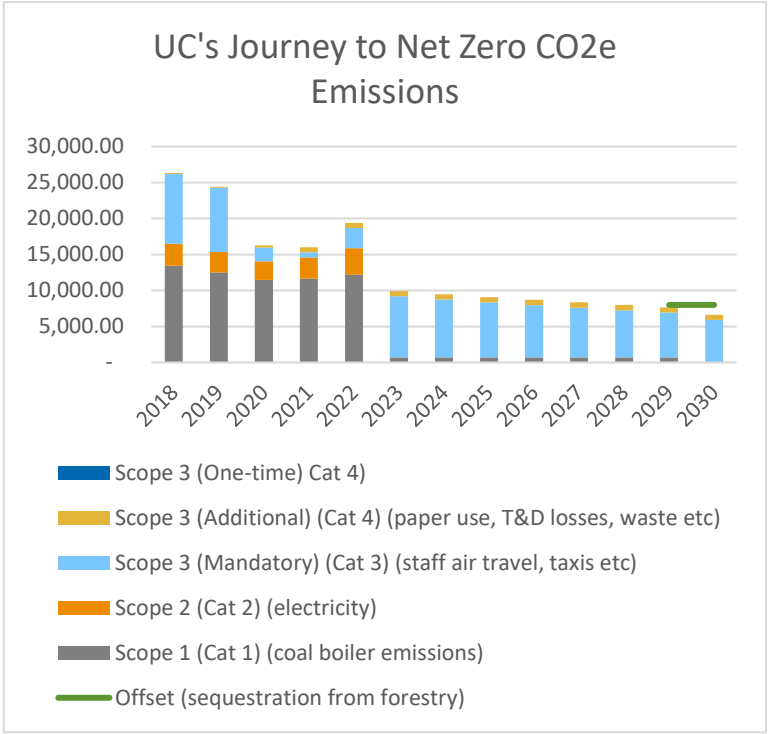
- A fixed and dedicated Schneider EV Link Parking Charger (two 22kW) at Rehua serving Science Department-based Fleet EV.
- Two non-dedicated plug-in type charging facilities. The units are in use at Fine Arts Block 3 and the Warehouse.

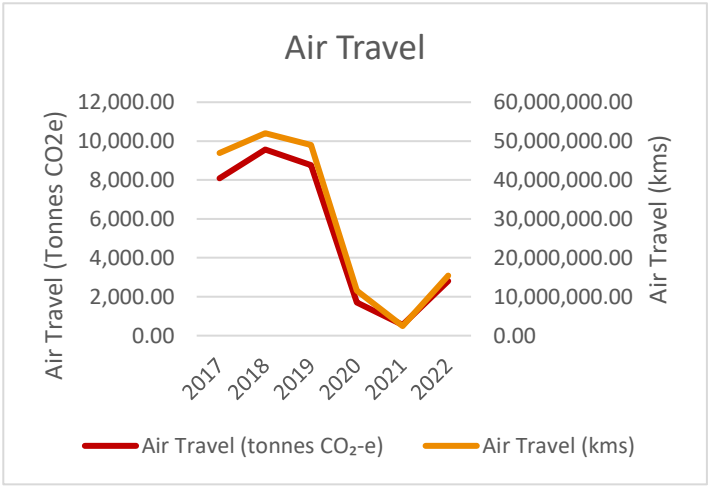
Carbon sequestration and/or off-setting

4.5 The University's application to the Ministry of Primary Industries to include a larger area of Mt Barker Forest in the Emissions Trading Scheme is still pending, with an outcome expected during 2023. As mentioned in last year's report, our initial modelling indicates that carbon sequestration from this asset will only help the University achieve its carbon neutral goal if all of the projects list in points 4.1-4.4 are implemented.

Climate change resilience and adaptation

4.6 As discussed in last year's report, in 2022 UC kicked off a large scale project to assess the vulnerability of its physical assets to the effects of climate change. The University engaged AECOM to undertake Stage One of this assessment, which was completed by the end of the year. This high level assessment will enable a finer grained assessment of the most vulnerable asset categories during 2023.





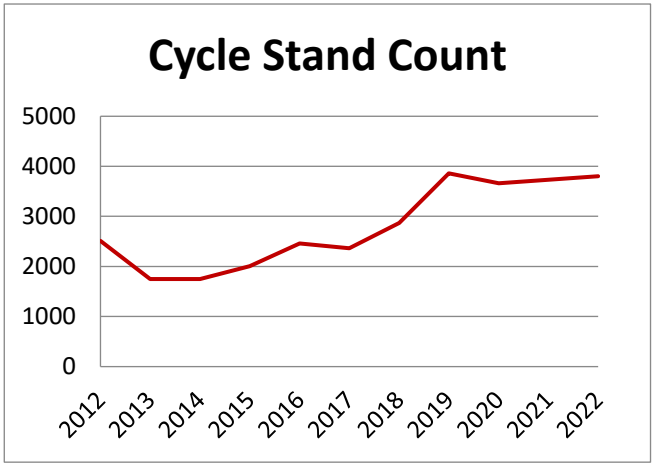
5 Environmental Sustainability

Measurably and substantially improve the environmental sustainability of UC

Transport Planning

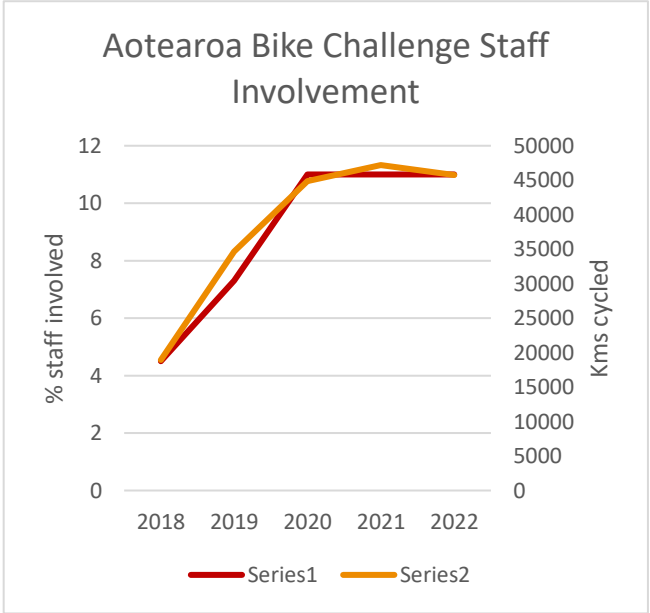
Cycle Planning

The annual count of bicycles and utilization of stands on campus was again conducted in 2022. This seemed to indicate a decrease in the number of bicycles on campus during the survey period. As such, no new cycling infrastructure plans were developed.



