Pūrongo Toitū te Taiao
2020 UC Sustainability Report

manaaki tangata, manaaki whenua

Hei Whakaupoko i ngā Kōrero | Executive Summary

This report uses the recently adopted Sustainability Chapter of the new UC Strategy as the basis for measuring UC's progress against its sustainability targets.

Overall, considerable progress has been made, on the Strategy.

In addition, work continues on those business as usual sustainability work programmes not captured in the Strategy (which captures mainly new work programmes).

Following on from campus-wide discussions leading up to the new Strategy, a new Sustainability Programme Board was initiated to oversee this work programme, which is led by Professor Jan Evans-Freeman, Pro-Vice-Chancellor of the College of Engineering.

Of special significance was the impact of COVID-19 on the University's operations and environmental footprint. This contributed to reductions in greenhouse gas emissions, mainly through a drop in coal burned and in flights taken. On the other hand, student engagement remained strong through online channels.

Also within the context of COVID-19, UC continued its work on developing and delivering an SDG Summit Series for 2020-2021. This resulted in the development of a revived national stakeholder group with a new Terms of Reference, and the first of the online hui for the current series.

Finally, UC embarked on a significant project to document and report on the university's SDG-related activities, so as to submit an impact portfolio for the Times Higher Education Impact Rankings. This was the first time in which UC has submitted to these sustainability impact rankings, with the results to be known in late April 2021.

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, Chloe Wium, Rob Oudshoorn, Tony Sellin, Kavit Sharma, Professor Jim Briskie, Professor Ian Mason.

The UC Sustainability Programme Board has reviewed this report.

UC's Senior Leadership Team approved this report on 15 June 2021.

UC Council received this report on 30 June 2021.

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

Kia ora,
It is my pleasure once again to present the annual UC Sustainability Report. This is the first Sustainability Report since the Sustainability Strategy was established last year.

The work of weaving sustainability into the fabric of our University comes at a time of extreme global uncertainty. COVID-19 has obviously had a very significant impact on the wellbeing of our people and the operations of our University. We have had to find new ways to study, research and run our campus. This is particularly apparent in our greenhouse gas emissions for 2020, which are well below 2019 levels: we have been working very differently.

Reducing carbon emissions remains a core element of the University's Strategic Vision and the associated Sustainability Strategy. We remain committed to ceasing coal consumption and achieving our goal of carbon net neutrality by 2030. We are starting to rethink the ways we use air travel to conduct our work, and we are exploring options to increase tree planting on our high country lands for carbon sequestration. We have also started planning for the impacts of climate change, by taking the first step of creating a Climate Change Risk Register, which will help guide our Climate Change Management Plan.

I am delighted that UC is co-hosting the 2020-2021 Sustainable Development Goals Summit Series. The first online Summit was held in 2020. This Series is being guided by a national stakeholder group representing multiple sectors, and shows the depth of commitment to the SDGs and sustainability across society.

2020 also saw the adoption of UC's Sustainability Policy by Senior Leadership Team, and the establishment of the Sustainability Programme Board to oversee the programme of work outlined in our Sustainability Strategy. This Board is led by Professor Jan Evans-Freeman, Pro Vice Chancellor of the College of Engineering.

As I said in last year's Sustainability Report, COVID-19 is showing us what a global crisis looks like and how important it is to have a local response. We need to support the city to prevent, prepare and adapt. I remain committed to UC playing our part in addressing the global sustainability crisis.

Ngā mihi
Professor Cheryl de la Rey

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

Sustainability Implementation Plan

During 2019, a Sustainability Working Party developed a new implementation plan for sustainability. This built on the 2018 UC Sustainability Framework.

The implementation plan identified five work streams for the near future:

- 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.

In 2020, this implementation plan was further refined and loaded into reporting software tool Strategy Blocks. It is important to point out that this plan sits within the wider UC Strategy.

To manage the programme of works that is outlined in Strategy Blocks, a pan-university Sustainability Programme Board was convened. This Board is chaired by the PCV Engineering, Professor Jan Evans-Freeman. The Board will meet approximately three times a year.

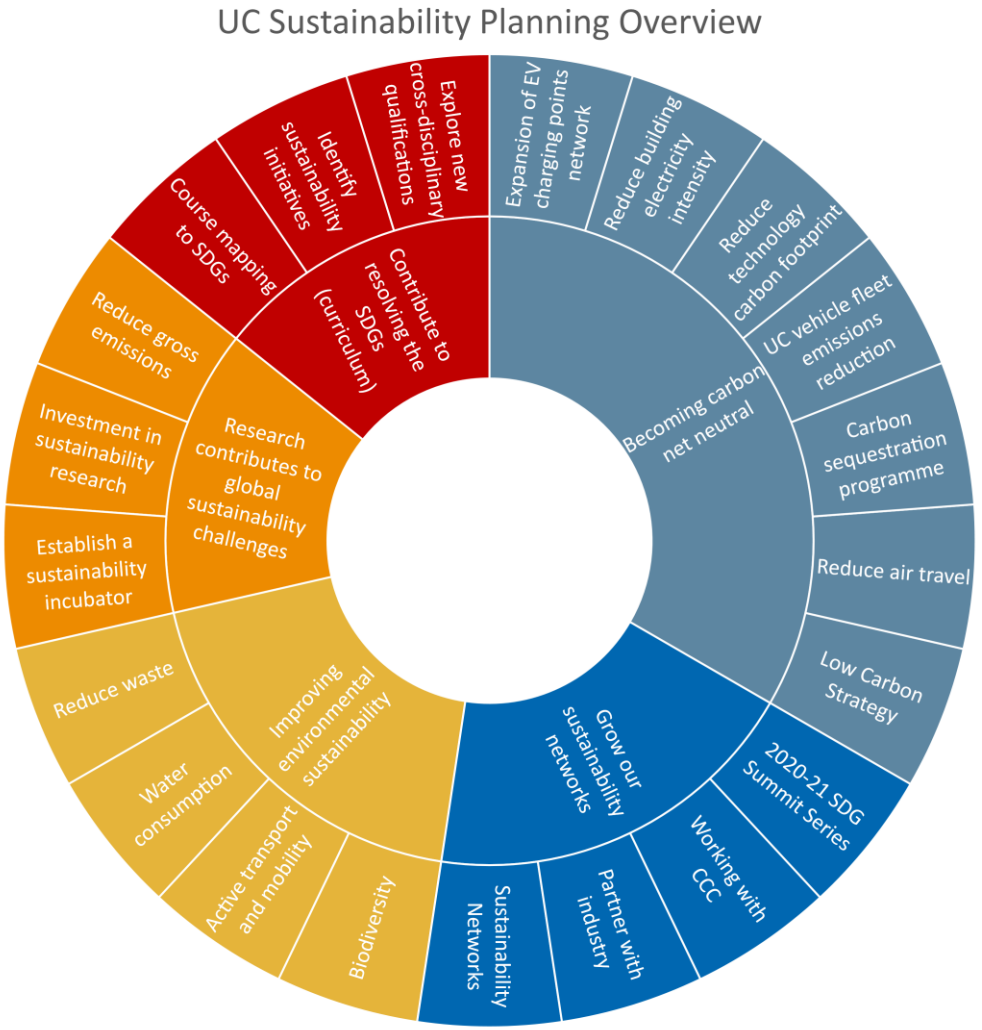


Figure 1: UC Sustainability Planning Overview

A diagram giving an overview of the sustainability programme can be seen in Figure 1. A more detailed overview of this programme can be seen in Figure 2 and in table form in the appendices.

As explained in our 2019 report, this model of sustainability planning captures most of the essential elements of the Learning in Future Environments (LiFE). LiFE had been the planning tool previously used at UC for several years.

However, the programme outlined in Strategy Blocks mostly covers new work, and not necessarily work that is already in motion.

The Strategy Blocks programme of work is planned to roll out over the next ten years.

The report that follows is structured around Strategy Blocks, but it also includes some of those work programmes are already in process.

Sustainability Policy

As well as the delivery of the development of a detailed Sustainability Plan, 2020 also finally saw the adoption by the Senior Leadership Team of a Sustainability Policy. This Policy replaces the Sustainability Framework adopted in 2018.

The Policy asserts that

> The University has a genuine desire to have sustainability institutionalised into the working culture and psyche of the University. It affirms that we want to see real change. Therefore, the University views sustainability as a broad, multi-

