Pūrongo Toitū te Taiao
2019 UC Sustainability Report

manaaki tangata, manaaki whenua

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Kupu Whakataki | Introduction

Last year we reported that UC had adopted a new Sustainability Framework. However, during 2019 UC developed and adopted a new Strategic Vision, which underscored the importance of sustainability to the UC community.

As part of this, a Sustainability Working Party developed an implementation plan for sustainability at UC.

The Working Party identified five work streams:

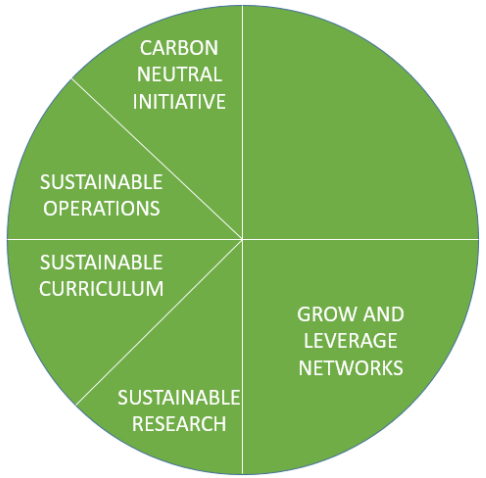
- Weave opportunities for students to learn and contribute to resolving the Sustainable Development Goals through UC teaching
- Ensure that UC research contributes to resolving global sustainability challenges
- Establish a Carbon Neutrality Initiative that will ensure that UC will be carbon net neutral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

Sitting alongside these five areas are a number of specific actions. Many of these actions will require work from new working groups. These working groups will be supported by the Sustainability Office, and a plenary of the working groups will essentially form the basis of a renewed Sustainability Reference Group.

The five work areas identify which elements of the Learning in Future Environments (LiFE) framework UC is prioritising for the near future. These five areas align well with the Learning in Future Environments four priority areas and therefore to the various LiFE Frameworks which sit under these priority areas. This is the organising framework for this report. As such, a detailed analysis of UC's performance against LiFE has been undertaken for the first time.

It also gives an indication about the contribution UC is making towards the United Nations Sustainable Development Goals (SDGs). On this point, it should be noted that *the Sustainability Office recommends moving beyond 'badging' specific UC work areas against individual SDGs, and analyses how it is meeting the 169 specific targets for the Goals. This is especially pertinent given that UC will co-host the Third SDG Summit in 2021.*

UC Sustainability Framework



Acknowledgements

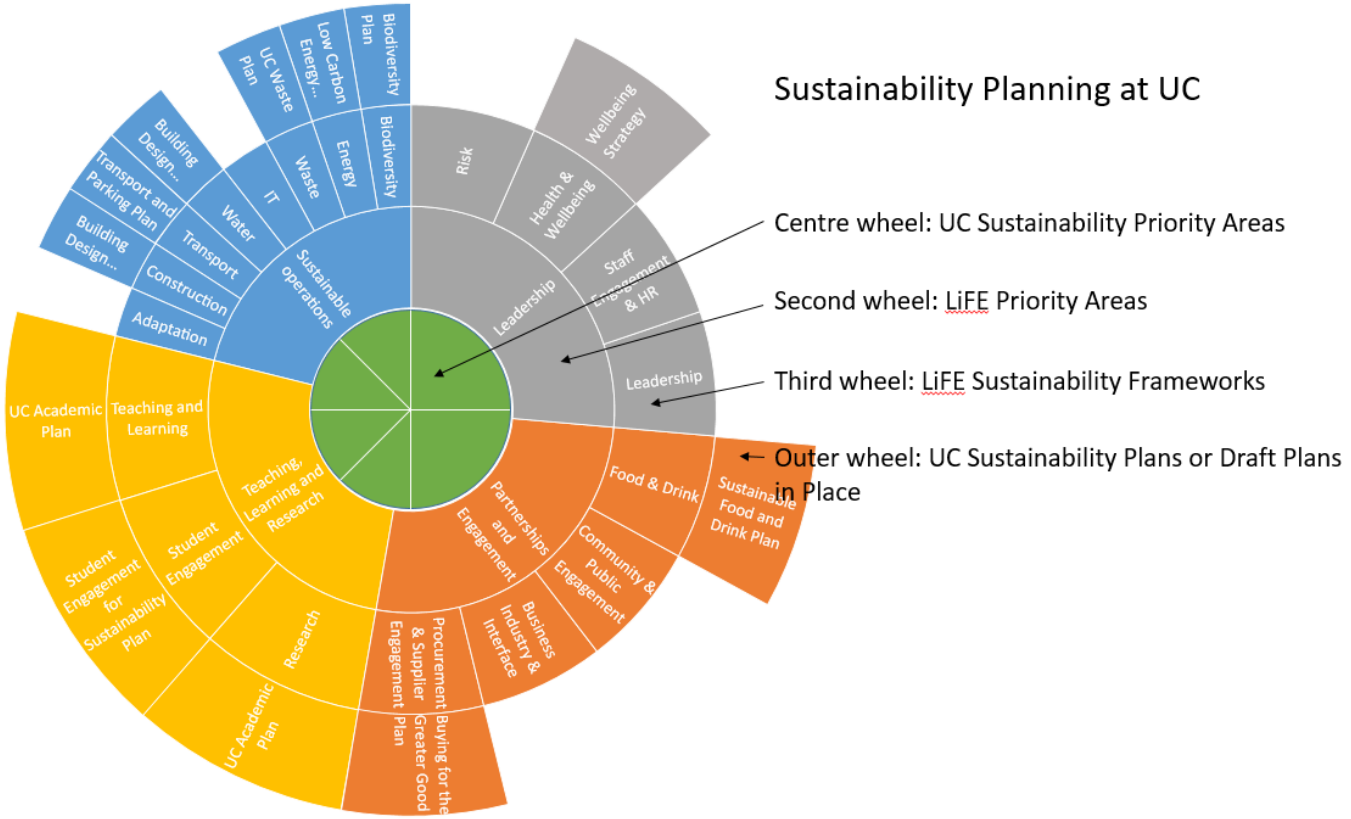
This year a larger range of people have contributed to the Sustainability Report than in previous years. This can be ascribed to both the increased profile of sustainability within the University of Canterbury, and also to growing understanding of the sustainability reporting framework we use, and therefore how different actors can participate in this.

Tari Toitū te Taiao | Sustainability Office would like to thank these individuals for their reporting contributions: Steve Gibling, Susannah Wieck, Rachel Wright, Shelley Ranson, Chloe Wium, Brian Phillips, Rob Oudshoorn, Michael Oliver, Tony Sellin, Kavit Sharma, Jon Harding, Jim Briskie, Tim Huber and Emma Morar.

The UC Sustainability Reference Group has reviewed this report.

UC's Senior Leadership Team approved this report on 16 June 2020.

UC Council received this report on 24 June 2020.



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

Kia ora,

It is my pleasure to present the 2019 UC Sustainability Report, although I do so in a time of considerable global uncertainty and challenge.

Last year I led the creation of a new strategic direction for UC. Through the extensive consultation process sustainability emerged as a top priority for our community, and this is reflected in the new UC Strategy. The implementation plans that came out of this strategy ensure that we act quickly to address many of our sustainability challenges. Foremost amongst these is our plan to phase out coal as our primary means of heating our spaces. We are investing in infrastructure upgrades to reduce our carbon emissions associated with heating by approximately 85% within the next 24 months, maximising our uptake of renewable energy focusing on being net carbon neutral by 2030.

We are also reviewing our curriculum and research programmes to ensure that we are making a meaningful contribution to the Sustainable Development Goals (SDGs). UC remains committed to engaging with the wider community on sustainability issues. One of our academic staff members, Professor Bronwyn Hayward, is one of two New Zealand members of the Intergovernmental Panel on Climate Change, for example. A further example of this is our intention to host the 2021 New Zealand Sustainable Development Goals Summit. This is an opportunity to gather together tangata whenua, Pasifika, business, government, community, youth, health, education and other sectors to advance New Zealand's work on implementing the SDGs. As part of this work we are represented on the Universities New Zealand Expert Panel on the SDGs.

We are living through an unprecedented period in human history. COVID-19 has shown us what a global crisis, looks like and how it important it is to have a global response. Our experiences here in Canterbury means that we understand how to navigate our way through the changes imposed upon us and we continue to learn how to be agile and responsive in a fast-changing situation. As we respond to and anticipate further changes, we remain focused on our plans for sustainability at UC.

Ngā mihi
Professor Cheryl de la Rey


Sustainability Office
Toitū te Taiao
UC SUSTAINABILITY
UC
UNIVERSITY OF CANTERBURY

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

This report is organised according to the Learning in Future Environments (LiFE) framework, with additions developed for the UK Sustainability Leadership Scorecard.

We begin with an assessment of progress on the priorities for 2019 as identified in 2018, noting that these have been subsequently amended.