Our Dr Bike service continued for part of the year, welcoming our first all-wāhine bike mechanic team. COVID-19 continued to disrupt the service with attendance remaining low. This suggests a need to increase the visibility of the service for 2023.

Key cycling community events pedalled on, with high levels of staff engagement seen in the Aotearoa Bike Challenge, strongly supported by UC's People and Culture, and Communications and Events teams. 2022 saw 11% of UC staff participate in the Challenge, cycling a total of 45,761 kms during the month of February. The team welcomed 18 new riders and participation in this nation-wide event continues to grow.



The popular Bike Breakfast event returned as part of Christchurch's Biketober Festival and attracted 180 staff and student cyclists. Four 'cycle with confidence' workshops were offered at UC, in partnership with the Christchurch City Council's Adult Bike Skills programme. Led by a trained cycle coach, 16 staff and students attended, with half using the UCSA's Borrow-a-Bike scheme in order to participate. Sessions took participants through basic cycle safety skills in an off-road setting before progressing the following week to navigating cycle paths and intersections nearby to the university.

Of the attendees, nine identified as staff, four identified as domestic students and four identified as international students. Guided by data from the 2020 Travel Survey showing that 7% felt that help improving their cycling skills and confidence would influence their participation in cycling, with 5% indicating it would be the *most* important incentive, the Sustainability Office plans to continue running these workshops in 2023.

The new UC Cycle Plan (2022-2030) is currently being developed, providing suggested strategies for improving the future cycling experience on and around campus.

Electric Vehicles

See section 4.2 above.

Biodiversity

Biodiversity Plan

The adoption of the revised Biodiversity Plan, and its key targets, sets the framework for biodiversity reporting, as set out in the table below.

Targets	Action	
Biodiversity Plan resourced.	Confirm revised Biodiversity Plan	• The 2022 – 2025 UC Biodiversity Plan revision (incorporating elements of Mahaanui Iwi Management Plan) was signed off in July 2022
	Employ Biodiversity Projects Coordinator	• The Biodiversity Projects Coordinator was employed in March 2022
Shift MCI rating of campus streams from 'moderately polluted' to 'mildly polluted' by 2035.	Continue to monitor University's waterways systematically	• This has continued, and further developed during 2022. See Waterways reporting below.
	Support the 2022 sediment removal project	• Data on the trap's remaining capacity and sediment cover in the indicator reaches was collected and supplied to the CCC. • Average sediment coverage at site '04' (Engineering Pond) was 34%, and at site '05' (Forestry) was 64% as of 29 June 2022.

		• Unfortunately, CCC were not able to confirm a date when they could commence this work, which therefore lapsed. It is due to be revisited in 2024.
	Monitor the impact of University discharges of cooling water from legacy buildings into streams on the ecosystem	• Initial monitoring suggested there could be high levels of copper coming from a building upstream, and further monitoring is being undertaken to determine if this is the case.
Reduce impact of predators on campus birdlife, insects and reptiles (targets to be identified).	Coordinate nest monitoring on the University's campus to gain an understanding of current survival rates.	• Nest monitoring survey undertaken summer 2022/23. The results are described below.
	Coordinate predator study to establish presence of mustelids, rodents, hedgehogs and cats on campus	• Monitoring was carried out in June and November 2022. • There has been a recommended frequency of monitoring of every two months. • The monitoring results from both rounds conducted to date show the presence of rats, mice, hedgehogs and possums.
	Support the development of programmes designed to reduce predator numbers on Ilam campus (including predator trapping pilot work along Waiutuutu-Okeover Stream).	• Trapping is up and running along the Haere Roa/Avon and throughout Ilam Gardens up to Waimari Rd. Envirosoc Students met weekly to check the traps and report data to TrapNZ managed by the Biodiversity Projects Coordinator. • Between August and December there were 827 traps checks and 25 pests caught. No possums or mustelids have been caught yet.
Identify target for increased insect biodiversity.	Coordinate insect survey and reporting.	• Pitfall traps, yellow pan traps and sweep netting were used to gather baseline data on the invertebrate population of the Health Centre Meadow site. • Inaturalist NZ is being utilised to identify specimens collected. • Monitoring will be quarterly
	Create opportunities to increase biodiversity in undisturbed areas of the University's campus,	• Grounds are continuing to, and expanding over time, bark mulching garden boarders across all sites on UC property.

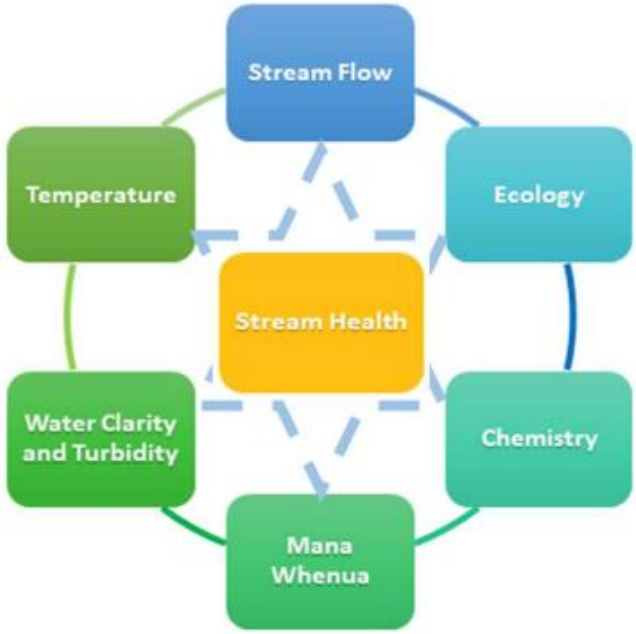
	Ilam Gardens, and the edges of Ilam Fields, working closely with Grounds staff.	• Grounds have agreed to start leaving logs from tree maintenance to decompose in the garden boarders where appropriate. • Areas of lawn (eg under trees) were left unmown as a trial.
	Plan for areas to showcase insects of interest (eg. giant stick insects, tree weta).	• Plans to sow the Health Centre Wildflower Meadow in 2023 were developed. • Research into a butterfly garden project planning commenced. Potential to incorporate with potential earth science rock garden.
The University's canopy cover target facilitates improvements to biodiversity and other ecosystem services, namely cooling effects and flood mitigation/water quality improvements)	Research potential canopy cover target(s) for Ilam campus with relevant University (academic and professional) staff.	• Options for Canopy cover target suggested to Biodiversity Advisory Group for consideration. • This was reviewed by the Sustainability Program Board • It was agreed that the recommendations made by the Sustainability Programme Board and the Biodiversity Advisory Committee , of campus plantings and canopy cover, would be considered in the review of the Campus Master Plan for the built environment in 2023.
Showcase and expand the University's biodiversity research.	Seek to secure baseline research funding to undertake on-going monitoring.	• No action has been taken to advance this.
	Organise a single campus-wide event to promote current research and teaching activities.	• The BPC hosted an online seminar "Riccarton Community: Working Together to Improve Biodiversity" which brought together academic staff, students and a community organisation to discuss predator control in backyards, reserves and UC campus. And to learn what biodiversity values exist in urban areas, and initiatives to enhance them. This was attended by 36 people, as part of the Ōtautahi Learning Days festival On the 9th of may 2022. • A Biodiversity Tour of campus on May 23rd 2022 with guest speakers, Colin Meurk and Waterways Monitoring Assistant Elysia Harcombe, attracted attendance of 26 staff and students. • World Biodiversity Day on 22nd May was a great success highlighting biodiversity works across UC. With lots of internal communication