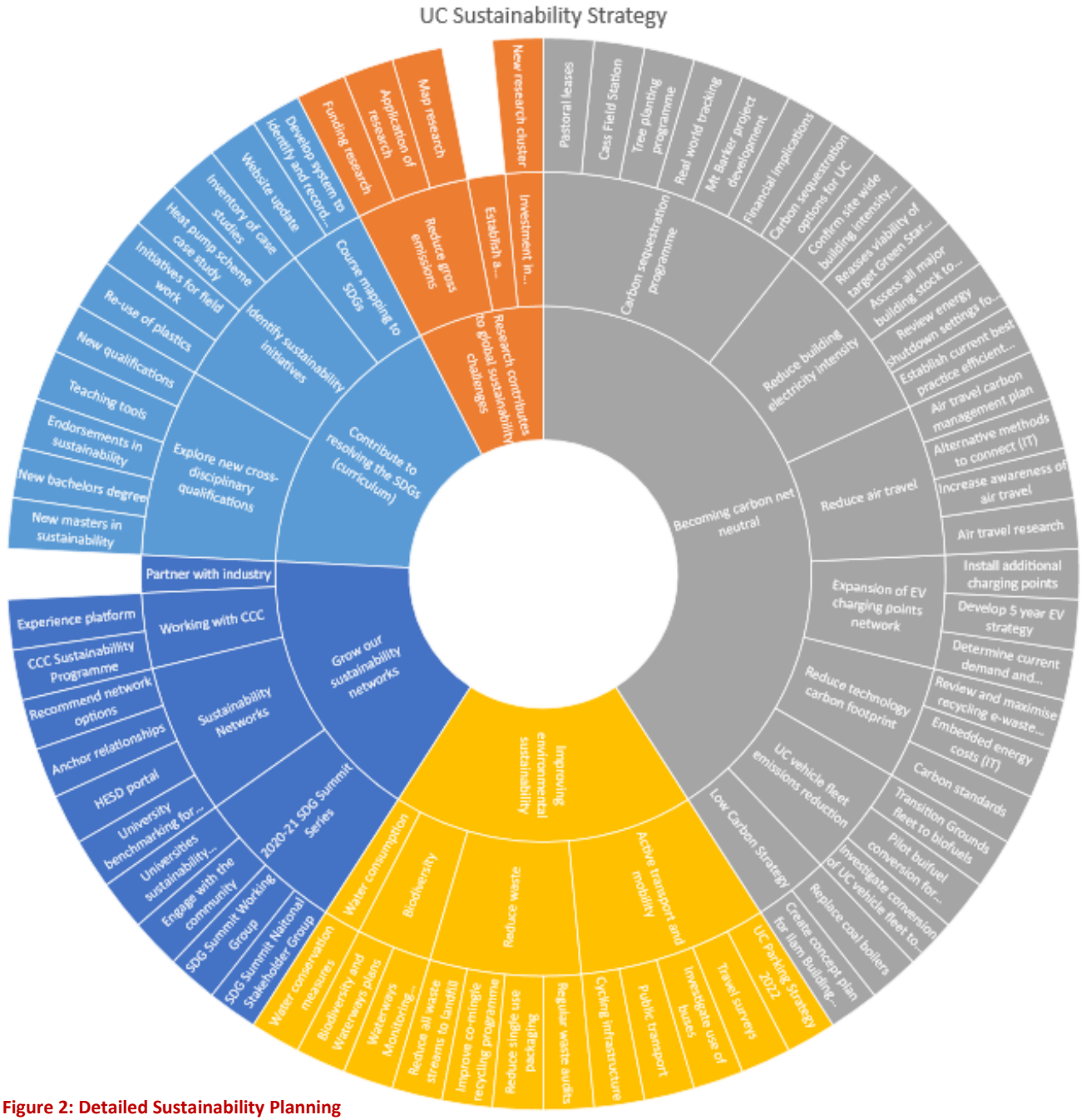


Figure 2: Detailed Sustainability Planning

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 our research, teaching and learning, community engagement and operational plans align with New Zealand's Sustainable Development Goals (New Zealand Foreign Affairs and Trade website) and Greenhouse Gas Emission commitments (Ministry for the Environment website). The University is committed to discovering and facilitating actions to address environmental, cultural, social and economic sustainability within the University.

It calls for work in the following four areas:

- Research in sustainability
- Teaching and learning for sustainability
- Sustainable operating practises
- Partnerships for sustainability.

Together, the Sustainability Policy and the Sustainability Implementation Plan shape the overall sustainability programme at UC.

2. Contribute to resolving the SDGs (curriculum)

Year	*UC Strategy projects*	*Person responsible*	*Notes*
2020	Wellness Precinct heat pump scheme case study in teaching	Jan Evans-Freeman	Being explored
2020	Initiatives for Virtual Reality in teaching, including field work	Jan Evans-Freeman	Advanced
2020	Re-use of plastics	Jan Evans-Freeman	Awaiting funding
2020	Develop system to identify and record SDG related courses	Jan Evans-Freeman	Utilising existing system

2.2.2 Heat Pump Scheme Case Study

Promote the Wellness Precinct grounds source heat pump scheme as a case study.

In ENNR423 there is an annual visit to the boiler house including discussion (including when will it happen) of the strategy to move from coal to woodchips and ultimately away from combustion altogether to GSHP systems. In ENGR621 there is a keynote lecture on this strategy and details of the plan and how it was developed. The completion of the Haere-Roa building in the Wellness Precinct, with its carbon neutral Ground Source Heat Pump will be used as a case study in teaching.

2.2.3 Initiatives for Field Work

Support current and new initiatives for field work (field stations, in the city, on the campus).

Professor Jan Evans-Freeman

During the (first) COVID-19 UC shutdown earlier in 2020 it was immediately apparent that some practical aspects of some degrees could not be delivered, as access to labs or studios was required. However, it also emerged that in some areas, there was remote teaching taking place in some practical subjects such as science and engineering. The three main activities which continued during lockdown were virtual field trips, remotely controlled laboratory experiments and sending kits out to students' home with online guidance to the experiments.

A cross-campus group was set up chaired by Prof Jan Evans-Freeman, after initial research and a demonstration to SLT by Prof Rob Lindeman of the HITLab on so-called “immersive” learning environments. Our conclusion, based on international research, was that it was easy to do this poorly and very expensive and time consuming to do it well. However we felt that we already have approaches to online laboratory learning at UC upon which we can build, to offer remote access to more of our practical educational activities, hence we plan to first focus on developing those.

In order to ensure that our innovations are pedagogically sound, a broad cross section of members from all of UC was chosen, and quickly developed into subgroups with specific projects. The overall work planning is overseen by the College of Engineering Operations and Projects Manager, support for outreach and publicising the work is provided by the College of Engineering Engagement and Relationships Manager, and the group is closely engaged with central IT.
Each project has a workplan and the total work takes place in three timeframes:
1. Immediate (Semester 2, 2020, nearly complete)
2. Recovery and Reframing (2021-2024)
3. Growth and Diversification (2025-2029)

Summary on Progress up to September 2020
• New 360 degree cameras have been purchased, including two very high resolution cameras. Ten are available to be checked out by trained staff at the John Britten reception. A preliminary training course on their use has been run and now others can self-teach through the resources on the web page. One of the high res cameras will shortly be used on a field trip. https://www.hitlabnz.org/index.php/virtual-labs/
• Prof Tim Bell is working with IT to facilitate close involvement with them, and chart what IT support we will need in the future to ensure wide access to remotely controlled practical activities.
• Prof Kathryn MacCullum has been awarded a small grant to expand the initial project focus on immediate opportunities within Science and Engineering towards a more systematic and long-term research project across UC. The research project will draw a wider view, to explore a range of new and innovative opportunities, looking at how digital technologies can be integrated to support engaged learners for authentic learning experiences while in or outside the lab. With having the project lead by CoEHHD, alongside the eLearning Research Lab, the work will support a pedagogical focus aligning the use of technology with effective teaching and learning practices.
• The Department of Electrical and Computer Engineering (ECE) are extending their new blended field programmable gate array (FPGA) lab to ten experimental set-ups. Students use a blend of in-lab and remote lab

resources to program the FPGA, and during one week over the Level-3 lockdown, this FPGA remote lab recorded 481 remote login sessions. They have also managed to keep the original remote helicopter rigs running for one last course - ENEL464 - which extends the assignment the students did in ENCE361 in 2019 . This is very popular - during just a few months in 2020, students logged 2632 sessions, totalling 306 hours of remote flying time. The department have purchased new helicopters to replace and extend this facility. Both of these remote labs are due to be completed for teaching by the beginning of 2021.

A comprehensive update was presented to SLT in late 2020.

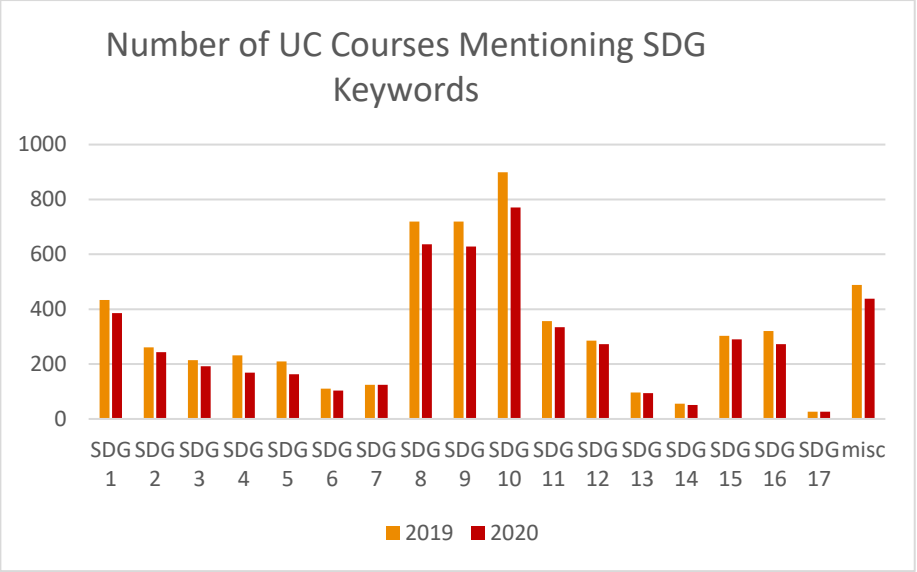
2.2.4 Re-use of Plastics

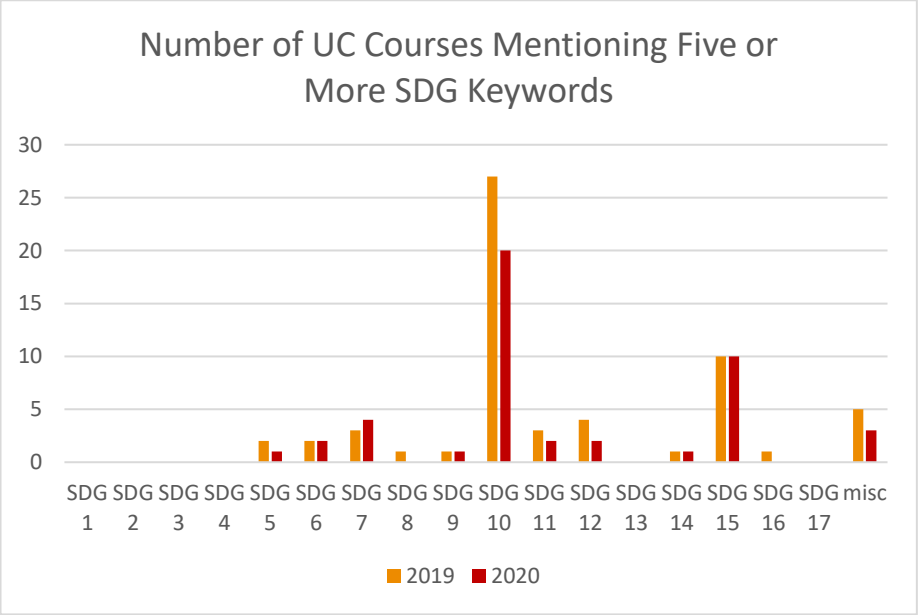
Investigate ways that after-use plastics can be re-used to solve SDG goals and pilot within relevant teaching programmes. The research findings will be used in teaching materials science courses and identified as sustainability-related courses. Work is underway to seek external funding for this project which has now expanded to include several departments and many staff.