UC Sustainability Framework	**2019 Priorities**	**Progress during 2019**
Sustainable Operating Practises	Continue work on Low Carbon Energy Scheme Assess structure of Sustainability Office Begin enacting Biodiversity Plan, with focus on Beatrice Tinsley and Wellness Precinct Implement the first phase of the Waterways Monitoring Framework Implement next stage of Bicycle Parking plan – Beatrice Tinsley Bike Park Bring UC waste system onto a sustainable footing	Work on this scheme continued during 2019 and will continue through 2020. The structure of the Sustainability Office has been reviewed as part of the proposed new FM structure. Significant native planting undertaken around Haere-Roa in the Wellness Precinct. Waterways Monitoring Framework first phase completed. Beatrice Tinsley Bike Park completed, adding 400+ bike parks. Improvements have been made regarding compostable packaging. Waste posters are being redesigned.
Partnerships for Sustainability	Participate in UNZ's committee of the Sustainable Development Goals, as part of the Government's Voluntary National Review. Include Sustainability in priority categories of the Procurement Strategy Run a high profile Sustainability Awards for staff and students	Participation in this process undertaken. This project is on-going. Awards attended by over 50 staff and students, and presentations made by Vice Chancellor.

1.1 Leadership and Governance

1.1.1 Leadership

Strong senior leadership aided the development of the new UC Strategic Vision and Sustainability Implementation Plan in 2019. LiFE requires UC to have a sustainability plan in place, and this has been achieved. The Sustainability Framework adopted by UC in 2018 will be superseded by the work completed in 2019 in due course.

1.1.2 Staff Engagement and HR

Work began with Human Resources on identifying and developing ways of engaging staff in a sustainability agenda during 2019. This focused around an initial project of implementing the New Zealand Transport Agency's (NZTA) new guidelines for supporting staff to purchase e-bikes.

The major opportunity for engaging staff in sustainability during the year was the Sustainability Awards. For the first time, the Vice Chancellor presented these awards, which in turn generated the highest ever number of nominations for these awards. The nominations were judged by a panel of independent judges including Tony Moore (Sustainability Advisor, Christchurch City Council), Brodie Akacich (Sustainability Manager, Christchurch International Airport), and Lin Roberts (academic staff member, Lincoln University). A list of nominations is included in the appendices.

1.1.3 Health and Wellbeing

During 2019, UC's Wellbeing Strategy was developed. This utilises the Te Pae Mahutonga model of wellbeing, which broadens out UC's understanding of the ingredients of wellbeing, and includes the importance of the natural environment. A new staff member will begin at UC in 2020 with a focus on reporting, and this is likely to include reporting against the SGDs.

1.1.4 Risk

A risk profile for UC regarding climate change has not yet been developed. However, in September 2019 the New Zealand Government announced that it had "appointed a project team to undertake New Zealand's first National Climate Change Risk Assessment (NCCRA)… The Risk Assessment will be based on the recently released Arotakenga Huringa Āhuarangi – A Framework for the National Climate Change Risk Assessment for Aotearoa New Zealand. This Framework was developed to guide the production of the NCCRA, which will help the Government to understand the impacts of climate change on the country's natural, financial and infrastructure

assets."[1] This provides the context for the Government's discussion document, "Climate-Related Financial Disclosures: Understanding Your Business Risks and Opportunities Related to Climate Change" which was released in October 2019. This discussion document refers to the G20's Taskforce on Climate-related Financial Disclosures (TCFD) which identified two types of risks: transition and physical.

The transition risks for businesses are:

- policy risk, due to evolving policy actions by governments and regulators
- litigation risk, due to an increase in climate-related litigation claims
- technology risk, due to the significant impact of climate-related technological improvements or innovations
- market risk, due to shifts in supply and demand in response to climate-related risks and opportunities
- reputational risk, due to changing customer or community perceptions about whether an organisation is contributing to or detracting from the transition to a lower-emissions economy.

The physical risks for businesses are:

- The TCFD stated that there may be financial implications for entities as a consequence of direct damage to assets, and indirect impacts from supply chain disruption. These risks can be either event-driven (eg, the increased severity of extreme weather events) or driven by longer term shifts in climate patterns that may cause sea level rise or chronic heat waves.
- The TCFD also noted that entity performance may be affected by changes in water availability (sourcing and quality), changes in food security, and extreme temperature changes that impact on the entity's premises, operations, supply chain, transport needs and employee safety.[2]

UC needs to undertake such a risk assessment, and may soon be required to do so.

[1] https://www.mfe.govt.nz/news-events/project-team-appointed-undertake-new-zealand%E2%80%99s-first-national-climate-change-risk

[2] Ministry for the Environment, "Climate-Related Financial Disclosures: Understanding Your Business Risks and Opportunities Related to Climate Change" (New Zealand Government, Wellington, 2019)

1.2 Research, Learning and Teaching

1.2.1 Research

UC's Research contribution to the SDGs was reported on in the 2018 Sustainability Report. As these are typically long-term projects, they were not revisited for the 2019 report.

1.2.2 Learning and Teaching

This year the Sustainability Office once again sought to understand UC's teaching and learning contribution to the SDGs using the keyword search method. This method uses a piece of bespoke software to match a set of keywords for each SDG with course descriptions as listed in the Course Information System (CIS). The Sustainable Development Solutions Network developed the keywords.

There are certainly methodological problems with both the software and the keywords, which are explained in the notes to the report. Essentially, these issues relate to the presence of false positives, and the choice of wording in the CIS.

However, the results allow for a comparison year on year, and provide a helpful indication of UC's SDG strengths regarding teaching.

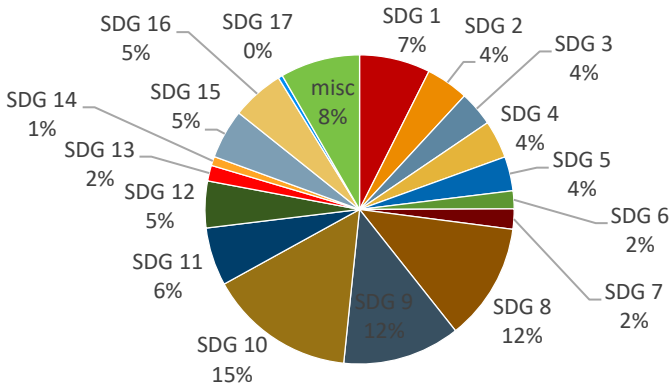
Overall, 1,129 courses mentioned at least one of the SDG keywords. More than half of that number (573 courses) referenced the keywords only one or two times, and given the propensity for false positives with the keywords, that number should be treated with caution.

By keywords, the SDGs most well represented in UC courses are SDGs 10 (15%), 9 (12%) and 8 (12%). If we look at those SDGs whose keywords featured in courses five or more times – in probability denoting a higher degree of focus on issues relevant to that SDG – it is obvious that SDG 10 stands out. 45% of SDGs represented in courses with five or more keywords relate to that Goal. SDG 15 follows (17%). A list of the SDGs can be found in the appendices.

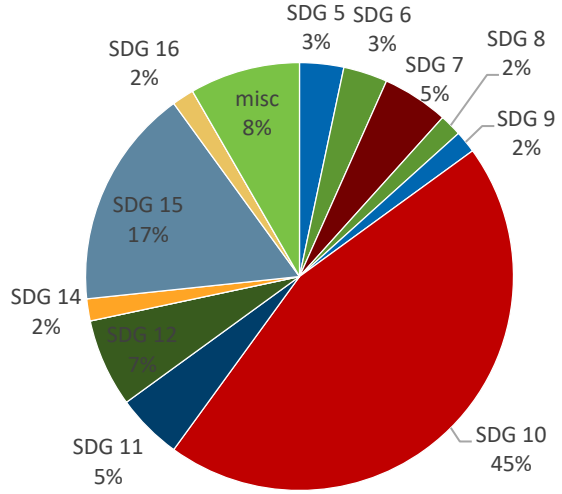
The individual courses featuring the most SDG keywords are listed below.

Course Code	Course Title	CIS Occurrences	College
ENME405	Energy Systems Engineering	22	Engineering
MAOR172	Science, Maori and Indigenous Knowledge	20	Arts, Science
GEOG106	Global Environmental Change	19	Science, Arts
MBAD663	Leading Sustainable Enterprises	17	Business and Law
FORE447	Environmental Forestry	17	Engineering
LAWS364	Law of the Sea	17	Business and Law
POLS443	Science, Technology and Environmental Policy	17	Arts
GEOG402	Resilient Cities	16	Science, Arts
ENNR405	Ecological and Bioresources Engineering	15	Engineering
ENCN445	Environmental Fluid Mechanics	15	Engineering
FORE105	Forests of the World	15	Engineering
BIOL270	Ecology	15	Science

Percentage of courses mentioning keywords for each SDG (as proportion of courses mentioning SDG keywords)



Percentage of courses mentioning 5 or more keywords for each SDG (as proportion of courses mentioning 5 or more keywords)



1.2.3 Student Engagement

Chloe Wium, Student Engagement Coordinator

2019 saw more students engage in sustainability issues than ever before, with a real feeling of grass-roots energy on campus. More students are taking the lead on sustainability issues like climate action, sustainable transport and low-waste living. This is consistent with a survey of students conducted during the year, in which of a range of ten topics were presented for students to rank according to how much money they were prepared to spend on them. Students prioritised their hypothetical spending on 'Supporting student success and wellbeing, followed quite closely by 'A sustainable university by 2030 (socially, financially & environmentally.'