		and 6 media releases including, Stuff, The Press, TVNZ's Seven Sharp and RNZ interview with BPC Emily Arthur over the entire month of May. The BPC held an Instagram takeover of the UC Instagram account on the 22nd May to raise awareness of Biodiversity.
Protect and enhance the campuses role as a hono in Ki uta ki tai	Map potential 'plantable areas' on campus that could enhance the university's role in Ki uta ki tai	• In May 125 primary school students, from Ilam Primary, and students from Envirosoc, and staff from Grounds all collaborated to plant 340 plants on the riparian margin of Haereroa between the UC Health Centre and the Haere Roa building.
	Research a 'no net loss' policy for habitats that support indigenous biodiversity	• A policy should be developed alongside the new design guidelines. • This will be motioned to be assessed with the campus planting and canopy cover considerations in the review of the Campus Master Plan for the built environment in 2023. • Mana whenua input would be important in the development of this policy.
	Seek out opportunities to strengthen Ki uta ki tai on campus and in the north-west part of the city	• A plan for plantable areas in the Southeast corner of the campus was created. This is focussed on expanding out the Haere Roa riparian areas. • A plant list has been created and Colin Meurk has reviewed it. • A plan was agreed for planting the Kā Waimaero Fresh Plains and lower bank area. • The plant list has been created and Colin Meurk has reviewed it • ECan are currently considering funding of 5K to trial this. • EnviroSoc will be assisted in applying for further funding from the Rata Foundation.

Waterways Monitoring

Introduction

This section focuses on the continuation of the Water Quality Monitoring Framework (WQMF) at UC consistent with last year's report. This framework was created in 2018 to provide a standardized monitoring framework for tracking the health of waterways on campus, including several parameters that are important aspects of waterway health (Figure 1). As part of the framework, data collected by other groups has been collated to provide a picture of the streams' health prior to 2021, which is before standardised monitoring was conducted under this framework.



Stream health monitoring framework as proposed in a GEOG309 report (2021), by students J. Bird, J. McMecking, R. Painter, Z. Shadbolt, and B Woods.

Stream flow

Stream flow is measured as the volume of water that flows through a stream every second, and is important for how it influences other aspects of water quality. Stream flow has been relatively consistent since 2021, ranging from 0.016 m^3/s at the headwaters to 0.09 m^3/s downstream behind the greenhouses. The slight increase in flow is likely due to fluctuations associated with air conditioning discharge into Okeover stream.

Temperature

Temperature controls a number of important aspects, including what can live in a stream and how fast things grow. Temperatures below 20°C are ideal, while Okeover has consistently remained at an average of 15°C since 2000.

Water Clarity and Turbidity

Turbidity describes how much suspended solids are in the water, which affects both visibility for aquatic animals and the visual appeal of the water. It is measured in NTUs, with water above 5 NTUs being just slightly cloudy. Turbidity continues to decrease since 2002, and now ranges 0.007 to 0.38 NTUs, which is very clear due to the source of flow from groundwater at the top of campus.

Trace element	Threshold values (µg/L)	Sampled values (µg/L) 2021	Sampled values (µg/L) 2022
Copper	1.8	0.2-3.4	0.1-2.7
Lead	5.6	Undetectable	Undetectable
Zinc	15	2.5-10.2	1.8-4.4
		:table	Undetectable

Heavy metal levels at sampled sites

Chemistry | Dissolved oxygen

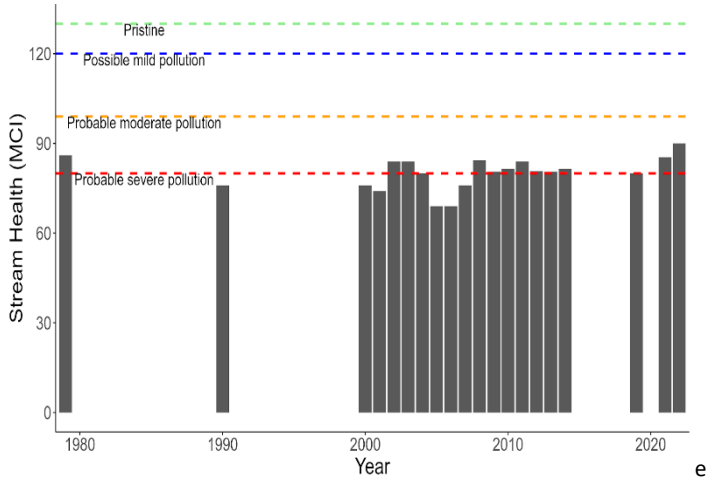
Oxygen is essential for fish, eels and insects to survive. Dissolved oxygen can be measured via what percentage of the water is oxygenated; typically, healthy systems contain at least 80% dissolved oxygen. Dissolved oxygen continues to fluctuate between 76-90%, which is sufficient for aquatic life. However, it is worth noting these measurements taken during the day are higher due to photosynthesising plants and algae than oxygen levels at night.

Chemistry | Heavy metals

Urban streams are often polluted with heavy metals that runoff from surrounding roofs, roads and other impermeable surfaces. In high concentrations, heavy metals can impair the growth of and kill aquatic life. Previous sampling in 2009 revealed copper exceeded threshold value while lead and zinc were below threshold values. Samples collected in October 2021 and March 2022 revealed copper and aluminium exceeded levels that 80% of aquatic species can tolerate, while zinc exceeded levels that 95% of aquatic species can tolerate. Aluminium and zinc concentrations increased downstream, while copper was highest at the headwaters.