2.3.1 Develop system to identify and record SDG related courses

Previously UC has used a set of keywords (developed by Sustainable Development Solutions Network and Australasian Campuses Towards Sustainability) and ran them against UC course descriptions, to identify which courses support the SDGs. The task now is to refine and improve this measurement system. An investigation undertaken by Right Partnerships in 2020 concluded that no simple solution for measurement is currently available. In the meantime, UC is continuing to use the system we have used for the previous two years: a piece of software that searches the aforementioned keywords on course descriptions provided in the Course Information System.

The results of this process show that little has changed between 2019 and 2020, although overall fewer courses seem to be showing against each SDG. 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. To





put it another way, those SDG 10 courses represent 43% of courses mentioning at least five SDG keywords.

In addition, we have once again presented those 12 courses mentioning the most SDG keywords in their course descriptions. ENME405 comes out on top for the third year in a row, followed again by MAOR172.

NUMBER OF KEYWORDS MENTIONED IN CIS	COURSE CODE	COURSE NAME	COLLEGE
22	ENME405	Energy Systems Engineering	Engineering
20	MAOR172	Science, Maori and Indigenous Knowledge	Science/Arts
18	LLAW300	Pacific Legal Studies	Business and Law
17	FORE447	Environmental Forestry	Engineering
17	POLS443	Science, Technology and Environmental Policy	Arts
16	GEOG402	Resilient Cities	Science/Arts
15	ENCN445	Environmental Fluid Mechanics	Engineering
15	BIOL270	Ecology	Science
14	ENGR621	Energy, Technology and Society	Engineering
14	ENME418	Engineering Management and Professional Practice for Mechanical Engineers	Engineering
14	BIOL384	Marine Ecosystems	Science
14	BIOL427	Global Change Biology	Science

2.3.2 Website

Update the UC website to provide an SDG icon to show what courses cover material in which SDGs.
This project is due to be completed by mid-2021.

During 2020 a project commenced to develop a new on-line Sustainability Hub, which would lift the 0n-line presence of sustainability at UC and become a shop front for sustainability initiatives in teaching, research and partnerships along with campus sustainability initiatives. This work was substantially completed by the end of 2020 and due to be launched by mid 2021.

3 Map Research – Times Higher Education Impact Ranking

As part of UC's 2020-2030 Strategy of having an institutional research portfolio that has impact in a changing world, UC has mapped its recent research outputs indexed in the Scopus academic database against the SDG framework. In part this has supported UC 's participation in the Times Higher Education Impact Rankings for the first time. This process identified which SDGs UC research most contributed to.

Year	*UC Strategy projects*	*Person responsible*	*Notes*
2020	Map research against the SDGs	Ian Wright	UC submitted on the Times Higher Education Impact ranking for the first time in 2020. This ranks university research, outreach, and community engagement against progressing the SDG agenda.

UC explored its research strengths with regards to the SDGs during 2020 as the basis for its submission. SDGs we submitted on were:

SDG 11: Sustainable Cities

SDG 14: Life Below Water

SDG 15: Life on Land

SDG 16: Peace, Justice and Strong Institutions

SDG 17: Partnerships

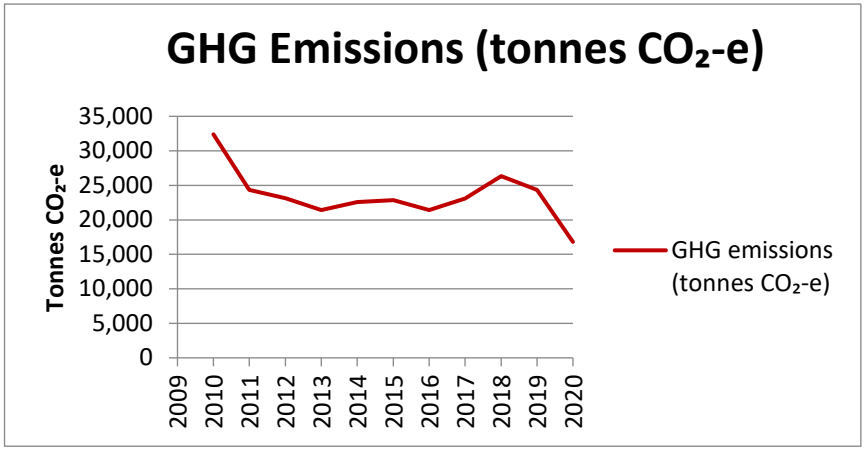
4. Becoming carbon net neutral

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

Carbon Planning

Planning to achieve carbon net neutrality at UC by 2030 is being undertaken in six areas:

- Low carbon energy strategy programme (removing coal, improving insulation and using ground source heat pumps)
- Reducing air travel
- Carbon sequestration
- Reducing UC fleet vehicle emissions
- Reducing building electricity intensity
- Expansion of EV charging network

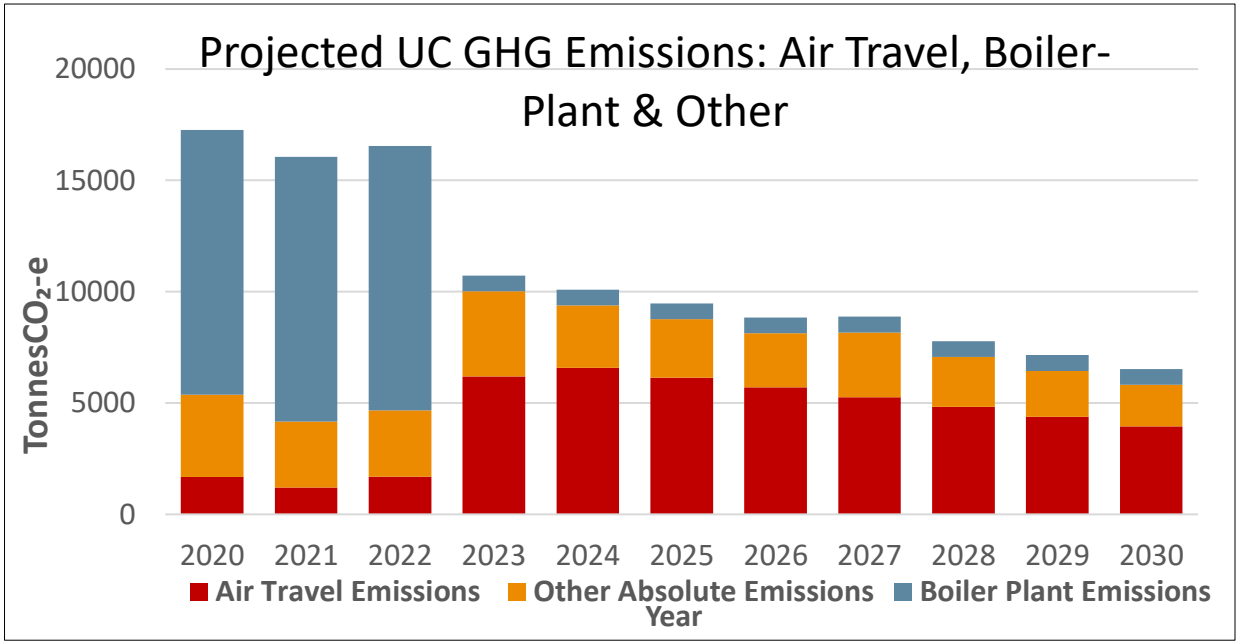


Some of these goals are interlinked and dependent on one another, and therefore the programme has been staged over a ten year period. This new programme builds on the previous decade of significant improvements, which resulted in a 23% reduction in Greenhouse Gas emissions by 2019. (Note this drop does not include the impact of COVID.)

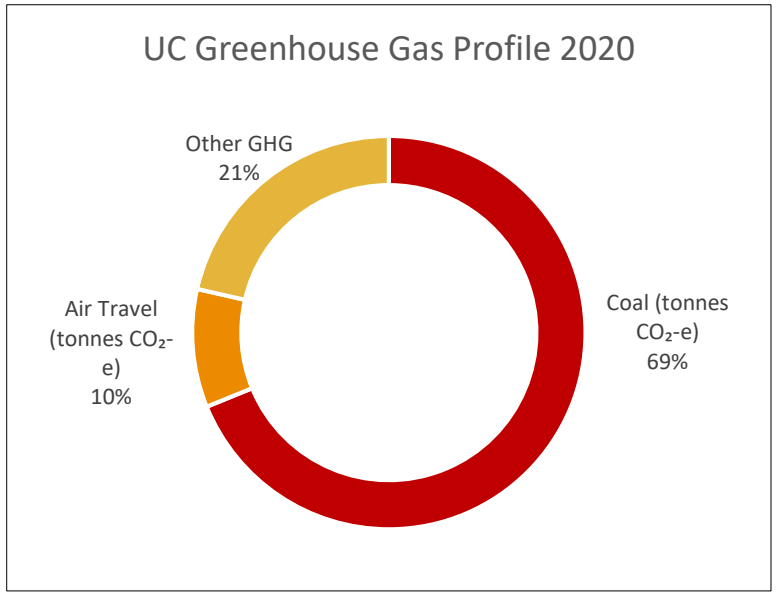
In 2020, the focus was on developing a range of sequestration options for UC based mainly on land currently owned by UC.

A further area of work was in the category of reducing building electricity intensity.

Planning for coal replacement is continuing, and was given a significant push with a $6.24m investment from the Energy Efficiency and Conservation Authority.

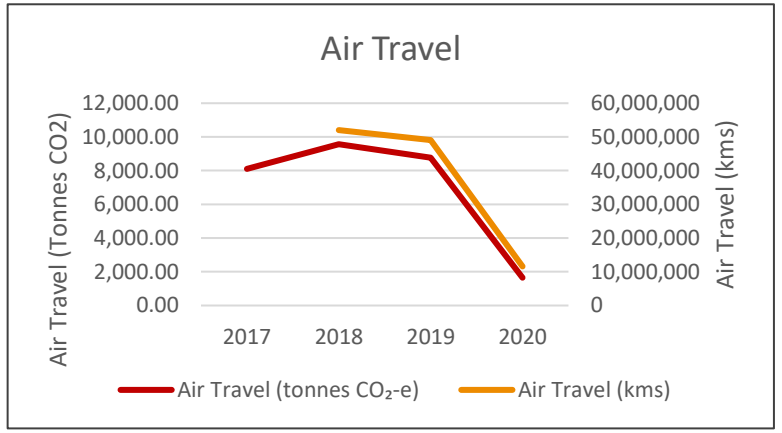


Year	*UC Strategy projects*	*Person responsible*	*Notes*
2020	Carbon sequestration options for UC	Prof David Evison	Initial scoping for carbon sequestration off UC lands was completed.
2020	Determine current demand and utilisation for EVs	Tony Sellin	Able to obtain consumption data but not individual vehicle utilisation. Need to obtain additional software/analysis to get this data to confirm demand.