The Sustainability Office has been working closely with student groups and champions to nurture this energy, and this year we again delivered our popular Bike Breakfast event, Plastic Free July and Fashion Revolution campaigns and Fair Trade events. A highlight for 2019 was the opportunity to support our rangatahi during Climate Action Week 2019, which included sign painting sessions and walking with those students who attended the School Strike 4 Climate in September.

Over 2,700 students and staff attended sustainability events over the course of the year, and we reached a total of 190,987 people across our UC Sustainability Community social media channels (see chart on following page). Our more targeted communications plan for engaging our community via Mailchimp newsletters led to an increase in average open rates from 24.8% in 2018 to 33.4% in 2019.

Our Eco Volunteer program remains a key part of engaging our student community, with 133 students now signed up into our program. 65 of these students are also recognised as Eco Volunteers through UC's Co-Curricular Record. From this we have identified 40 students as active sustainability champions, and who we see gaining confidence and starting to take leadership on sustainability events and initiatives on campus. The 2020 Eco Volunteer program will build on our current offerings, as well as broadening to include opportunities for students in climate action, engaging with the SDGs and more project driven volunteer activities.

Case Study

PROD211: Waste material centred design

As part of the course PROD211 Materials Engineering and Selection, students are given a design project that is targeted to reduce and reuse waster materials. Students will have to design a product made from a specific waste material and focus on the commercial feasibility, novelty and sustainability of their designs. The aim of the project is to teach students about the value of so-called waste materials and find new and exciting ways to use materials that have been discarded as useless. All the waste materials that students will be given, ranging from cardboard packaging to plastic aprons, cabbage tree leaves and human hair have been supplied by companies that have a strong interest in improving their environmental footprint and UC's Sustainability Office in attempt to find local solutions for the waste produced on campus. The project ties with the research aims of Dr Tim Huber from the School of Product Design towards developing more sustainable and environmentally friendly products.

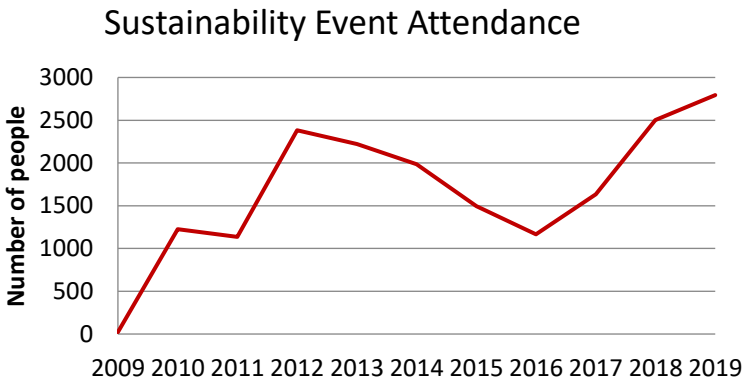
1.3 Facilities and Operations

1.3.1 Biodiversity

Biodiversity reporting at UC is still dependant on academics conducting class experiments and offering their results to the Sustainability Office. In 2018, a Biodiversity Plan for the UC Ilam campus was developed with engagement from academics and general staff. This is awaiting UC-wide approval.

Enhancing mahinga kai values is a core principle in the Landscape Concept and the Waterways Issues and Options document and the UC Waterways Plan 2017-2045. These fed into the high level Landscape Masterplan which was endorsed by SMT early in 2017.

During 2018 the Waterways Group continued work on and confirmed a monitoring and reporting framework for the campus streams. Implementation of this Framework began in 2019.



Waiutuutu/Okeover Stream

Professor Jon Harding, School of Biological Sciences

The ecological health of Waiutuutu/Okeover Stream has been monitored annually since 2000 by staff and students from the Freshwater Ecology Research Group in the School of Biological Sciences at four sites along the stream on campus. In 2019 the diversity of stream invertebrate species had recovered from a drop in 2017, however the ecological health of the stream is still of concern and in poor condition when compared to several different measures of stream health.

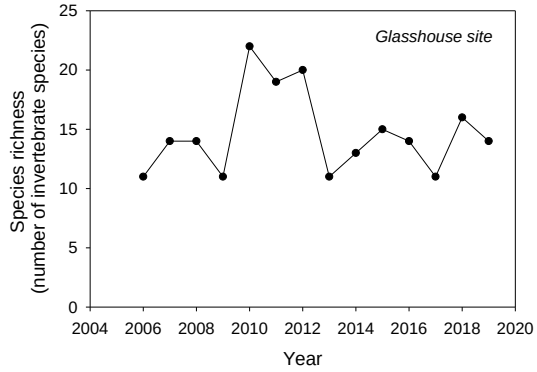
In 2019, the most downstream site near the University Glasshouses (monitoring site O5) had only 14 species which was markedly less than the 20 species collected at this site in 2012. The Macroinvertebrate Community Index (a widely used measure of stream health) scores an 80, indicating the stream is fair-poor and moderately polluted. Continued untreated contaminated stormwater inputs and sediment from construction over the last few years are all likely causes for this poor ecosystem health. High levels of sediment are particularly obvious along the reaches by Engineering and the Zoology Carpark.

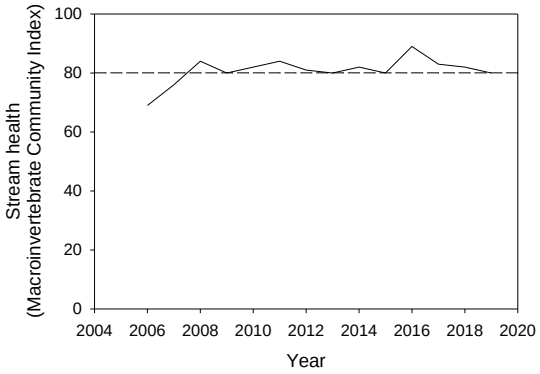
The approach being taken by the Waterways Advisory Group and Facilities Services with campus waterways is to improve them using the following hierarchy of strategies:

1) improve base flow (water quantity)
2) reduce contamination (water quality)
3) improve habitat.

The Waiutuutu/Okeover Stream is fed in the upper stretches almost entirely from air conditioning water discharged directly into the stream. At certain times of the year, this system is switched off which has a significant impact on aquatic life. A project is commencing in 2020 to understand what a minimum flow regime would look like to maintain a healthy ecosystem, with a view to increasing flow.

New work is also being undertaken to install stormwater filters at contamination 'hotspots' on campus to improve water quality. This is long-term work, and it may take several years before an effect on in-stream biota is observable.





Birds

Professor Jim Briskie, School of Biological Sciences.

In 2016, students from BIOL273 repeated a survey of birds on campus undertaken in 1990. This class has undertaken the bird survey every year since, and the data gathered from these surveys is presented below.

Species	1990	2016	2017	2018	2019
Paradise shelduck	0	0	9	1	11
New Zealand pigeon**	0	0	0	0	0
Silvereye	25	151	28	71	70
Fantail	7	11	12	8	27
Grey warbler	1	18	20	53	9
Bellbird	0	3	19	3	12
Welcome swallow*	-	4	26	21	21
Black-backed gull	0	0	2	32	27
Red-billed gull	0	0	0	6	27
Spur-winged plover	0	0	0	4	0
NZ scaup	0	0	0	2	3
Black-billed gull	0	0	3	0	0
Little shag***	0	0	0	0	1
TOTAL NATIVE	**33**	**187**	**119**	**201**	**208**
Redpoll	7	27	10	18	5
Chaffinch	3	11	37	32	22
European starling	12	12	7	57	50
Blackbird	101	192	161	333	352
Song thrush	32	34	19	61	61
Dunnock	27	61	37	72	78

Silvereye
Source: Forest & Bird

House sparrow	750	287	383	377	411
Greenfinch	23	18	55	50	36
Goldfinch	56	141	31	18	37
Australian magpie	3	0	2	0	0
Rock dove	0	175	114	188	138
TOTAL INTRODUCED	**1014**	**958**	**856**	**1206**	**1190**
Grey duck/mallard	44	54	19	54	37

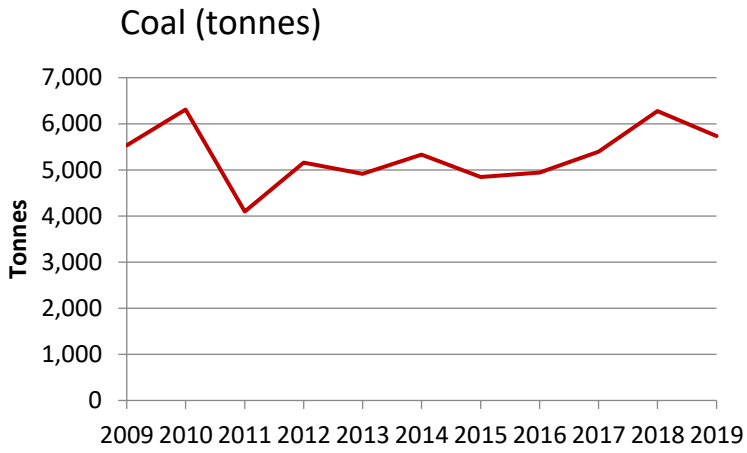
* Dodunski (1990) did not count welcome swallows though she noted some were present
** No native pigeons were observed during survey period, but at least 1 bird has been seen on several occasions from 2016-2018
Other species: two other species likely occur on campus: (1) little owl; this species heard singing at night in SE part of campus, and (2) kingfisher; seen a couple of times calling from a tree on SE part of campus near Avon River. Neither detected during survey period.
*** Seen for first time in 2019, in Avon River.