Ecology

A diverse range of insects and other invertebrates live in freshwater. Some of these are more sensitive to poor water quality than others, so identifying which insects are missing can be used to assess the water quality of the stream. The sensitivity of the invertebrates found in a stream is summarized by the Macroinvertebrate Community index (MCI). Based on this index, the water quality in Okeover has fluctuated between severe and moderate pollution (Figure 2). Results from 2022 monitoring continue to fail to meet the biodiversity target set in the 2019-2024 UC Biodiversity Plan, which aims to reach scores representative of mild pollution or above.



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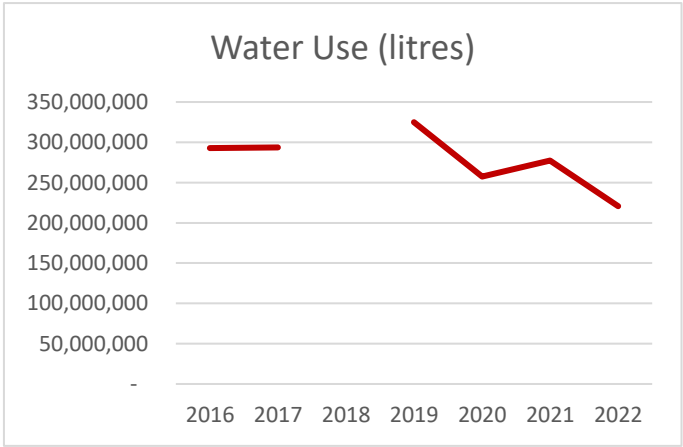
and green dashed lines represent threshold values for pollution categories (<90 = severe pollution, ≥90 and <110 = moderate pollution, ≥110 and <130 = mild pollution, ≥130 = pristine conditions) as outlined in the National Policy Statement for Freshwater Management (2020). Gaps between bars represent years where data was not available.

Summary

While water flow, temperature, dissolved oxygen and clarity are within acceptable values, the ecology of the Okeover still suggests severe to moderate pollution. Copper, aluminium and zinc exceed levels that are optimal for aquatic life, highlighting one area of stream health that needs further improvement. Stormwater samplers are currently being installed in the Okeover, which will enable us to monitor heavy metal levels following heavy rainfall events when contamination is most severe. This should help identify specific areas of campus that are contributing the most heavy metal contamination, and help focus any future work that reduces heavy metals. The continued development of the WQMF will provide a clear picture of waterway health over time to inform the sustainable management of our freshwater.



Water Use

Use of potable water appears to have dropped in 2022. Recent years have seen some minor interruption to metering data, however it may be assumed that 2019 represents a good base year, given the higher number of buildings in use that year compared to earlier measured years. Some 2022 data needed to be extrapolated and cannot be verified.

Birdlife

An annual count of birds on campus was once again undertaken by Professor Jim Briskie. This review showed Kōtare (Kingfisher) and Karoro (Black-backed gull) nesting for the first time on campus and, also for the first time, a Pīpīwharauroa (Shining cuckoo) singing on campus. Pīwakawaka (Fantail) and Riroriro (Grey warbler) numbers appear to have increased.

	1990	2016	2017	2018	2019	2020	2021-22	2022-23
Birds								
Native species								
*Pūtakitaki, Paradise shelduck******	0	0	9	1	11	10	0	8
*Kererū, New Zealand pigeon***	0	0	0	0	0	0	0	0
Tauhou, Silvereye	24	151	28	71	70	28	181	165
Pīwakawaka, Fantail	7	11	12	8	27	15	18	28
Riroriro, Grey warbler	1	18	20	53	9	7	11	16
Korimako, Bellbird	0	3	19	3	12	11	8	7
*Warou, Welcome swallow**	-	4	26	21	21	37	25	15
Karoro, Black-backed gull	0	0	2	32	27	13	6	7
Tarāpunga, Red-billed gull	0	0	0	6	27	7	0	1
Spur-winged plover	0	0	0	4	0	0	1	2
*Papango, NZ scaup*****	0	0	0	2	3	0	0	0
Tarapuka, Black-billed gull	0	0	3	0	0	0	0	0
*Kawaupaka, Little shag****	0	0	0	0	1	0	0	0
Kahu, Australasian harrier	0	0	0	0	0	0	0	2
*Kotare, Sacred kingfisher*******	0	0	0	0	0	0	0	3
Pīpīwharauroa, Shining cuckoo	0	0	0	0	0	0	0	1

TOTAL NATIVE	**32**	**187**	**119**	**201**	**208**	**128**	**250**	**255**
Introduced species								
Redpoll	7	27	10	18	5	5	61	32
Chaffinch	3	11	37	32	22	14	4	8
European starling	12	12	7	57	50	31	44	54
Blackbird	104	192	161	333	352	224	169	175
Song thrush	37	34	19	61	61	19	25	25
Dunnock	29	61	37	72	78	34	55	45
House Sparrow	710	287	383	377	411	455	236	217
Greenfinch	23	18	55	50	36	24	48	39
Goldfinch	57	141	31	18	37	8	41	45
Australian magpie	3	0	2	0	0	1	2	3
Rock dove	0	175	114	188	138	214	153	161
Hybrid species								
Grey duck/mallard	39	54	19	54	37	45	32	38

** Dodunski (1990) did not count welcome swallows though she noted some were present.*
*** No native pigeons observed during survey period, but 1 bird has been seen on several occasions from 2016-2019.*
Other species: little owl; this species heard singing at night in SE part of campus
**** Seen for first time in 2019, in Avon River.*
***** 4 New Zealand Scaup (2 pairs) seen in 2020 but only in river in Ilam Gardens.*
******2021-23 surveys covered the summer period (earlier surveys ran in spring).*
*******Kingfisher nested on campus for first time.*

2022 Waste Profile

As expected, landfill increased in 2022 over the previous two years, which were greatly affected by COVID-19. However, the increase was minimal. Indeed, overall, waste disposed across all categories dropped to its lowest level in ten years. Coal ash dropped significantly, and greenwaste also dropped, although it is still far larger than pre-2015 days (when an operational change meant that this waste was sent offsite for composting rather than being composted on site).