In 2021, further work on carbon sequestration opportunities will be advanced at Mount Barker, with scoping work also being undertaken for Cass Field Station. We will also develop an air travel management plan.

Year	*UC Strategy projects*	*Person responsible*	*Notes*
2021	Air travel carbon management plan	TBC	We will be consulting the Programme Board on this in 2021.
2021	Mt Barker project development	Jenny Ladley	Currently being explored.
2021	Tree planting programme	Prof David Evison	Consultant working on this at present.



5 Improving Environmental Sustainability

Transport Planning

Car-Parking

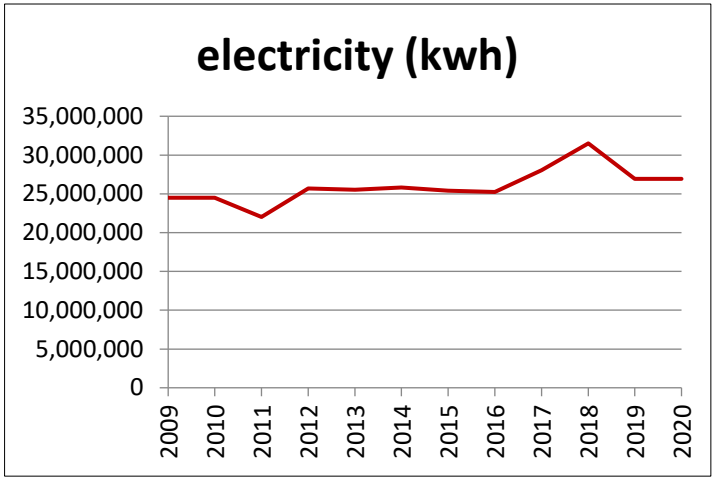
Year	*UC Strategy projects*	*Person responsible*	*Notes*
2021	UC Parking Strategy 2022	Leanne Keenan	An initial discussion paper was tabled with the Vice Chancellor in 2020, and a plan will be developed during 2021.

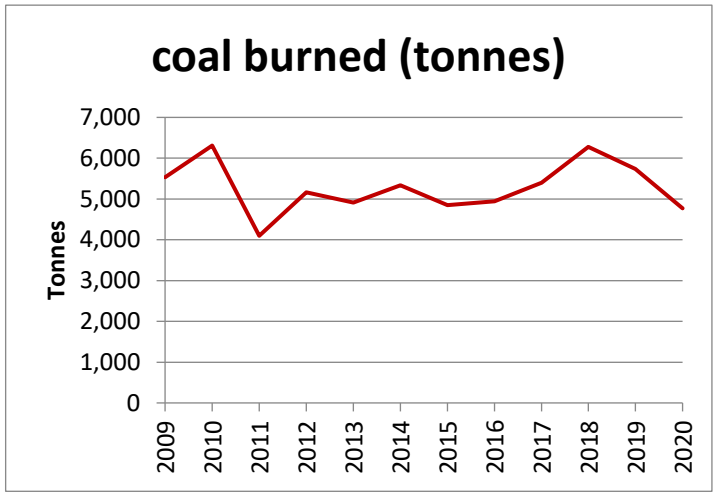
Cycle Planning

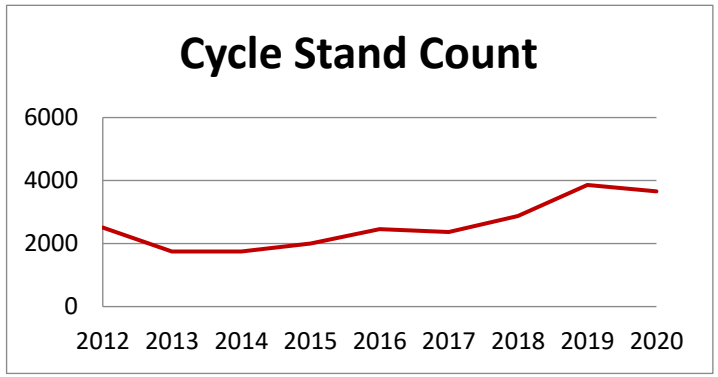
After the installation of 416 new bike parks by the Beatrice Tinsley building in 2019, no further work to install bike parks occurred in 2020. However, the twice-yearly intensive bike stand utilisation surveys were conducted which confirmed (again), that UC bike parks have around a 44% utilisation at their peak use. This indicates that at present we do supply more than enough bike parks, a result confirmed by specific questions asked in the Travel Survey. We will continue to monitor this situation.

Transport Survey

The four-yearly Transport Survey was conducted in 2020 and analysed by Masters student Tom Gillard. Over 3,128 people participated in this survey – compared to 2,718 in 2016, the last time we ran the survey.

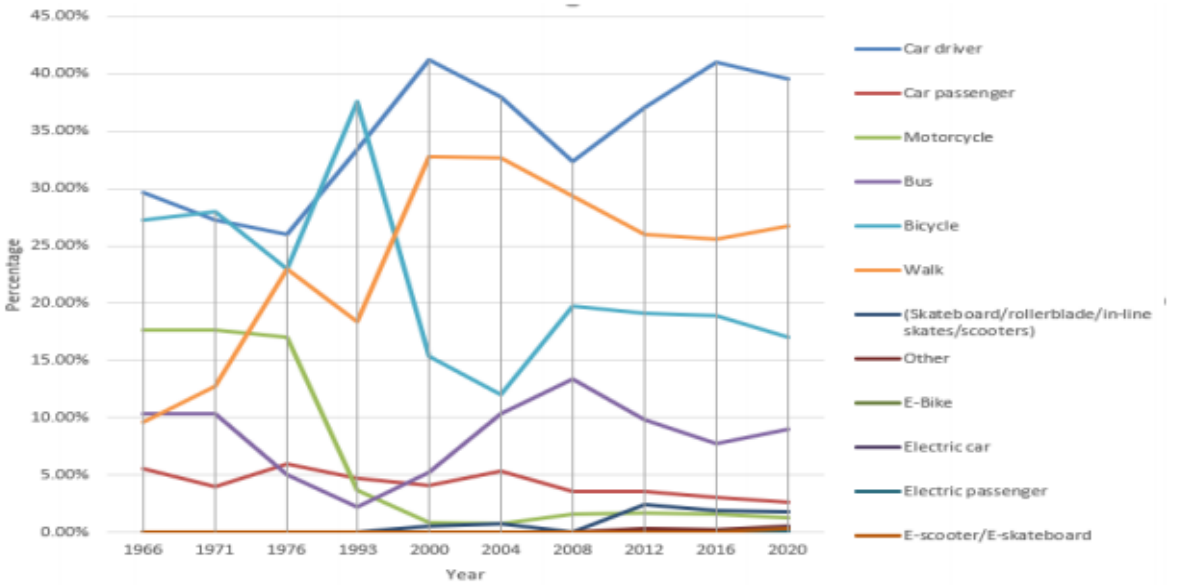


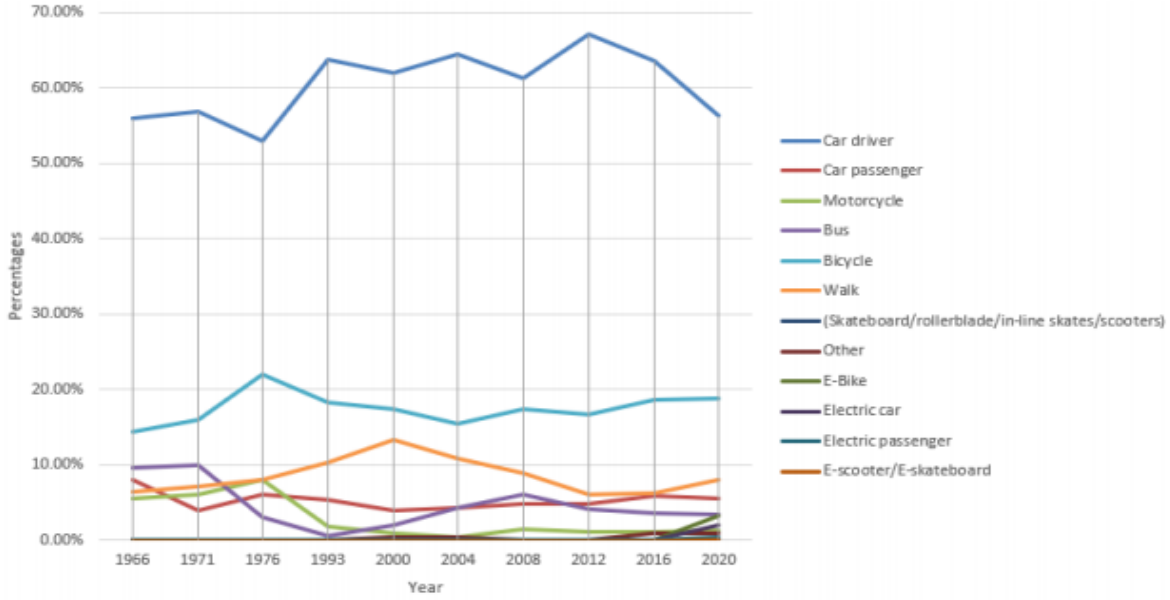




The survey revealed a slight dip in car use from students and a much sharper dip in car use among staff. This may be interpreted as evidence that current promotion of alternative transport modes has been successful. Interestingly, cycling also dropped again among students, with more choosing to use the bus. Walking for both students and staff increased – a reflection probably that people are starting to relocate to homes closer to the university, a situation interrupted initially by the earthquakes almost a decade ago.

For the first time we asked questions about the use of electric cars and electric bikes to get a sense of what immediate future demand for parking and charging facilities might look like. Use of these modes is still very small at this point, but we intend to keep these questions in the survey and will continue to monitor the situation.