1.3.2 Energy and Carbon

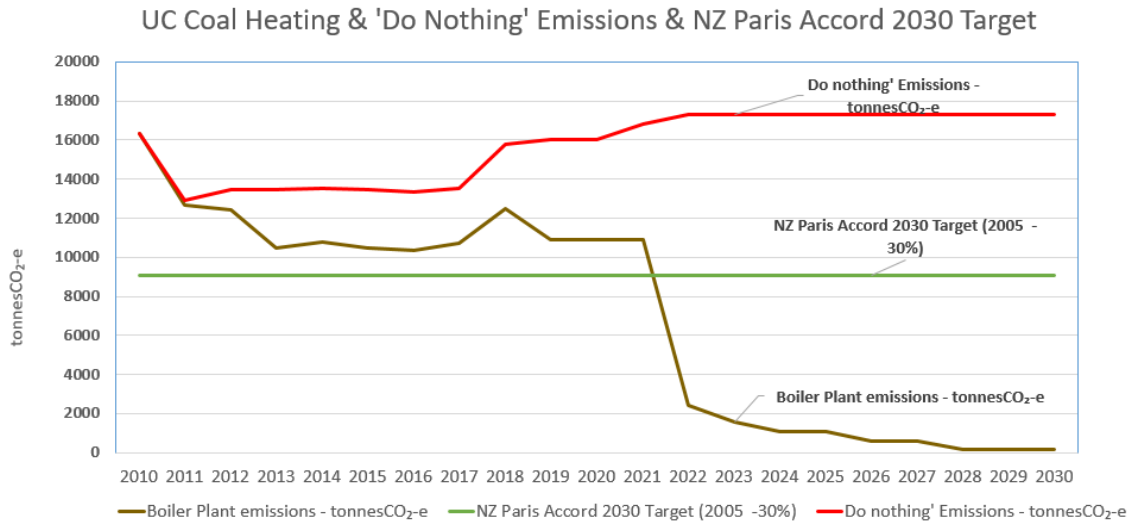
Tony Sellin, UC Energy Manager and Carbon Accountant

Overview, Buildings and Coal

2019 has continued the significant net increase in available study/workspace provided by the capital work and remediation programme, with the occupation of Rehua and the completion and occupation Beatrice Tinsley and Haere-roa buildings, along with reduction of floorspace with the handover of Locke and Logie buildings for the start of construction projects. However, 2019 has seen a significant reduction in UC's use of coal by -8% and electricity by -11% over 2018, reflecting the higher thermal efficiency of the new building envelopes, the energy efficient plant and equipment installed and continuing efforts to improve the efficiency of existing plant infrastructure, particularly the Ilam existing Boilerplant.



The Low Carbon Energy Strategy (LCES), which was approved by UC Council last year has advanced to business case, but the opportunity is being taken to review and reassess proposed technologies in order to ensure provision of an optimal physical and financial transition solution to enable delivery of UC's 2030 carbon neutrality target. The chart 'UC Heating & 'Do Nothing' Emissions & NZ Paris Accord 2030 Target' shows what UC's GHG emissions would have been by now if we had not upgraded buildings when the opportunity was presented after the Canterbury earthquakes. It also shows real and projected GHG emissions and predicts that by 2022 UC should be well below its commitment to achieve the Paris targets and carbon neutrality by 2030.

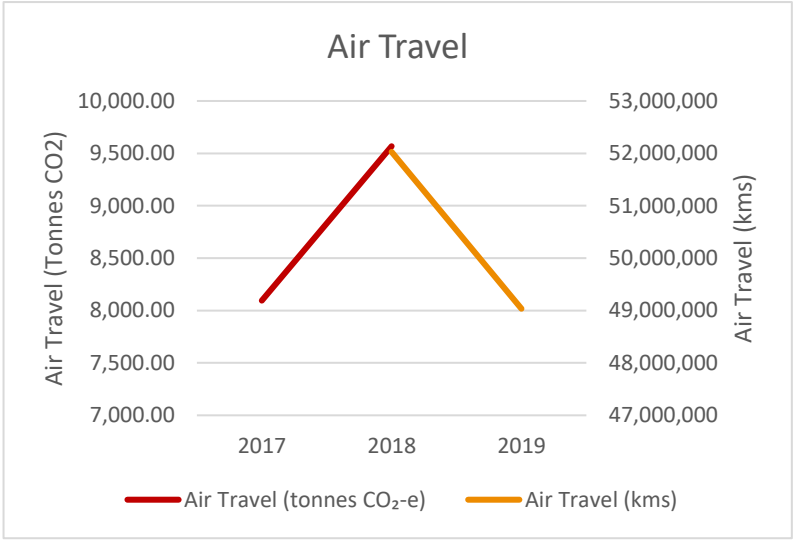


NB: Paris target as shown here is relative to coal burning, not total UC emissions.

Air Travel

Air travel makes up approximately one third of UC's carbon footprint. A significant level of detail is now available to track the use of air travel within the university making it possible, for example, to track these carbon emissions by college or service unit.

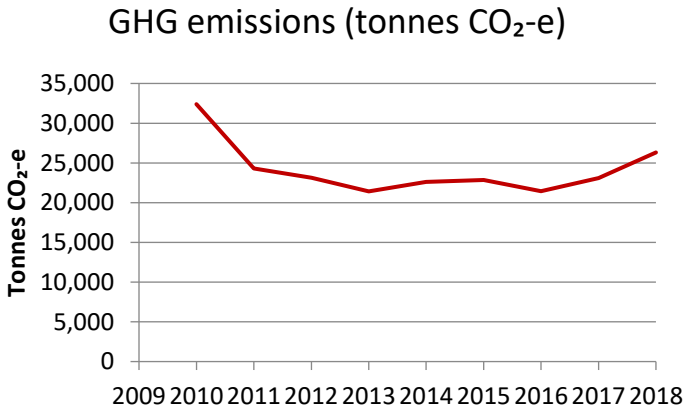
Greenhouse gas emissions from air travel increased 2017-2018, but kilometres travelled (as reported by Orbit) dropped 2018-2019 and we should therefore see a decrease in associated GHG when that year is audited.[3]

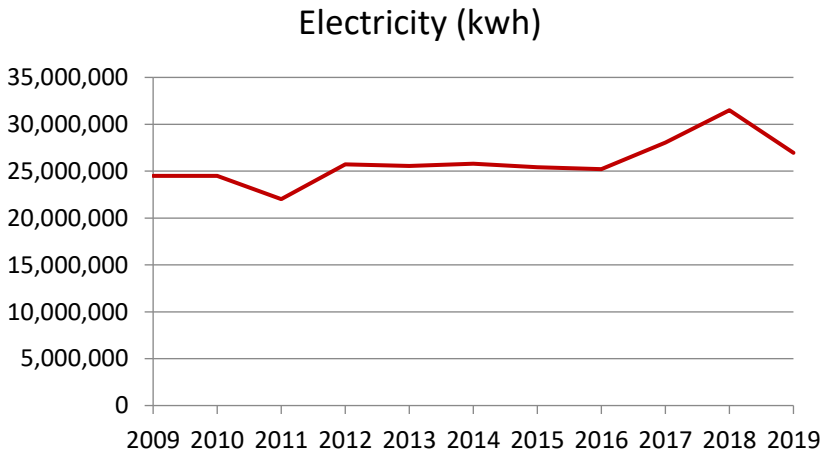


Reporting

UC annually quantifies and records its GHG (Greenhouse Gas) emissions in accordance with ISO14064-1, using the Toitu 'carbonreduce' programme (formerly CEMARS – certified emissions measurement and reduction scheme) and submits the inventory for audit verification and subsequent certification. The emissions include: Scope 1 (Direct emissions from the organisation e.g. coal), Scope 2 (Indirect emissions resultant from operation of the organisation e.g. electricity) and Scope 3 Mandatory (Indirect emissions resultant from operation of the organisation e.g. Air Travel) and Scope 3 Additional (Indirect emissions resultant from operation of the organisation e.g. hotel accommodation).