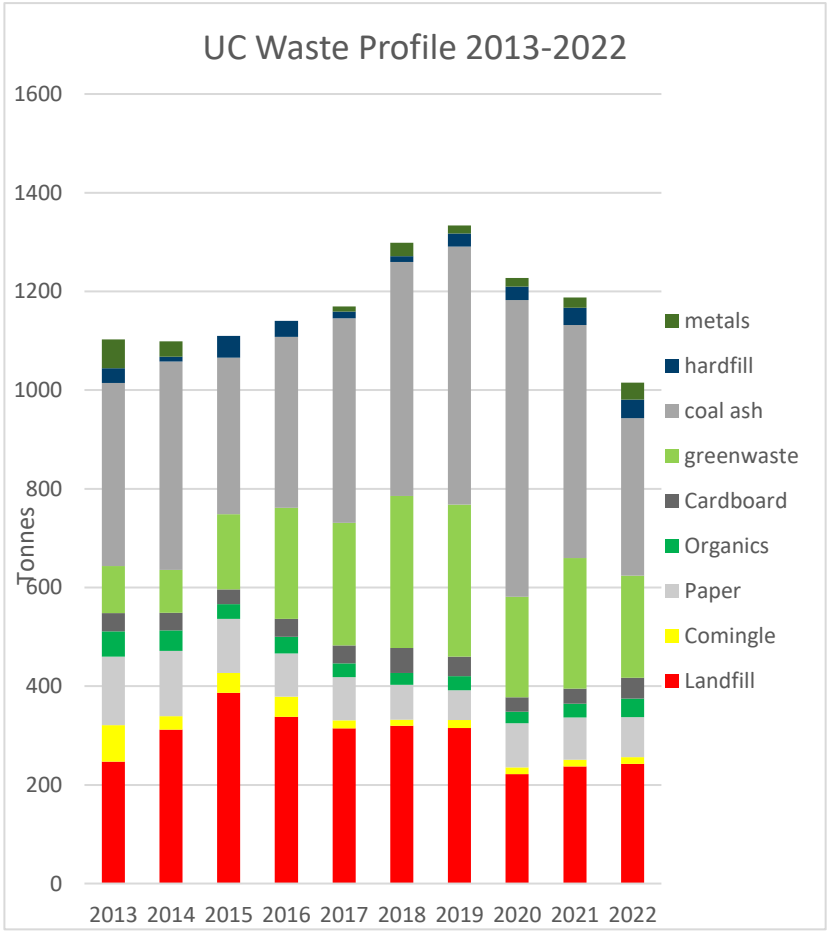
2022 Waste Audit

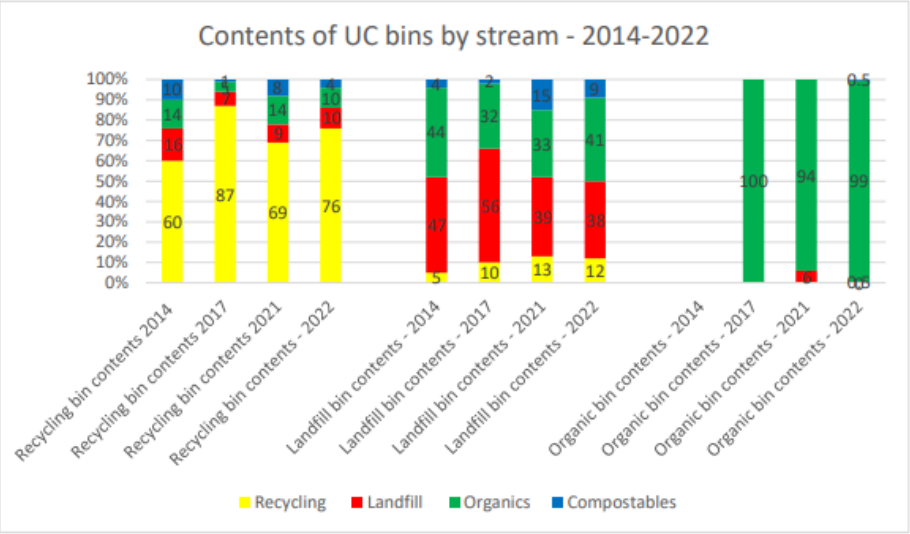
In 2022 Our Daily Waste was again contracted by Facilities Management to undertake a detailed audit of our waste streams. However, unlike previous audits, which have always been of a limited sample of specific sites, the 2022 audit was of a mixed sample of all sites. It is therefore considered the most comprehensive waste audit that we have ever conducted. Pleasingly, the results were broadly in line with what we have seen in previous audits, which validates those earlier findings. The full audit report can be read here.

The most significant challenge emerging from this audit is the large volume of materials currently being sent to landfill which could have been diverted. This awareness helps to sharpen our understanding of where further interventions are required, and a rebranding of the waste system is planned for 2023.

Compostable Packaging

During 2022 Facilities Management gave more focus to issues surrounding compostable packaging. The waste audit revealed (again) that far more of this packaging is sent to landfill than is sent to be composted, and serious consideration was given to the idea of combining our organics (food waste) and compostable packaging waste streams. To do so would require significant reconfiguration of backend solutions, including identifying a third party who would be willing to accept a combined waste stream of this type.



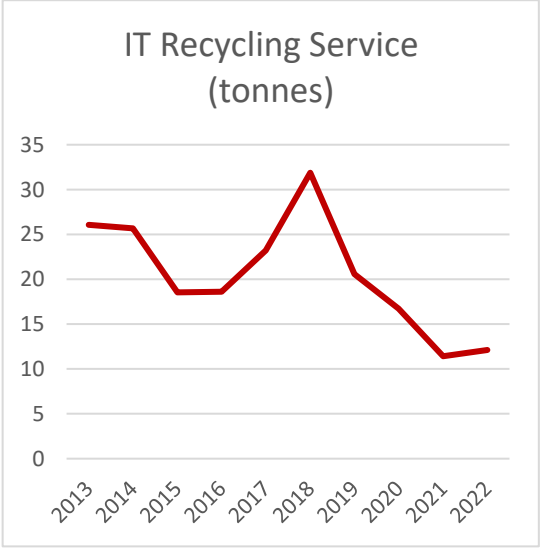


Our Daily Waste produced a report for Facilities Management: 'Food and Composting Options for University of Canterbury'. This report canvassed several options and recommended a possible provider to potentially partner with to achieve our key aim in this area: diversion of compostable packaging and food waste from landfill.