Cycle parking numbers dipped slightly in 2020, mainly due to some areas being realigned for temporary site works.

Electric Vehicles

No further work on EV charging points was undertaken in 2020.

Waiutuutu/Okeover Stream

Implementation of the UC Waterways Plan is ongoing, with the intention of significant work completed by 2022. The approach of 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.

Improving base flow

In 2020, the decision was made to override the automatic system in the Erskine Building, which draws artesian water and uses it in the building for cooling, and then discharges it into the Waiutuutu/Okeover Stream. This systems kicks in based on cooling demand on the building (which includes of course whether the building is occupied or not). While this system is energy efficient, it has the unfortunate effect of meaning that during the hot parts of the summer holidays, the stream has often dried up. This is catastrophic for stream life. With the manual override now in place, water flows in the stream throughout the year.

Ultimately, we intend to further improve flow by capturing stormwater upstream of the Erskine outflow in retention ponds, using land adjoining the ephemeral stretch of the stream on Ilam Fields. This will allow for a slow release of water into the stream, and may relieve pressure on the Erskine building. Initial re-scoping of this work (an earlier project was developed in 2008) is to take place in 2021, with the hope that a full plan can be significantly implemented in 2022.

Reducing contamination

The retention ponds on Ilam Fields will also make a large impact on water quality, by filtering out contaminants received from the surrounding residential area which captures contaminated water off roads, rooves and other hard surfaces.

On campus, progress was made during 2020 with filtering out contaminants that might enter the Waiutuutu/Okeover Stream. In addition to the significant works reported on in previous years at Ernest Rutherford building, ten stormwater filters were fitted to downpipes in three 'hotpot' locations on campus, which target heavy metals.

During 2021, filters will be attached to two of the approximately 80 outflow pipes receiving water into the stream from off campus. While a small contribution, this staged approach over time is the only way of responsibly managing a situation that is otherwise beyond our control.

While attending to new contaminants entering the stream, we also made significant progress in addressing historical contamination of the stream bed by removing 51.1 tonnes of sediment from four locations. The largest of these was Engineering Pool, flagged as a priority since at least 2017.

The Christchurch City Council supported this clean-up by covering the cost of fish surveys, consenting and the removal itself from three of the locations. In the meantime, the Christchurch City Council has also agreed that it is responsible for cleaning the two sediment traps that are located between Engineering Road and just east of Forestry Road, not including Engineering Pool. This latter was not designed as a sediment trap but certainly functions as one. The Waterways Advisory Group has agreed that ongoing management of

this site is required, but reducing the amount of sediment settling out there is key. In order to achieve this, Grounds are investigating ways to narrow the channel with plantings, which will hopefully allow sediment to settle out in the designed area by Forestry.

The fish surveys associated with the sediment removal project identified a number of fish in stream. The fish found were Shortfin eel, Elver, Upland bully, Common bully, Juvenile bully and a Brown trout.

Improving Habitat

As we have noted in earlier reports, monitoring of stream life has been undertaken for many years. However, the large disturbances in the stream resulting from sediment removal almost certainly had a negative short term effect on in-stream biota. Therefore, the normal species counts were not performed in 2020. As the sediment removal was undertaken to improve stream life, we expect to start seeing these numbers improve over the coming years.

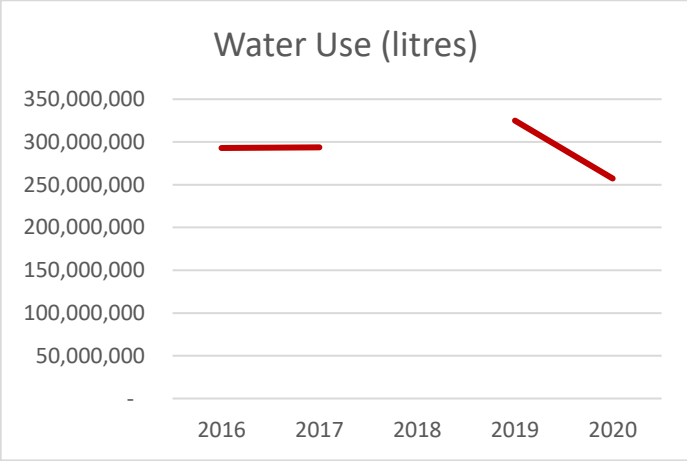
Water Use

Use of potable water dropped in 2020 after an increase on 2016 and 2017 usage in 2019. The increase was attributed to a higher number of buildings being online by 2019, while the drop in 2020 was most likely caused by campus closures resulting from COVID-19 lockdowns.

Electric fishing of the stream during the sediment removal project found the following at two sites:

Site A
6 Shortfin eel, 195 – 450 mm
2 Elver, 150 – 160 mm
19 Upland bully, 43 – 69 mm
7 Common bully, 49 – 54 mm
28 Juvenile bully, 34 – 49 mm

Site B
10 Upland bully, 41 – 64 mm
7 Juvenile bully, 29 – 42 mm
2 Shortfin eel, 409 – 496 mm
Electric fishing time for this site was 7 minutes at 100 v and this site was located upstream of the pool we fished today



Birds

Professor Jim Briskie, School of Biological Sciences.

Since 2016, a second year Biology class has been monitoring bird life on Ilam Campus, under the supervision of Professor Jim Briskie. This monitoring gives us a snapshot of numbers of species, and numbers of birds, which helps us to see whether our efforts to enhance biodiversity – particularly of indigenous species – are successful or not. There are some considerable variations in counts over the years, which is to be expected from a count of this type. However, we can see that indigenous birds have increased on campus since 1990 when the original bird survey was undertaken.

Biodiversity data - Ilam Campus

	1990	2016	2017	2018	2019	2020
Birds						
Native species						
Pūtakitaki,Paradise shelduck	0	0	9	1	11	10
*Kererū, New Zealand pigeon (Hemiphaga novaeseelaniae)***	0	0	0	0	0	0
Tauhou, Silvereye (Zosterops lateralis)	24	151	28	71	70	28
Pīwakawaka, Fantail (Rhipidura fuliginosa)	7	11	12	8	27	15
Riroriro, Grey warbler (Gerygone igata)	1	18	20	53	9	7
Korimako, Bellbird (Anthornis melanura)	0	3	19	3	12	11
*Warou, Welcome swallow (Hirundo tahitica)**	-	4	26	21	21	37
Karoro, Black-backed gull	0	0	2	32	27	13
Tarāpunga, Red-billed gull	0	0	0	6	27	7
Spur-winged plover	0	0	0	4	0	0
*Papango, NZ scaup****	0	0	0	2	3	0
Tarapuka, Black-billed gull	0	0	3	0	0	0
*Little shag****	0	0	0	0	1	0
TOTAL NATIVE	**32**	**187**	**119**	**201**	**208**	**128**

Introduced species						
Redpoll (Carduelis flammea)	7	27	10	18	5	5
Chaffinch (Fringilla coelebs)	3	11	37	32	22	14
European starling (Sturnus vulgaris)	12	12	7	57	50	31
Blackbird (Turdus merula)	104	192	161	333	352	224
Song thrush (Turdus philomelos)	37	34	19	61	61	19
Dunnock (Prunella modularis)	29	61	37	72	78	34
House Sparrow (Passer domesticus)	710	287	383	377	411	455
Greenfinch (Carduelis chloris)	23	18	55	50	36	24
Goldfinch (Carduelis carduelis)	57	141	31	18	37	8
Australian magpie (Gymnorhina tibicen)	3	0	2	0	0	1
Rock dove (Columba livia)	0	175	114	188	138	214
Hybrid species						
Grey duck/mallard (Anas superciliosa/A. platyrhynchos)	39	54	19	54	37	45

** 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 2016-2019*

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.*

***** 4 New Zealand Scaup (2 pairs) seen in 2020 but only in river in Ilam Gardens across the road and so did not fall into campus survey.*

A more detailed analysis was commenced over the summer of 2020-2021. This survey was in part to validate the results from the class surveys, but also to extend our understanding of bird life at UC, taking in both Ilam Gardens

and Dovedale Campus. In addition, this survey was intended to broaden our understanding of rock dove nesting and breeding habits (considered a pest), and to assess nest survival rates of native species.

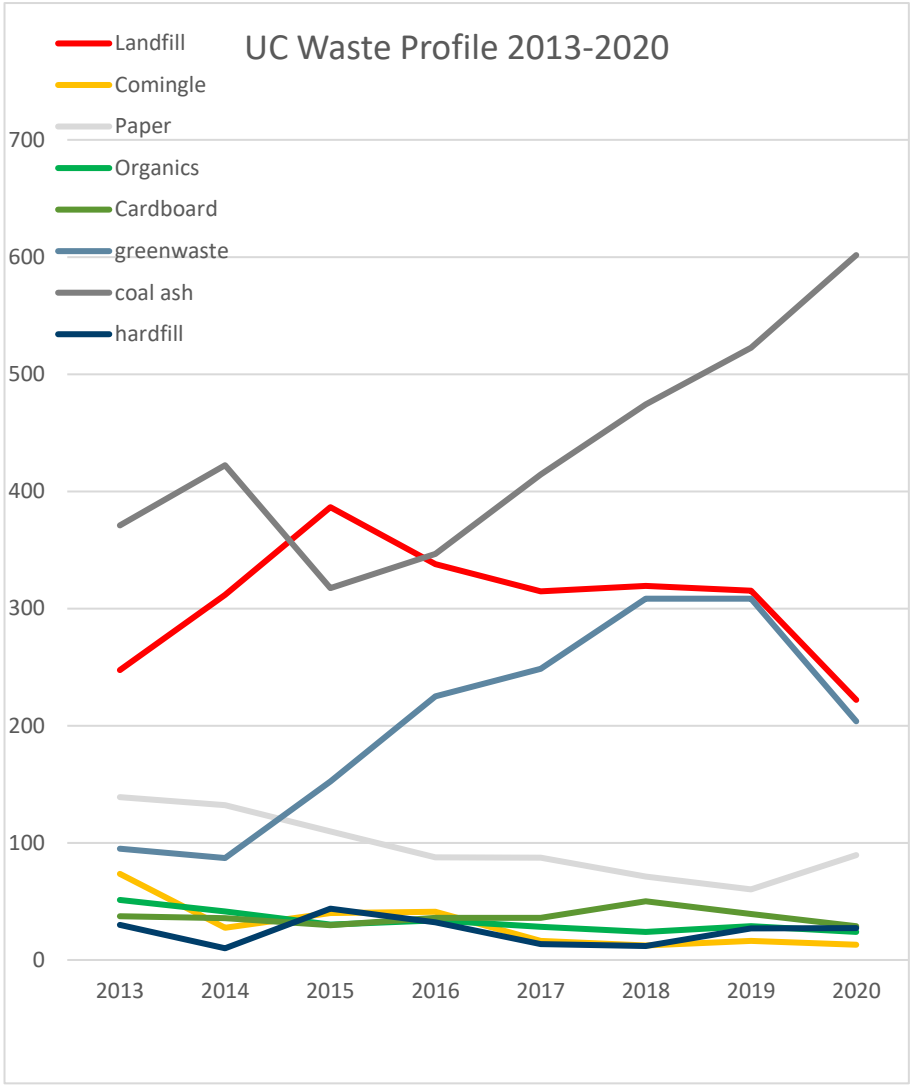
This information will be used to ascertain whether and what additional pest/predator controls might be required, and where they could best be deployed.