In practice annual GHG emissions inventories cannot be audited until completion of the year in question and therefore UC is only able to present the audited inventory data in the year following. 2018 had seen collective UC absolute emissions increase by 13.9% over 2017, however during that time both the student numbers (FTEs) and the UC gross floor area (GFA) grew by 7.5% and 16.7%, respectively. The higher GHG emissions for 2018 relate to higher coal burning that year. In 2019, coal burning reduced significantly. UC's absolute emissions (All scopes) remain -16.8% below the 2010 base year and the Scope 1 & 2 emissions are -25.3% below base year.





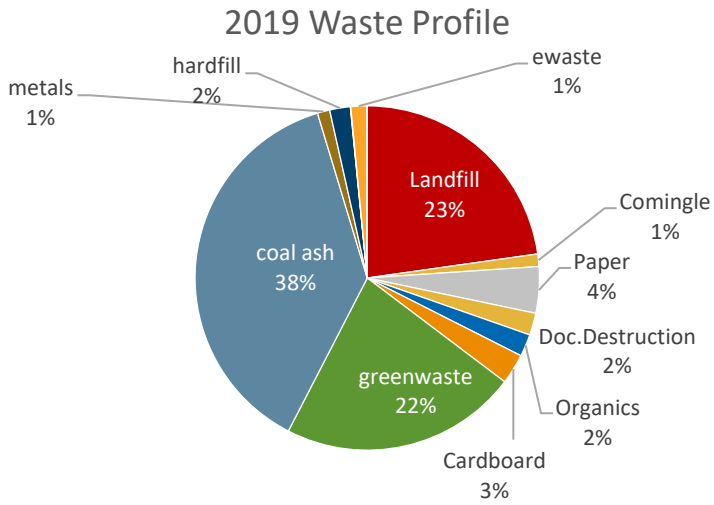
[3] Possible factors that may affect this include any change in emissions factors used to calculate GHG emissions, and the class of travel used by passengers.

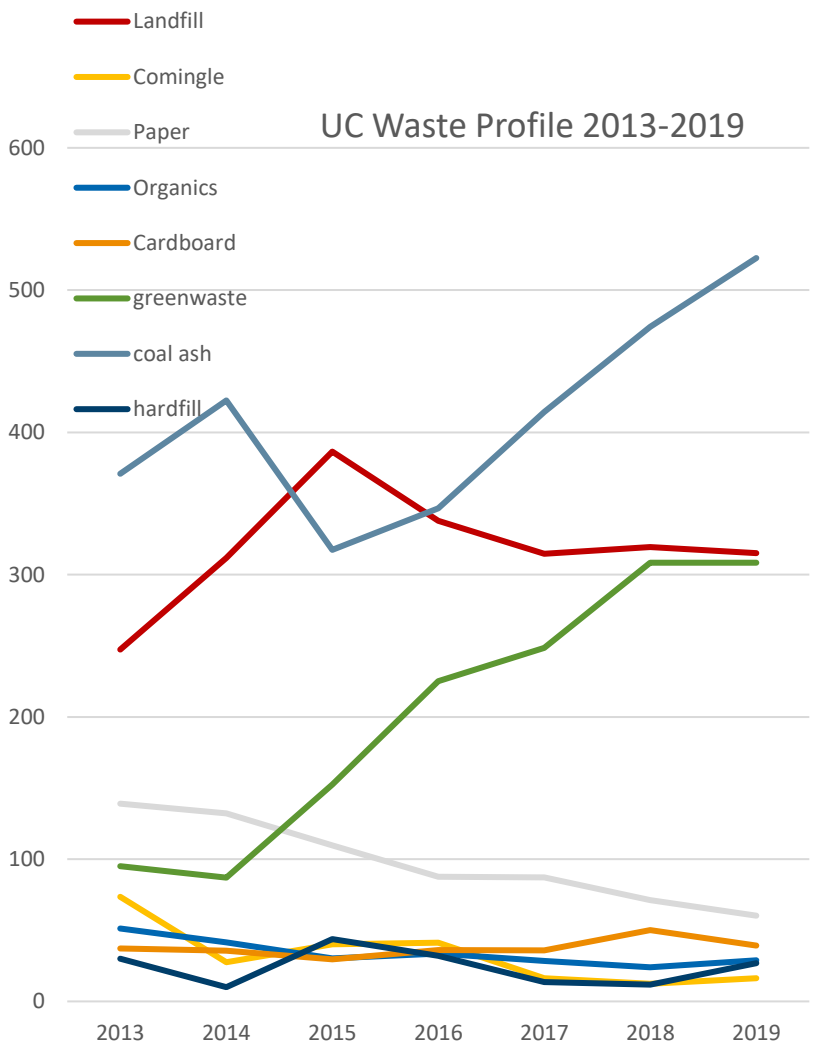
1.3.3 Resource Efficiency and Waste

The waste system at UC received little attention in 2019, essentially due to consolidating the work of previous years. Of note, however, is progress on dealing with compostable packaging. As noted in last year's report, compostable packaging had been introduced into UC in 2018 and this created some operational issues.

In 2019 these were resolved for the most part. In particular, waste signage was improved to deal with user errors, and at the back end a comprehensive sort of compostable packaging has been implemented (this is contracted to a third party). Finally, coffee cups, and other PLA-lined 'compostable' products, are being collected separately and these are being sent to a facility north of Christchurch that will compost them (this had previously not been possible).

The charts on this page show sharp increases in the quantity of coal ash and green waste being disposed of. This relates to a) more buildings coming on line to heat and b) the loss of the Grounds yard for composting. Landfill rates are slightly down on 2018. Comingled recycling continues to struggle, and will likely need an overhaul in 2020.



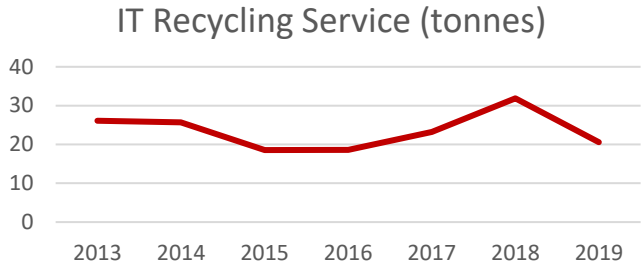


1.3.4 IT Services

IT Services continued their recycling programme for electronic equipment during 2019, recycling just over 20 tonnes of equipment.

1.3.5 Water

A project was initiated to install domestic cold water meters on all buildings in 2016. This project was approximately 98% completed by the end of 2017, and a handful of smaller buildings feeding off a main building do not have sub meters. No further progress on this was made during 2018 or 2019. In 2018 issues relating to damage to the water infrastructure meant that the end of year data could not be relied upon, but this was rectified in 2019. Between 2017 and 2019, there has been a 10.7% increase in use of domestic cold water.



1.3.6 Construction

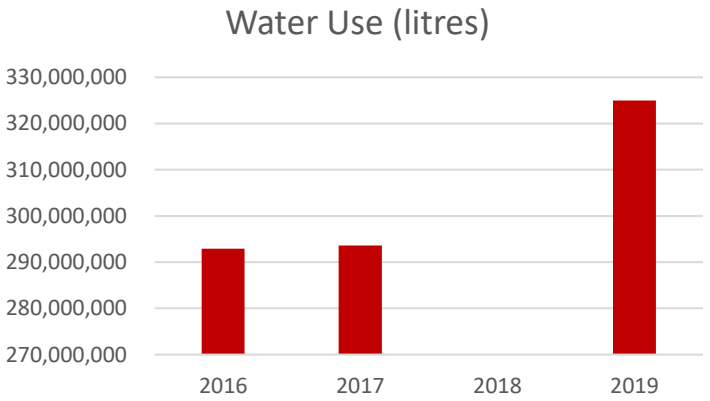
Mark Homewood, Deputy Programme Director, Capital Works

The major construction projects completed in 2019 were Haere-Roa/UCSA (July) and Beatrice Tinsley (October). Rehua, completed in 2018, was occupied from January 2019.

Beatrice Tinsley hosts the College of Science and is mainly offices. It features a timber frame, built on the existing foundations of the previous build. It is mostly naturally ventilated.

Haere-Roa/UCSA replaces the previous Students' Association building. As part of the project the precinct including the existing Health Centre and the proposed new Rec Centre it has a new low energy Ground Source Heat Pump energy system installed to provide heating and cooling. Innowood cladding was used in the building both internally and externally. Innowood products are manufactured predominantly from natural wood waste, to help prevent forest depletion through the sustainable use of recycled material.

Locke and Logie refurbishment was started, including upgrading the thermal properties of the buildings to enable the buildings to be transferred to Ground Source Heat Pump heating at a later date as part of the low carbon strategy.