However, the report also highlighted sustainability issues related to compostable packaging itself (along with the lack of systems in place to process it adequately). In particular, it drew attention to the Ministry for the Environment's 'Position Paper on Compostable Products' which notes a range of problems with this packaging type including the fact they often require 'the use of per- and polyfluoroalkyl substances (PFAS) or aqueous coatings', which pollute the soil, can dissolve in water and end up in waterways. They have adverse effects if they enter the food chain.[2] 'Overseas research has shown PFAS is present at much higher concentrations in composts that accept compostable food packaging than those that do not.'[3] The Government intends to undertake its own study on the impacts of compostable packaging on soil health.

In addition to this new information, it also became apparent that the recommended provider for a combined food waste and compostable packaging waste stream was not in a position to offer that service in the near future.

As a result of this, plans related to combining these waste streams have been placed on hold and discussion has commenced about the long-term viability of compostable packaging as a sustainable solution at the University.



Waste Plan Update

	2022 Progress
Target 1: Contamination of landfill stream to be no greater than 25% (measured by annual audit), by 2024.	

[2] Our Daily Waste, 'Food and Composting Options for the University of Canterbury' (2022), p.9; Ministry for the Environment, 'Position Paper on Compostable Products', (2022), p.12

[3] Our Daily Waste, 'Food and Composting Options for the University of Canterbury' (2022), p.9; Ministry for the Environment, 'Position Paper on Compostable Products', (2022), p.12

2022 contamination rates of landfill were 62% (the highest of all our audits to date)	
• Work with café and food truck vendors to ensure they understand and comply with waste system	• A Standard Operating Procedure for vendors was drawn up, for circulation in 2023
• Ban polystyrene cups and clamshells	• This has been superseded by a Government ban coming into effect.
• Increase number of compostable packaging bins around campus	• This was not implemented due to concerns about future direction for compostable packaging
• Review café purchasing	• This will begin during 2023
• Signage and campaign around compostable packaging to be enhanced	• This is on hold pending a decision around compostable packaging.
Target 2: Contamination of comingle stream to be no greater than 25% (measured by annual audit), by 2024.	
Contamination of comingle stream in 2022 was 24% (a significant improvement on the 2021 audit)	
• Recycling signage upgraded	• Scheduled for 2023 as part of wider bin signage and branding review.
• Implement communications plan, including video content	• Video content generated in 2022, with key messages including lids into landfill and campus refill stations reaching 10,000 on social media
Target 3: Retain or improve on 94% clean organics stream (measured by annual audit), by 2024.	
The organics stream was 99% clean in 2022.	

• Work to upgrade this system as new options become available, including exploring and costing all logistical issues associated with any possible change.	• An initial report was commissioned in 2022 to explore options. A decision is still pending, but likely approach will be to focus on getting organics out of landfill.
• Continue education campaign around organics	• This continued throughout 2022, in particular with compost education and workshops delivered as part of Ako Ōtautahi | Learning Cities Festival
Target 4: Clean landfill rate drops by 25% (measured against EFTS), by 2030 (assume 2021 is the baseline).	
UC's landfill is split between UC and the UCSA. Actual UC landfill in 2022 was 242.58 tonnes, compared to 237.585 tonnes in 2021: a 2.1% increase. This is slightly better than the modelled worst case scenario which assumes no change in kgs of landfill per staff and student as those EFTS and FTEs increase (which assumed 247.6 tonnes). Nevertheless, it is obviously far off the 231 tonnes that would have signalled a modest 6.7% reduction for the first year. However, UCSA landfill dropped from 27.09 tonnes in 2021 to 19.915 tonnes in 2022. This means the total tonnage of landfill from both parties combined dropped by 0.82%. UC's landfill rate measured against EFTS and FTEs increased from 12.51 tonnes per 1000 staff and students in 2020 to 13 tonnes in 2021 and 13.29 tonnes in 2022.	
• Enhanced focus on waste education and promotions	• This continued in 2022, with Plastic Free July and Recycling Week campaigns reaching over 30,000 on social media
Target 5: Single use plastic bottle disposal drops by 20% (by 2025) and 50% (by 2030) (measured by annual audit against EFTS).	

Plastic bottles were measured extensively for the first time in the 2022 audit to provide a baseline for measuring. They made up 19% of the recycling waste stream (including those incorrectly disposed of to landfill).	
• Look to promote cans over plastic bottles	• While a full programme to do this is on hold pending decision on plastic bottles, some messaging to this end will appear during 2023.
• Scope ban on plastic bottles	• An extensive survey about plastic bottle use was run with students in 2022, as a collaboration between the Sustainability Office, the UCSA and academics from Psychology and Marketing. This provides some direction for future policy.
• Consider communications plan to help reduce plastics coming in from off site.	• This is pending, with intention to address this from 2024.

Furniture disposal

The upgrade to Dovedale's Waimairi Building saw the need to remove a significant amount of furniture deemed no longer fit for purpose or needed within the University.

Rather than sending the entirety to landfill, Facilities Management offered the furniture for free to Ōtautahi community groups and organisations.

Over the course of a week, over 30 community groups and other organisations collected almost 600 items of furniture - mainly chairs, desks, bookshelves, filing cabinets and metal tambours. Groups ranged from schools, community gardens, animal rescue organisations, neighbourhood associations, churches, community lounges and welfare organisations.

The call for interest in the furniture was extremely positive (and at times overwhelming) showing there is a high need within these communities for free (or low cost) good quality furniture.

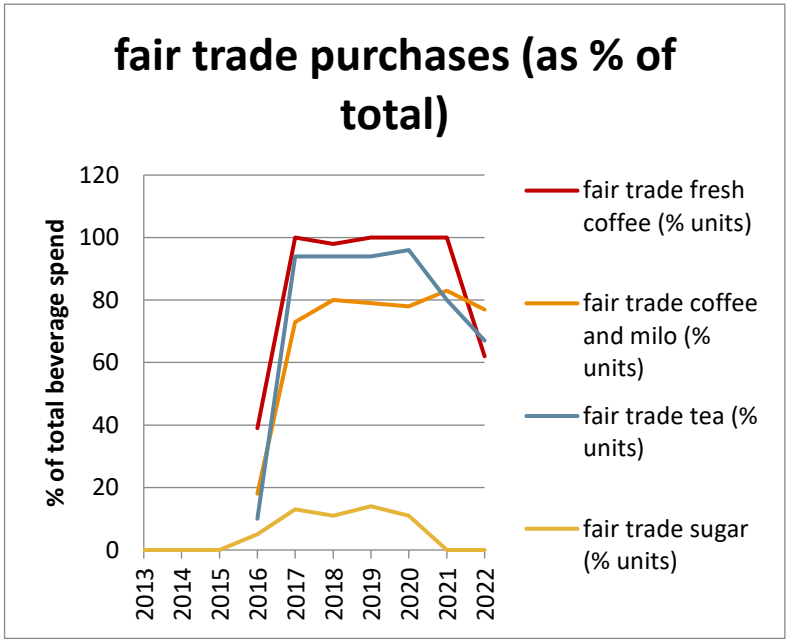
As a result, only 23.5 tonnes was disposed of to landfill.