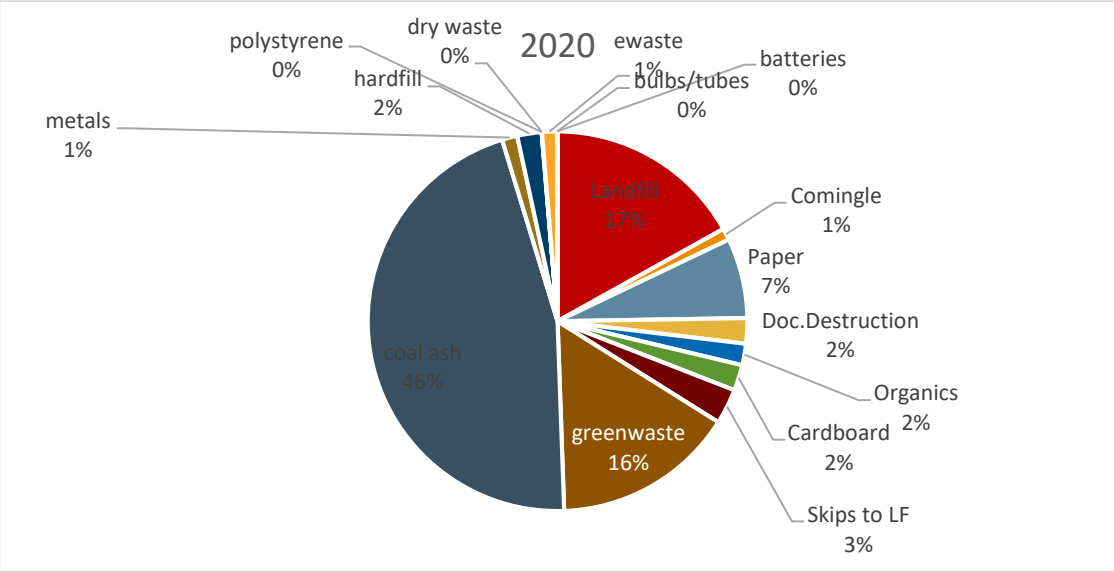
Waste

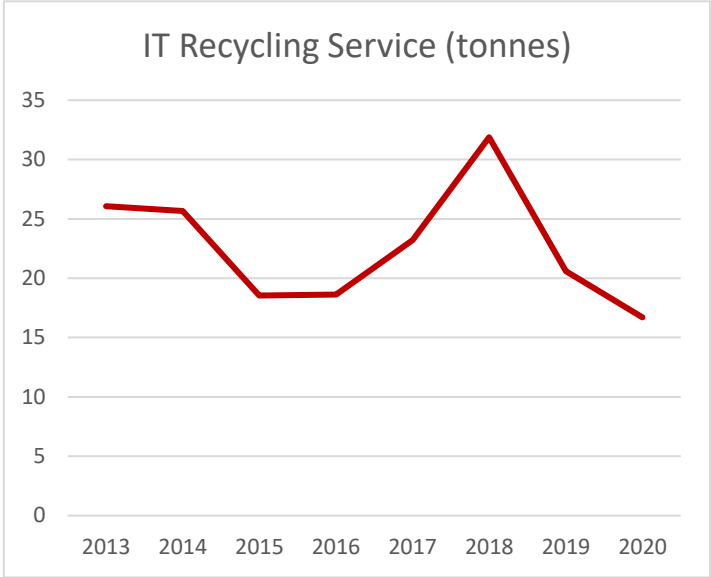
In 2020 the Sustainability Office released new waste messaging that introduces the idea of the waste hierarchy. Having instructed the UC community for ten years to think about what items go in which bins, we now want to urge people to consume less and produce less waste.

Waste dropped off in some areas, a result of COVID-19 related closure. However, coal ash climbed, as did paper. We suspect that the coal ash climbing (noting that coal use actually dropped) is to do with lower quality coal producing more ash, and this is being verified.

In 2021, a three-yearly extensive waste audit will be undertaken to test particularly whether messaging around bin contamination (what goes in which bins) has been successful. This also helps us to understand problem locations on campus and any new items that are coming into the waste stream that we need to be prepared for.







6. Grow our sustainability networks

Sustainable Development Goals Summit Series, 2020-2021

In 2019, UC and Lincoln University agreed to co-host the third New Zealand SDG Summit. The previous two had been held at Victoria University and Auckland University (co-hosted by AUT) respectively.

Planning commenced for this in late 2019. Our team built on the multi-stakeholder network that Auckland University and AUT had developed and worked to build a complex, but functional, system of decision-making that we believe captures the essence of SDG Goal 16 (Good Governance) and especially of SDG Goal 17 (Partnerships). We see this last as the cornerstone for successful summits, and ultimately towards New Zealand's achievement of the SDGs.

This decision-making systems sits at four levels. Underpinning everything is a strong partnership between the host group and manawhenua – in our case Te Ngai Tūahuriri. We have been fortunate to have the support of Ngāi Tūāhuriri Upoko, Dr Te Maire Tau and Corban Te Aika, Kaiārahi Māori, in both participating and framing.

The second layer is the local organising group – the Working Group – which consists of not only UC and Lincoln University, but also Ara Institute and the Christchurch City Council. Other partners are starting to join as the programme becomes more clear.

The third layer is the National Stakeholder Group, which consists of around 30 partners representing the community, business, local government and central government sectors. Finally, a fourth layer is the New Zealand University sector, represented by Panel on the SDGs under the auspices of Universities New Zealand.

Pasifika interests are being treated separately, through engagement with the UC Pacific Development Team, Lincoln University's Pacific Student Support, and Director Steven Ratuva of the Macmillan Brown Centre for Pacific Studies. Young people and children are also represented, though the networks have so far been informal.

Due to COVID-19, and the possibility of lockdowns, a decision was made early on to ensure on-line options for attendance and participation. Because of this, and general uncertainties during 2020, planning evolved into the concept of a Summit Series, made up of three on-line events and a face to face Summit. To ensure success of this programme, an external conference organiser was engaged, along with a part time internal communications support person on a fixed term contract.

Communications channels have been established by our team that are easy to transfer to future summit hosts, and internal planning documents are stored in the cloud for the same reasons. Perhaps most importantly, the National Stakeholder Group now understands its role in overseeing a whole programme of summits, and not just being a sounding board relating to the present summit.

Universities New Zealand have developed a website which is registered until 2030 when the Goals mature. UC has established a Facebook page and LinkedIn and Instagram accounts, which sit under a general SDG account that can be assigned to the next host without any difficulty.

The first of on-line hui was held in November 2020, and was attended by 118 people. The hui featured a panel discussion and two workshops and received positive feedback in the post attendee survey. Issues emerging included the lack of some indicators for national reporting and particularly the lack of indicators that acknowledged Mātauranga Māori and Te Ao Māori worldviews. The absence of Te Tiriti ō Waitangi as an organising principle was particularly concerning. Some of the ideas expressed through the first on-line hui will be picked up and developed further in upcoming hui.

7 Engagement, Partnerships and Procurement

Engagement

Sustainability Events and Student Engagement

2020 was a challenging year for student engagement in sustainability, yet it opened up opportunities for connecting with students in different, creative and unique ways. During lockdown, the Sustainability Office ran a series of 'Sustainability @ Home' campaigns over social media, putting out weekly challenges to our community asking them to show us how they were taking action on sustainability while at home. The challenges gained a total of 52 student and staff entries, and reached 28,000 over our social media channels. The challenges ranged from sustainable recipes and cooking, to gardening, slow fashion and low waste living tips. Feedback we received from students was they really enjoyed participating in the challenges, and loved learning new skills from other participants via weekly wrap up blog and social media posts.

Life back on campus after lockdown provided more challenges, with restrictions on the types of activities we could undertake with students. However, from the Sustainability @ Home challenges emerged a group of highly engaged students who advocated and took the lead on events and projects upon the shift to Alert Level 1. Working with this energy, the Sustainability Office successfully delivered our popular Plastic Free July, Clothes Swap and Bike Breakfast events alongside these students in terms three and four.

We engaged 2175 of students and staff in our sustainability events on campus, and reached a total of 331,644 people across our social media channels, showing there remains a huge energy and appetite for sustainability on and off campus, despite the challenges of this year within our UC community.

Eco Volunteers

Eco Volunteer program remains a key part of engaging our student community, with 370 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 group we have identified 40 students as active sustainability champions, who we see gaining confidence and starting to

take leadership on sustainability events and initiatives on campus. The 2021 Eco Volunteer program will build on our current offerings, as well as broadening to include opportunities for students to engage with the Sustainable Development Goals and Summit Series events, and more project driven volunteer activities.

Project Face Mask

Following lockdown, a collaborative opportunity emerged to work with the Student Volunteer Army (SVA) and UC's Campus Services team to run reusable face mask workshops, to provide free reusable masks for those in our community who were unable to access them.