1.3.7 Adaptation

UC does not have an adaptation plan in place, and does not yet have an organisational understanding of what the impacts of climate change on UC might be. This has been flagged by the Sustainability Office as a priority for 2020.

1.3.8 Transport - *Cycles*

In 2019 UC continued to increase bike parking on campus[4], making a marked difference with the return to use of the bike stands between Civil and Mechanical Engineering, and more significantly the new bike park at the north end of the Beatrice Tinsley building. This new space accommodates 416 bikes, including more than one hundred covered bike parks. It also includes a drinking fountain and a bike repair station, making this a valuable bike hub.

Additionally, UC began conducting regular audits of bike park utilisation on campus, to understand how well UC is catering to its cycling community in this respect. These will now be conducted twice a year (in March and July), giving us a summer and winter count. These were undertaken by a team of auditors over a one week period, noting the use of all bike stands hour by hour between 10am and 4pm. The summer count revealed an average use of 47% of all stands, while during a week in July, only 40% of stands were used. Some areas, nevertheless, were underserviced, while others were over-serviced. This has helped us to develop a work programme of better placing stands over the year ahead.

Based on these counts, UC successfully challenged the District Plan requirements for increased bike parking based on EFTS. Instead, UC's bike parking provision will be led by bike parking utilisation, where we undertake to increase bike parking in a) new areas and b) when utilisation reaches 70% or more.

More bike parks will be placed in the new Wellbeing Precinct in due course (once construction is complete).

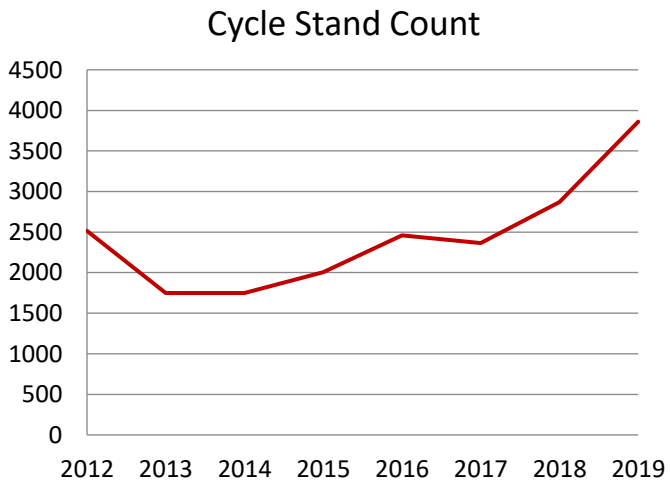
UC Sustainability and UC Bike continued to collaborate to deliver Dr Bike services to around 90 members of the UC community during the year. This year those accessing the service filled out a short on-line survey to help the team understand more about the value this service offers the UC community. A number of successful events were held throughout the year for the UC cycling community, including bike breakfasts, and a lunchtime event during Biketober (a citywide celebration of cycling) (see section 1.2.3).

Dr Bike Stats

60%
undergraduates

45%
international students

100%
happy with the service



[4] Note that the 2018 count is different from that reported last year, as additional bike parks were 'discovered' around the Halls of Residence during a detailed audit and retrospectively included in the previous year's account.

Electric Vehicles

Four Electric Vehicle charging stations have been installed on campus, servicing eight cars at any one time. The first two of these, installed earlier during the year, have been in high use.

Motorcycles

There has been an increase in motorcycle parking on campus. In response, new motorcycle parks have been marked out and these have been well received.

Travel Planning and Travel Survey

The Transport Advisory Panel did not meet during 2019, as the focus was on implementing plans from the previous years. These plans (along with those works undertaken above) centred around shifting mode use through community engagement.

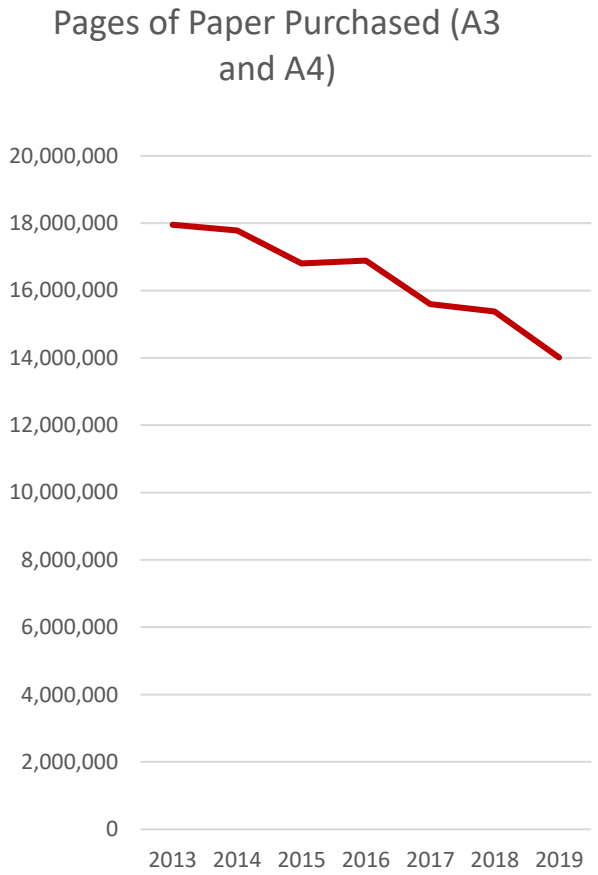
Planning is also underway to undertake the 2020 UC Travel Survey, which is conducted every four years.

This will mark two decades of continuous data, and will enable the development of more up to date transport planning – and give us new information on the needs of the cycling community as well as those using e-bikes and electric cars.

1.4 Partnerships and Engagement

1.4.1 Sustainable Procurement

The Procurement team took the opportunity in 2019 to embed some of the sustainable procurement practices developed over the previous two years. This has included increasing tendering criteria to drive sustainable outcomes – working with the Sustainability office to ensure positive environmental outcomes and benefitting local communities. One proxy for sustainable purchasing that we have reported on for a number of years is the number of pages of paper purchased. As can be seen, 2019 continued the steady decline in paper use observed since 2013.



1.4.2 Business and Industry Interface

UC does not yet have a policy around how sustainability features in its interface with the business and industry community. Having said that, there are nevertheless very strong and intentionally crafted links between UC and that community that centre around sustainability. Much of this work is guided by the Centre for Entrepreneurship. While there is not a policy directive around this, the Centre has found that in the last two to three years there has been a noticeable increase in students using their service with sustainability related ideas. Likewise, many of the businesses that the Centre partners with have a strong sustainability ethos.

To meet the demand and interest from students on sustainability, the Centre for Entrepreneurship has developed a number of new programmes. In 2019, the Centre ran a Sustainability Challenge, a Climate Change Challenge, and ran a one-day Impact Summit that focused on providing young people with skills and knowledge to enable them to create real impact for their community and beyond. They worked with exemplary businesses with strong sustainability credentials such as Kathmandu and Ethique to model best practice sustainability in business and social enterprises. Students involved in these programmes offered by the Centre are exposed to the Sustainability Development Goals, and in 2020 the SDGs will be woven more deliberately throughout the Centre's work.

There are also strong connections between the business community and the School of Business, and the School of Product Design where students are taught and are given direct exposure to the importance of developing new products and services with sustainability at the forefront.

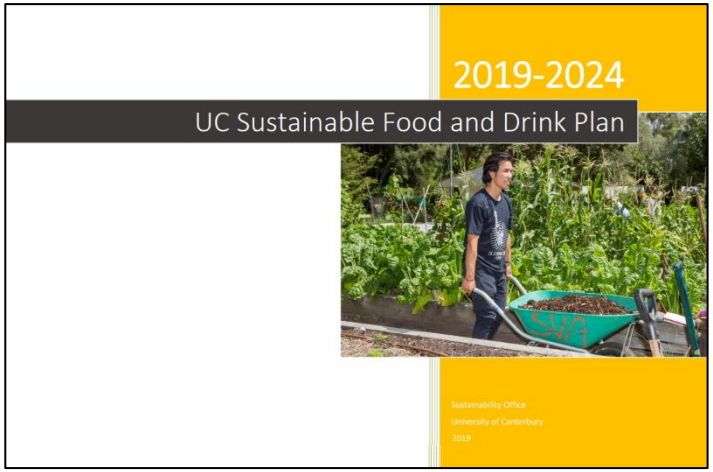
1.4.3 Community and Public Engagement

The new UC Strategic Vision has set engagement as its first priority, noting that a key objective is to "make a positive impact on social sustainability in Otautahi Christchurch and Waitaha Canterbury." In addition, it states that UC will "grow and leverage our local, national and global sustainability networks to bring new thinking to our challenge and to share our practice."

1.4.4 Food and Drink

Food and Drink Plan

In 2019, the Sustainability Office released its five year Sustainable Food and Drink Plan. This Plan is partly a response to research undertaken in 2014 showing the degree to which students were not eating well.