Sustainable Food and Drink Planning

Late in 2022 the existing Sustainable Food and Drink Plan was reviewed and updated. The goal of this plan is to work with a range of partners to both improve the overall wellbeing of our campus community, but to also partner meaningfully with external organisations in order to enhance the University's community impact in the important areas of food security, food sovereignty and food resilience. The revised Plan can be viewed here.

Fair Trade

The University has continued its commitment as a Fair Trade University in 2022, ensuring our food and beverage purchasing is aligned with minimum standards set by Fair Trade Communities NZ. Somewhat disappointingly, 2022 saw fair trade coffee (from office kitchenettes) purchasing dropping below 100%. The drop to 62% was due to a large purchase order raised from a single department of non-fair trade coffee. The fair trade tea spend also fell, from 96% of the total tea spend in 2020 to 67% in 2022. The Sustainability Office is developing a communications plan with the Communications team to address this.



Milk

A partnership with UC Procurement saw lunchroom fridges across Ilam and Dovedale campuses being stocked with Canterbury's Choice milk – the region's only supplier of pasteurised, A-2 protein milk in reusable glass bottles.

UC ordered 4095 litres of milk in November and December alone. That's 4,095 glass bottles now staying in the circular system!

Milk is delivered to campus twice a week, with empty glass bottles being collected and taken back to the family-owned factory. 10L refillable stainless steel kegs are available for areas or departments with high milk orders. Late 2022 saw 90L of milk used via the keg system, called 'spouts'.

Based in Springston, Canterbury's Choice farms with a regenerative approach: small herd sizes, organic feed grown on site, native plantings, waterway monitoring and a strict no bobby calf policy.

The move aligns with UC's vision to continually improve sustainability across operations and purchasing, and to support the local economy.

6 Grow our Sustainability Networks

Engage with local, national and global networks

6. Grow our sustainability networks

Sustainable Development Goals Summit Series

During 2022 the University continued to participate in the overall development of this national programme of events aimed at raising awareness and generating momentum for change around the Sustainable Development Goals. It did this primarily through participation in the Universities New Zealand Expert Panel on the SDGs, which is currently chaired by the UC Sustainability Manager. In addition to this, the Sustainability Manager became a member of the Aotearoa SDG Alliance board, which was established following the 2020-2021 SDG Summit co-hosted by the University of Canterbury and Lincoln University.

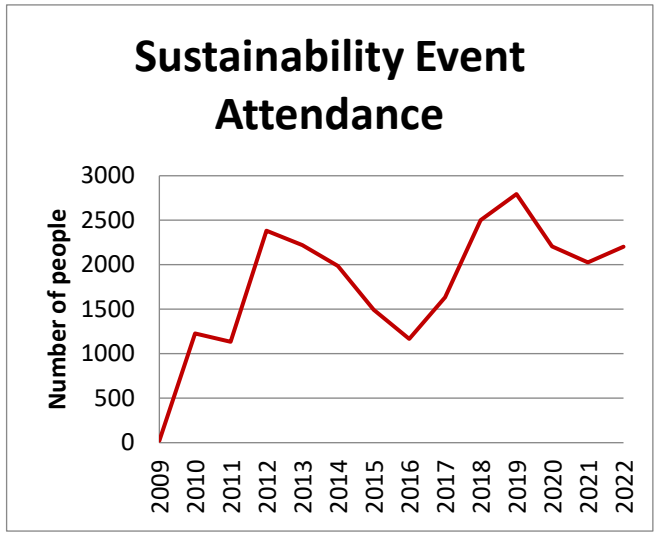
Tītohu Tūroa | Sustainability Showcase

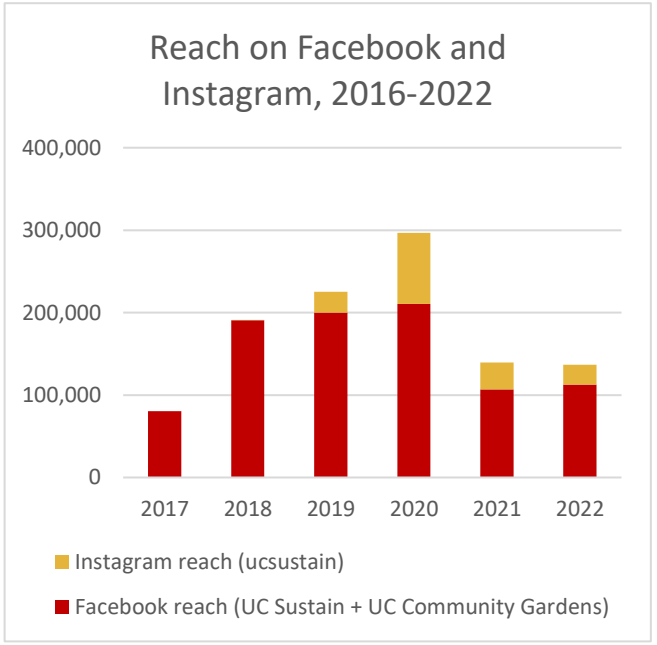
On Friday 28 October 2022, the University of Canterbury and the Christchurch City Council partnered to present a showcase of research and action towards addressing the climate emergency and creating a better future for the communities of Ōtautahi Christchurch, and beyond. The free event, held on UC's Ilam campus, gave the general public, students and staff an opportunity to hear from top speakers, leading academics and UC postgraduate students driving sustainability outcomes locally, regionally and nationally. A key highlight was hearing from the Chair of the Climate Change Commission. More information about the day, including recordings of the talks, can be found here.

Sustainability Events and Student Engagement

2022 saw the SDGs come to life through the Sustainability Office's events, communications and engagement programme, as well as the Sustainability Showcase. Biodiversity, waste, transport and the community garden were the real stars, showing our community's increased appetite for learning and taking action for sustainability on campus.

Biodiversity engagement flourished with the on-boarding of a Biodiversity Projects Coordinator, allowing for students (particularly those studying Environmental Science) to get hands-on with predator monitoring, trapping, and native tree planting on campus.