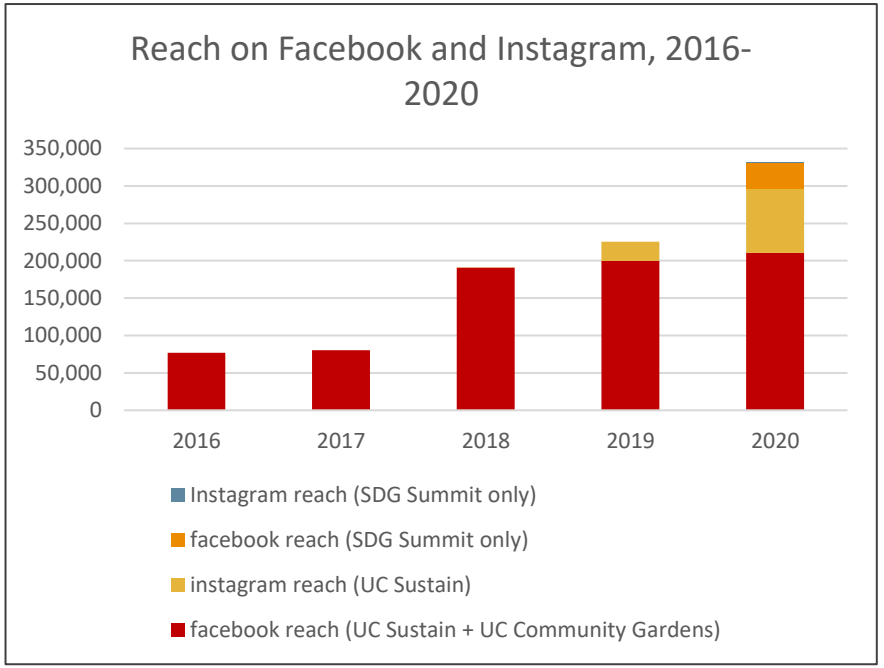
500 reusable masks were made by over 100 staff and student volunteers. Sessions were also run as part of CHCH101, 'Strengthening Communities through Social Innovation' with 45 students contributing to mask making workshops as part of community service projects.

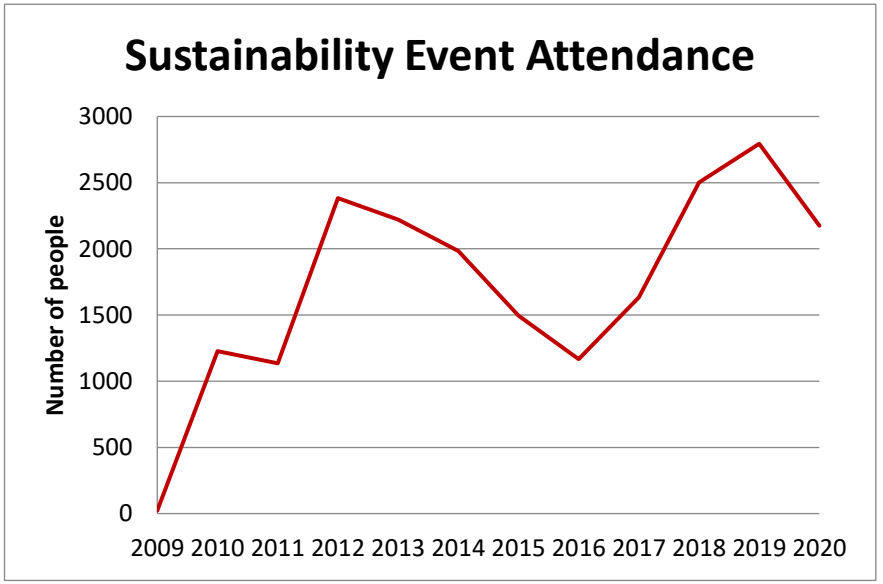
The masks were distributed via the SVA to Student Care, UCSA Advocacy and Welfare, Te Waka Pākākāno Māori, Pacific and Equity Development Team. The masks were then able to be made available through these support channels to those in our community with the biggest need.

The countless donations of fabric, materials and time from all across the University were a true testament to the support and energy around this project.

Fair Trade

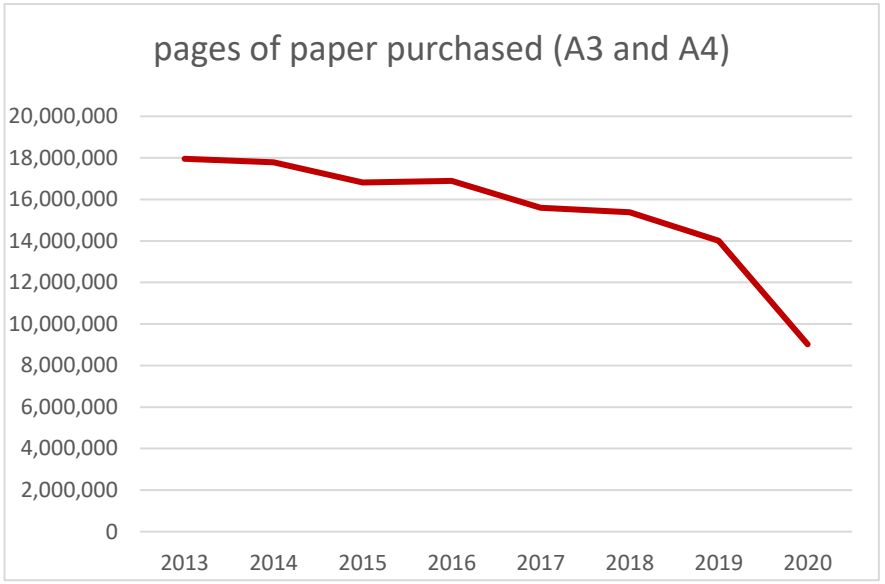
2020 was a slow year for our Fair Trade campus program, with a pause in office consumable purchases over lockdown, the cancellation of Fairtrade Fortnight events and the ongoing challenge of the re-accreditation program being placed on hold through Fair Trade Communities New Zealand.
However, purchasing statistics of office consumables through Office Max remain steady through the second half of 2020, showing that fair trade purchasing is becoming more embedded in the culture of our staff.
Acknowledging this shift, the Sustainability Office plans to expand the Fair Trade campus program from the purchasing space for 2021, and explore the links between the Sustainable Development Goals, Fair Trade and our University's teaching and research.





Paper Use

Paper use plummeted further in 2020, of course largely a result of COVID-19 lockdowns. However, this also continues a long term downward trend. Paper use is also used as an indicator of materials use across campus. When we talk about the waste hierarchy, this indicator is helpful in understanding the general willingness of the UC community to reduce their materials consumption.



8 Adaptation

In 2019 we reported that there was a need to develop a risk management programme related to climate change. During 2020, the Sustainability Office and the Energy and Carbon Manager worked with the Risk Manager and Facilities Management Director to develop a draft Climate Change Risk Register. This will be finalised during 2021.

The document outlines some considerable risks of disruption to normal operations, primarily from prolonged heat waves and also dramatic flooding events. The limits of the physical campus to deal with these situations has already been tested and found wanting. It is likely that such situations will need to be better understood and any mitigation measures will ultimately need to be incorporated a revised Asset Management Plan. A programme of work will be needed to develop a Climate Change Management Plan or similar.

Whakaarotau | Priorities for 2022

Year	*UC Strategy projects*	*Person responsible*	*Notes*
2022	Create concept plan for Ilam Building Programme Business Case	Caroline Hutchison	
2022	Replace coal as energy source	Alan Palmer	
2022	Increase awareness of air travel	Matt Morris	
2022	Real world tracking. Ensure the carbon sequestration programme provides real world teaching and research opportunities.	Prof Jan Evans-Freeman	
2022	Establish current best practice efficient lighting options	Tony Sellin	
2022	Biodiversity and Waterways plans	Matt Morris	
2022	Partner with industry	TBC	

Tāpiritanga | Appendices

Sustainability Culture Indicator

Introduction

During 2019 approval was gained to conduct the Sustainability Culture Indicator (SCI) at UC in 2020, for the first time. This survey has been conducted at numerous tertiary organisations around the world and allows UC to benchmark itself against others. Two SCI surveys was run: a staff survey and a student survey. The results below were compiled by Tim Cotter of Awake, who conducted the survey.

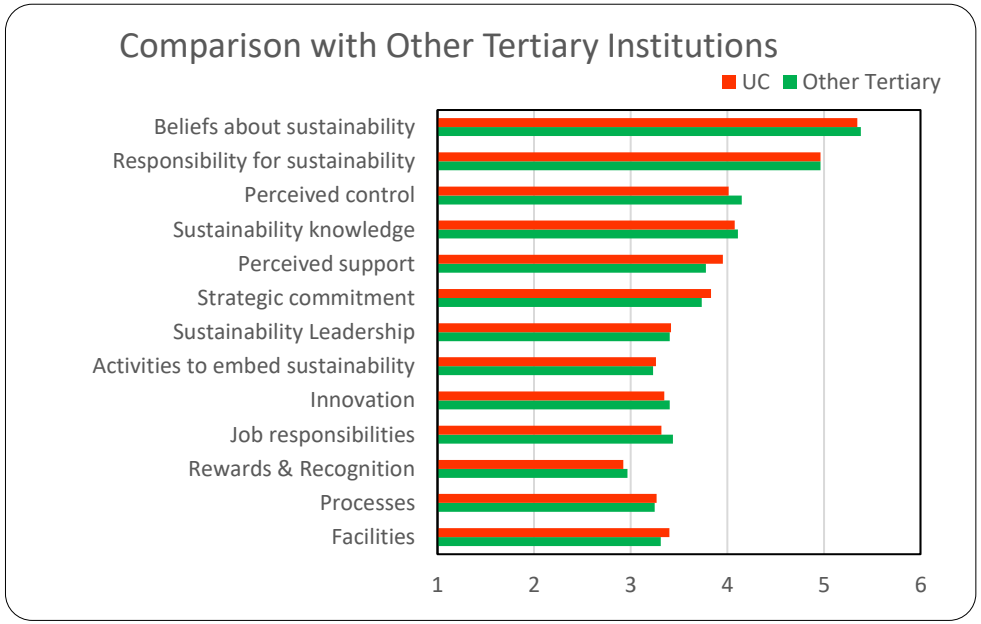
Staff Survey Results

General

427 employees of the University of Canterbury completed the Sustainability Culture Indicator (SCI).
The purpose of the survey was to get a better understanding of attitudes toward sustainability, and what factors are both helping and hindering staff to achieve sustainability outcomes.
The survey is built around the enablers of a culture of sustainability, both individual (psychological and attitudinal elements) and organisational (support mechanisms). By assessing the extent to which those enablers are present in the University of Canterbury, it is possible to better prioritise and target activities to embed sustainability in the culture.
The headline results of the staff survey are presented here with comparisons to other higher education organisations who have conducted the SCI.