This Plan sets out five pathways for future work:

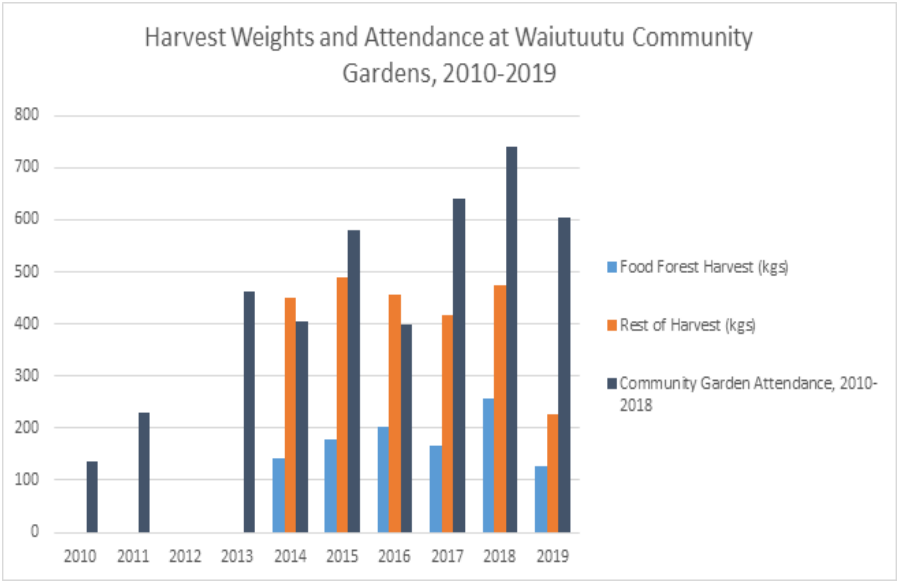
- Edible Campus
- Fairtrade Campus
- Community Connections
- Food Vendors
- Food Waste.

It sets out a range of actions that can be taken in each of these areas. Reporting on these follows.

Edible Campus

Te Ngaki o Waiutuutu: Waiutuutu Community Garden

The campus community garden saw a downturn during 2019, with a significantly smaller harvest recorded, and a drop-in attendance numbers. It is unclear as to why the harvest was so much smaller than in previous years – particularly for the annual crop beds. This may reflect the challenges of coordinating a community garden on fixed term contracts, which can work against the kind of detailed planning that can only be developed over several years in a particular garden.



Edible Campus Tour

The Sustainability Office again hosted an Edible Campus Tour, this time led by new Community Gardens Coordinator Niki Jones. The tour took place during a downpour, but was still attended by 25 people. The tour highlighted the range of edible plantings that have already been established around the campus.

Fairtrade Campus

Work on our Fair Trade University program continues, with UC celebrating its second year of accreditation. This year our highlight was celebrating Fairtrade Fortnight with our university

community, by hosting events and running communications campaigns that further embedded the importance of fair trade.

We continue to work with our external fair trade suppliers and other groups on campus (such as the UCSA) to ensure we continue to meet the Minimum Requirements of a Fair Trade University, as set by Fair Trade Communities New Zealand. This year our achievements included

- 100% of UC's 11 campus cafes now offer Fairtrade certified coffee
- Fairtrade snack foods and cold drinks now being stocked at Café 101
- Fairtrade tea now served at The Foundry
- UCSA's catering arm now provides 100% Fairtrade coffee by default
- And the continuation of Fairtrade apparel being used for large scale UC events.

See below for the goals set by the UC Fair Trade Steering Committee for 2020.

Goals for 2020	Actions/Activities
Move towards more fair trade tea options in UCSA retail outlets and, contact private cafes with the view to move towards fair trade tea options being available.	Contact private cafes with the view to move towards fair trade tea options being available. Work with UCSA Food and Beverages Manager to expand fair trade tea into more UCSA cafes.
Continue to remind campus retail outlets about university policy around fair trade.	Continue to work with UC's Legal Advisor to discuss property lease agreements.
Maintain our high fair trade baseline as we move forward into 2020.	Continue to review opportunities for improvement, above the Minimum Requirements.
Exploring expanding the product range in campus retail outlets e.g. University Pharmacy to include fair trade products.	Contact the University Pharmacy with the long term view of offering fair trade products i.e. crafts and gifts.

Investigate the possibility of a fair trade UC branded consumable.	Work with UC Procurement team to investigate this.
Use a campus wide communications approach to promote fair trade and our University's Fair Trade status.	Work with UC Communications team, Fair Trade Communities, Trade Aid and Fairtrade ANZ to guide this.

Community Connections

Food Resilience Network

The Food Resilience Network (FRN) is a post-earthquake collaboration between a number of organisations with an interest in enhancing food resilience within our community. This includes the Christchurch City Council and the Canterbury District Health Board. UC remains involved in the FRN in different capacities. Matt Morris, UC's Sustainability Advisor, was elected FRN Chair in 2019. This is the most direct connection between the two organisations, but UC has yet to become a member of the FRN.

Canterbury Community Gardens Association

At this years' CCGA AGM our Garden Coordinator, Niki Jones, was nominated on to the board by chair Catherine O'Neill. The CCGA represents the 30 + community gardens across Canterbury and at the moment is focussed on collaboration between the gardens to produce an exhibit at next year's inaugural Grow Otautahi show hosted by The Canterbury Horticultural Society. UC has been a member of the CCGA for many years.

Food Vendors

The intention here is for food vendors to provide healthy, sustainably packaged food on campus. No further progress has been made in this area during 2019.

Food Waste

Work continues on educating the UC community about appropriate disposal of food waste and compostable packaging. No further work on developing small scale composting options has been undertaken.

1.5 Sustainability Indicators (Following LiFE Framework)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Research, Learning and Teaching											
sustainability event attendance	23	1,227	1,135	2,383	2,221	1,985	1,495	1,167	1,634	2,501	2,743
newsletter (total) - including mailchimp signups						416			519	693	1,059
blog views combined							2,700	9,160	7,087	6,801	8,047
blog views - sustainability office										1,635	1,827
Intercom blog views										1296	2,071
Insider's Guide blog views										3,870	4,149
instagram followers										743	1,025
facebook total reach (main)								76,880	80,363	174,487	190,987
facebook total reach (garden)										16,225	8,976
facebook reach (main+ garden)								76,880	80,363	190,712	199,963
facebook likes (main)			305				1,428	1,736	2,075	2,361	2,850
facebook likes (garden)			48				451	581	679	752	850
facebook (rideshare 2011-2016, UC Carpool 2018)	17							16		63	65
facebook (eco volunteers (from 2018)											119
Facebook fan count (combined pages)			370	640	872	1,172	1,879	2,317	2,754	3,176	3,884
Facilities & Operations											
electricity (kwh)	24,497,911	24,497,911	22,016,328	25,712,319	25,543,040	25,803,113	25,414,231	25,229,741	28,033,970	31,500,913	26,943,852
GHG emissions (tonnes CO_2-e)		32,392	24,318	23,145	21,419	22,590	22,870	21,436.53	23,099.64	26,309.97	
coal (tonnes)	5,534	6,309	4,098	5,160	4,913	5,334	4,846	4,941	5,396.94	6,276	5,733.10
Air Travel (tonnes CO2)										4,632	4,378.21
Air Travel (kms)										49,063,494	46,401,898.00
waste to landfill (tonnes)		219.79	197.11	233.44	256.14	312	386.47	337.77	314.61	319.41	315.08

comingle waste		43.53	36.06	61.32	73.52	27.56	40.12	41.27	16.31	12.38	16.19
IT Recycling Service (tonnes)					26.07608	25.66912	18.5535	18.6285	23.20	31.88	20.58
water use (litres)								292,875,000	293,571,240		324,943,000
cycle stand count				2513	1749	1749	2004	2458	2364	2870	3860
dr bike - bikes fixed						100	100	115	140	71	85
Partnerships											
pages of paper purchased (A3 and A4)					17,953,500	17,787,750	16,808,500	16,894,075	15,599,275	15,373,630	14,010,185
fair trade fresh coffee (% units)								39	100	98	100.00
fair trade coffee and milo (% units)								18	73	80	79.00
fair trade tea (% units)								10	94	94	94.00
fair trade sugar (% units)				0%	5%	3%	5.00%	5	13	11	14.00