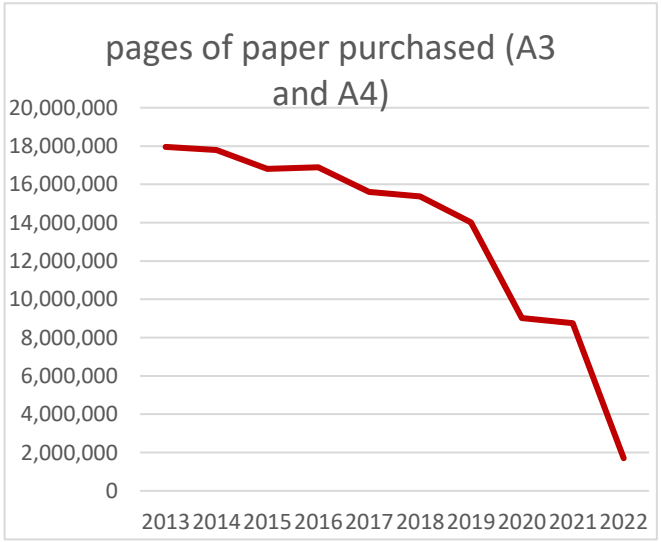
Partnerships for the Goals was in action through sustained relationships with UC's Communications team, allowing for messaging like Plastic Free July, the Aotearoa Bike Challenge, World Biodiversity Day, composting workshops and Recycling Week to be amplified throughout the university community. A partnership with UC Wellbeing and UC Rec and Sport for Mental Health Awareness Week saw Te Ngaki o Waiutuutu hosting events such as a harvesting and cooking class, bringing a new audience into the garden.

Our team of highly engaged Eco Volunteers continued to get stuck into campus sustainability projects, with a core team of 15 attending a Bead and Proceed Epic SDG Workshop. Following this, the team delivered a low-waste Sustainability Mākete to connect local sustainability champions and businesses with the wider student body to inspire action.

The year saw a total of 2200 staff and students engaging with Sustainability Office events on campus, with a total reach of 133,000 across our social media channels.

Paper purchasing

We continue to monitor paper purchasing across the University, and are pleased to note that this has continued a dramatic downward climb.



Tāpiritanga | Appendices

Sustainability Indicators and Audit Status

Note:
IV= Independently verified
EA = Externally Audited
NV= Not verified

	2014	2015	2016	2017	2018	2019	2020	2021	2022	audit status
Facilities & Operations										
electricity (kwh)	25,803,113	25,414,231	25,229,741.00	28,033,970.00	31,500,913.00	26,943,852.00	26,937,348.00	29,313,934.00	28,169,639	IV
GHG emissions (tonnes CO_2-e)	22,590	22,870	21,436.53	23,099.64	26,309.97	24,359.66	16,800.00	15,672.00	18,684.96*	EA
Coal (tonnes CO_2-e)			10,359.90	10,731.40	12,831.83	11,883.46	11,145.54	11,363.38	12,178.78*	EA
coal burned (tonnes)	5,334	4,846	4,941.00	5,396.94	6,276.00	5,733.10	4,770.14	5,310.96	5,497.18	IV
Air Travel (tonnes CO_2-e)			7,218.34	8,094.88	9,567.89	8,766.94	1,698.81	553.71	2,812.84*	EA
Air Travel: Long Haul GHG			4,836.96	5,765.56	6,916.63	6,452.28	1,069.07	72.69	1,615.31*	EA
Air Travel: Short Haul GHG			1,042.16	1,058.01	1,153.55	1,102.06	182.51	11.19	429.558*	EA
Air Travel: Domestic GHG			1,339.21	1,271.31	1,497.71	1,212.60	447.23	469.83	759.045*	EA
Air Travel (kms)			41,912,916.00	46,919,292.00	52,027,773.00	49,034,888.00	11,585,212.00	2,458,593.00	15,439,117	IV
Electricity GHG			3,072.24	3,465.66	3,059.47	2,854.95	2,565.95	2,972.51	3,693.33*	EA
Other GHG			786.05	807.69	850.78	854.31	1,389.70	782.40	*	EA
waste to landfill (tonnes)	312	386.47	337.77	314.61	319.41	315.08	221.998	237.585	242.58	IV
Comingled waste (tonnes)	27.56	40.12	41.27	16.31	12.38	16.19	13.068	13.224	13.812	IV
IT Recycling Service (tonnes)	25.66912	18.5535	18.6285	23.20	31.88	20.58	16.70	11.42	12.11	NV
water use (litres)			292,875,000	293,571,240		324,943,000	257268745.4	277,195,533		NV

cycle stand count	1749	2004	2458	2364	2870	3860	3662	3731	3804	NV
native birds			187	119	201	208	128	250	255	NV
Partnerships										
pages of paper purchased (A3 and A4)	17,787,750	16,808,500	16,894,075	15,599,275	15,373,630	14010185	9,020,250.00	8,746,250.00	1,788,000	IV
fair trade fresh coffee (% units)			39	100	98	100.00	100	100	62	IV
fair trade coffee and milo (% units)			18	73	80	79.00	78	83	77	IV
fair trade tea (% units)			10	94	94	94.00	96	80	67	IV
fair trade sugar (% units)	3%	5.00%	5	13	11	14.00	11	0	0	IV
Engagement										
sustainability event attendance	1985	1495	1167	1634	2501	2794	2208	2025	2626	NV
blog views combined		2,700	9160	7087	6,801	8047	6822	5194	0	IV
blog views - sustainability office					1,635	1827	2370	2010	0	IV
Tū ki te tahi blog views					1296	2071	360	1515	778	IV
Insider's Guide blog views					3,870	4149	4092	1669	nd	IV
instagram followers (ucsustain)					743	1025	1421	1559	1894	IV
Instagram followers (garden)								156	456	IV
Instagram reach (ucsustain)			0	0	106	25337	86308	32705	24232	IV

Instgram reach (Community Garden)								321	4031	IV
facebook total reach (garden)					16,225	8976	14367	13857	40299	IV
facebook likes (UC Sustainability)		1,428	1736	2075	2361	2850	3193	3573	3685	IV
facebook likes (garden)		451	581	679	752	850	1010	1149	1460	IV
Facebook fan count (combined pages)	1172	1879	2317	2754	3176	3884	4484			IV
Aotearoa Bike Challenge participants #					4.5	7.3	11	11	11	IV
Aotearoa Bike Challenge kms cycled					18933	34651	44868	47195	45761	IV

*2022 GHG Emissions provisional until annual audit completed (mid 2023).