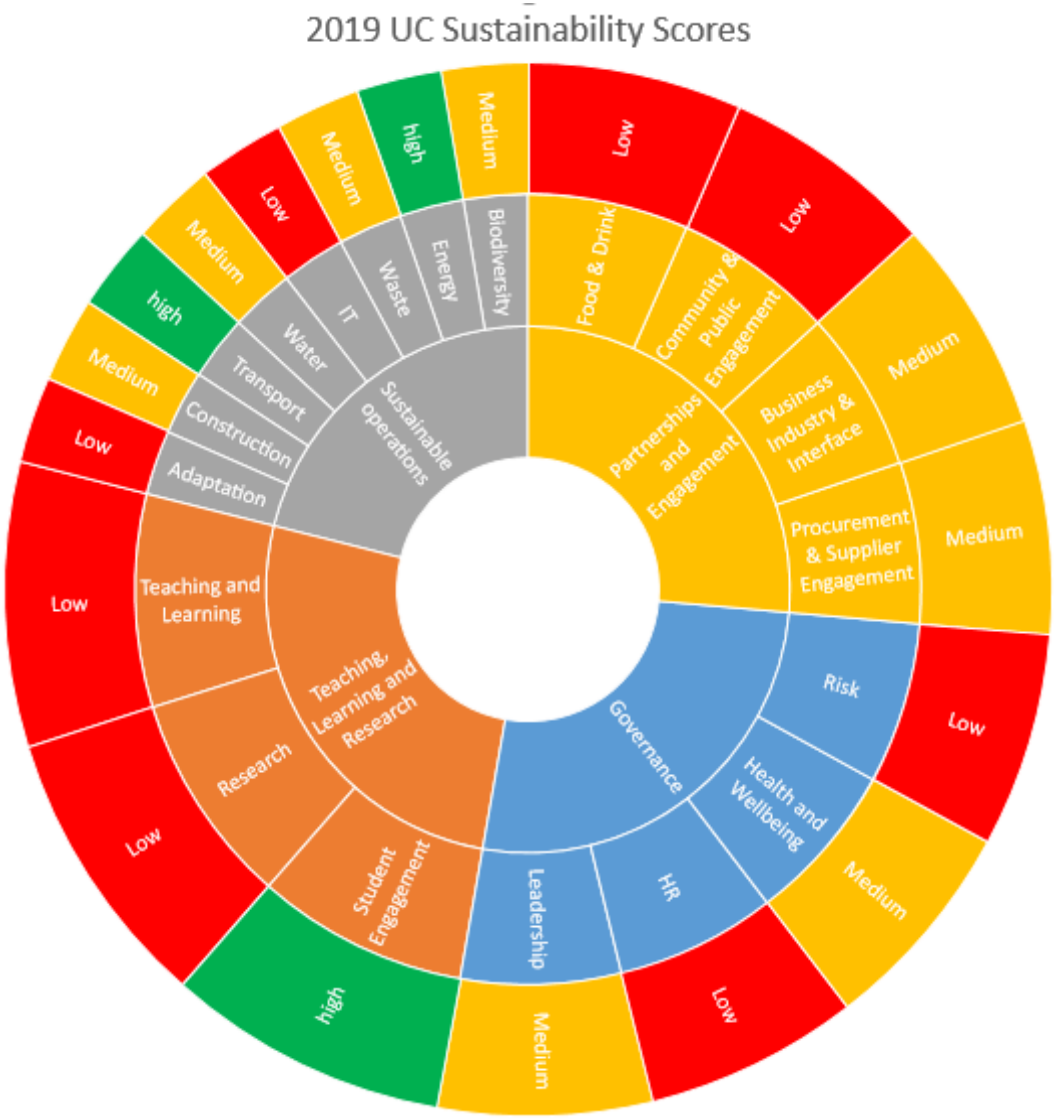
1.6 Sustainability Assessment

UC's sustainability performance has been assessed using the Learning in Future Environments frameworks. The elements in the 'second wheel' have all been assessed using the following criteria:

Policy & Strategy
Action Planning
Stakeholder Engagement
Measurement
Communications
Training & Support
Implementation
Links to the Curriculum

Each criterion, for each activity area, has been scored on a scale of 0-4 with these scores added up to give a traffic light assessment of low, medium or high scores.

Many of these areas have been assessed with input from staff across the university. Best practice is for these scores to be determined through a round of workshops on the different areas. However, UC does not currently have capacity to do this. Therefore, these scores should be considered as indicative. They show that there appears to be significant room for improvement.



2 Whakaarotau | Priorities for 2020

In 2019, UC Council approved the following sustainability priorities for 2020. Some details are still to be worked out at the time of publication of this report.

Priority Action & VC Priority	1. Replace boilers with Biomass Boilers.	ES SG3 3.1	3.1 Replace Ilam and Dovedale Coal Boilers with Biomass Boilers)	TBD
Priority Actions	2. Map relevant taught courses against the United Nations SDGs.	ES SG1 1.3	1.3 Map relevant courses against the United Nations SDG's	TBD
Priority Actions	3. Establish a Carbon sequestration programme with the School of Forestry.	ES SG3 3.3	3.3 Establish a Carbon sequestration programme with the School of Forestry	Prof. Jan Evans Freeman PVC Engineering
Priority Actions	4. Work to reduce waste to landfill and increase use of reusable, compostable and recyclable materials, and reduce water consumption.	ES SG4 4.1	4.1 Reduce waste to landfill and increase use of reusable, compostable and recyclable materials	TBD
Priority Actions	5. Invest in key areas of research to help solve global sustainability challenges.	ES SG2 2.2	2.2 Invest in key areas of research that might assist UC, to solve global sustainability challenges	Prof. Jan Evans Freeman PVC Engineering
Priority Actions	6. Benchmark UC sustainability.	ES SG4 4.6	4.6 Benchmark UC Sustainability	Sustainability office

Appendices

2019 UC Sustainability Award Nominations

Category	Name	Project Title
ACADEMIC STAFF -INDIV	Susan Krumdieck	Transition Engineering, Building a Sustainable Future (book published Oct 2019)
	Sally Gaw	Microplastics in Aotearoa New Zealand
	Tim Huber	Waste reduction through design
	Bronwyn Hayward	IPCC Land Climate Meeting and Side Events
	Bronwyn Hayward	Services to IPCC
	Piers Locke	Pedogogy of hope - teaching that inspires engagement in environmental action
ACADEMIC STAFF - TEAM	HydroEco Engineering Research Group [Aisling (Ash) O'Sullivan, Tom Cochrane, Frances Charters, Peter McGuigan, Aude Thierry and research students] with support from Facilities Management	THE STORMINATOR™ - A Sustainable Stormwater Treatment Solution Using Food Waste Shells
	EPECentre Joule log heating team: Dr Bill Heffernan, Dr Nurzhan Nursultanov, Mr Ryan van Herel	Electric alternative to toxic chemical fumigation for export logs
	Pieter Pelser, Jim Briskie, helen Warburton	BIOL 273 Campus Biodiversity inventory
	Environmental Science staff Team	Environmental Science
	NZPSA 2019 Organising Committee	Developing a Sustainable Conference Model for UC
	The Chemical and Process Engineering Academic Team	Sustainability is embedded in Chemical and Process Engineering teaching at UC
STUDENT - RESEARCH	Mehrnoush Tangestani	Omega-3 fatty acid production from New Zealand algae
	Emma Rees	Keeping the Kaupokonui Stream Cool
	Daniel Smith and Mehrnoush Tangestani	Sustainable production of Omega-3 fatty acids by algae
	Sergio Hansen, Julian Maranan (Project Team: AOS01)	Treatment Performance of an Innovative Downpipe Stormwater Treatment Solution
	Helena Ruffell	Wastewater treatment plans as a source of microplastics to the environment
	Felix Morgenstern and Etienne Gil-Goldsbrough	Degradation Characteristics of Compostable Plastics in Controlled and Uncontrolled Composting Environments
STUDENT-LED PROJECT	Amelia Dewhurst	Christchurch Climate Challenge

	Amelia Dewhurst, Rose Bayldon, Florence Ferguson, Josh Watson	Christchurch Climate Challenge
	Harjot Gill	Sustainability and Waste Management
	Ella Knobloch	Personal sustainability passion
	Niebert Blair, PhD Student	Discovery of the dynamic balance of sustainability - Lessons learned from Amerindian hinterland villages in the Amazon region of Guyana, South America
	Rose Bayldon	Christchurch Climate Challenge Conference
	Patricio Gallardo Ocampo	Transition of Freight Transportation to Zero Carbon
	Courtney Wright-Watson	Establishing EnviroSoc
	Varvara Sidorenko	Eco Volunteering
	Abby Robertson	Te Ao Māori in Waiutuutu Community Garden
	UC For Climate Core Team	UC For Climate
	UC Bike: Bikefest Group	Encouraging commuter cycling at UC
GENERAL STAFF - INDIVID	Isabel Andrade	The Role of Adaptive Capacity: Transition Engineering of Zero Carbon Building Retrofits
	Lauralee Mather	Eathly
	Linda Morris	Life time of Reusing, Re purposing and Re cycling
GENERAL STAFF - TEAM	UCSA Food and Beverage	Coffee Price structure change
	UCSA Events Team	Globlets
	Mt Barker Forestry	Mt Barker Forestry
	Haere-Roa/UCSA Building Project Team	Wellbeing Precinct Low Carbon Energy Scheme
	Procurement	Supply Chain Influence

Sustainable Development Goals