Results

Overall, there is a strong commitment to sustainability among University of Canterbury staff. They believe it is important and are prepared to make it a priority in their life and their work.
In terms of behaviours, staff at the University of Canterbury report performing a substantially higher frequency of sustainability-related behaviours than those in other tertiary institutions, both on-campus and off-campus. Overall, they are likely to perform such behaviours more frequently at home than on campus.



The University of Canterbury scored above the tertiary institution average for 7 of the 13 enablers, suggesting sustainability is about as well embedded in the institution compared to most. The results suggest that people see some tangible efforts to embed sustainability but would like to feel more empowered and educated to make sustainable choices.

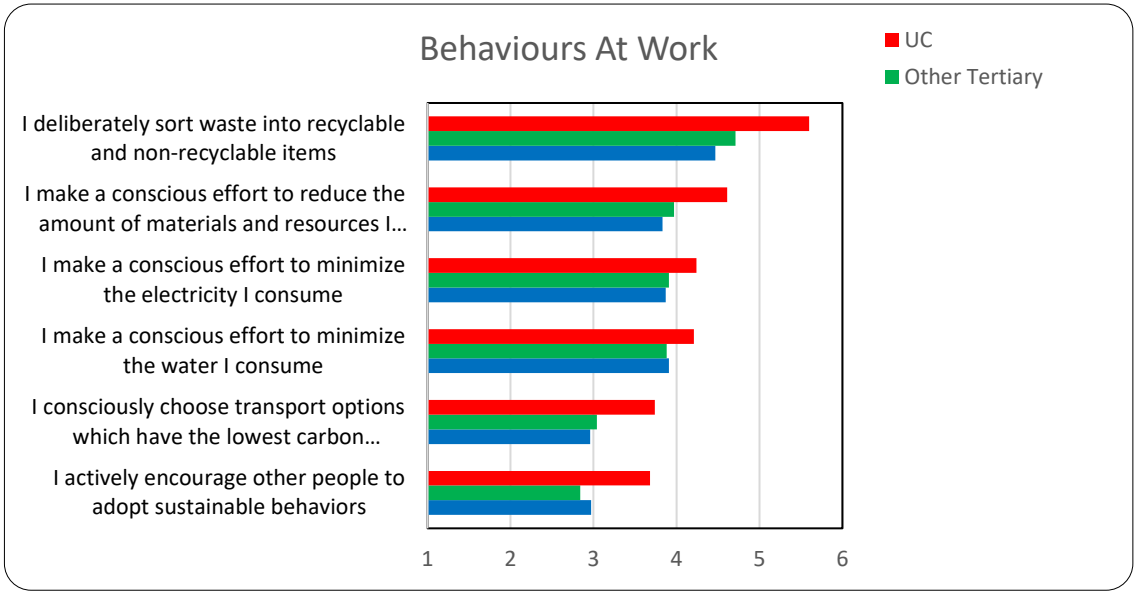
Staff also felt the effort that the University of Canterbury makes towards sustainability is slightly below the average for other institutions. It should be noted that universities in general score lower on the survey than organisations in other sectors. The results for UC, as with other universities, show much room for improvement.
Written comments suggest that reducing transport-related emissions and increasing energy efficiency are two key areas where UC can improve its sustainability performance. Paper use is another area where people see room for improvement.
In summary, UC's results are similar to those of other tertiary institutions. Taking action to ensure policies and process are visibly aligned with the sustainability commitments of the organisation would further embed sustainability in the culture. Engagement and education activities that are targeted and relevant should also serve to translate staff's positive intentions towards sustainability into action.

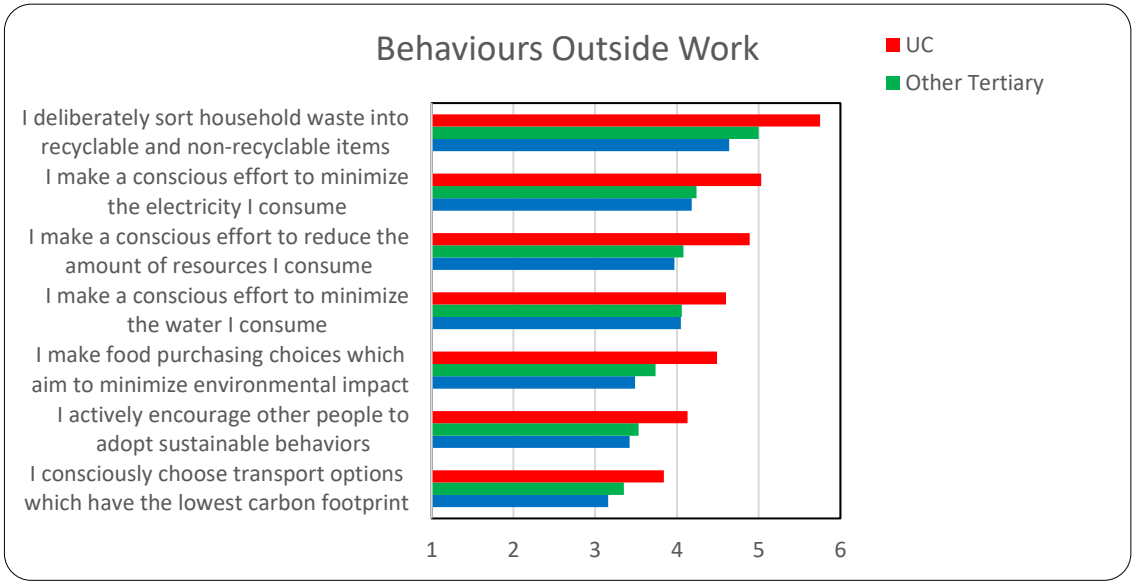
Student Survey

General

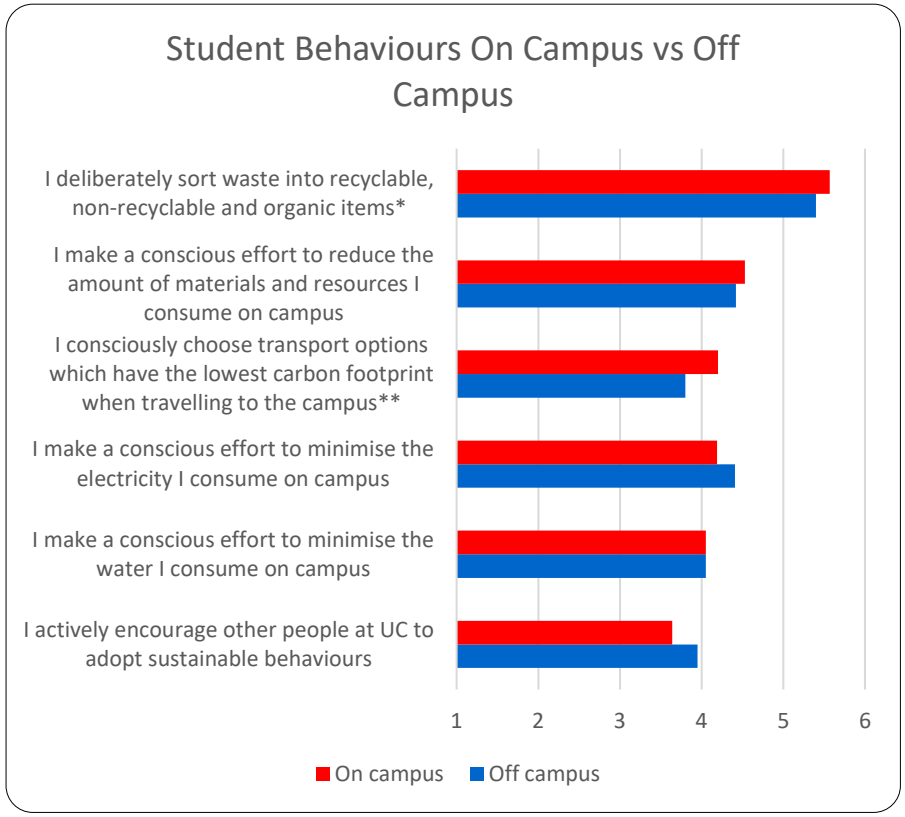
The student survey was completed by 2154 students.
The analysis below provides a comparison of student responses with those of staff

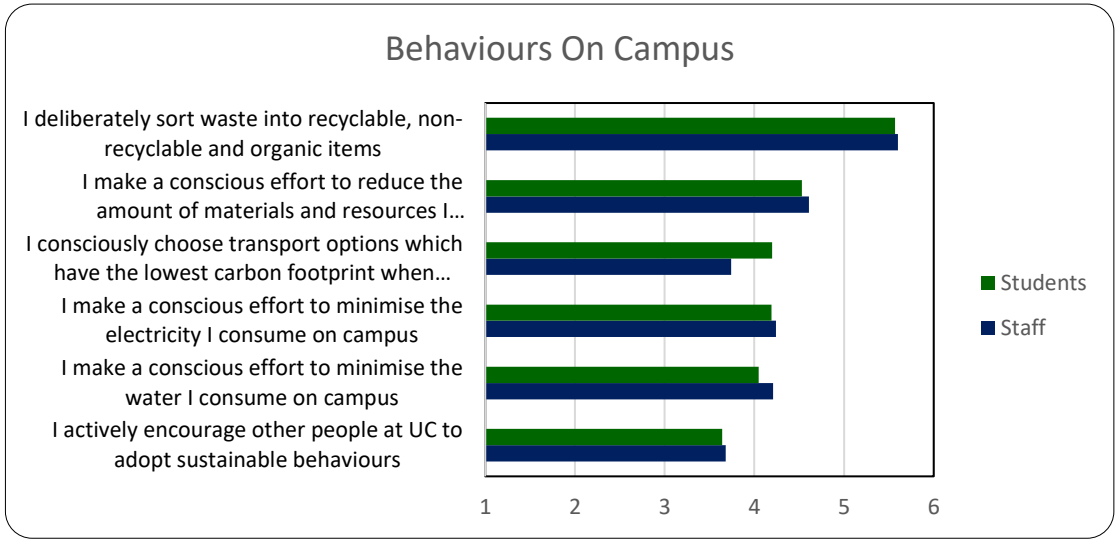
Results Compared with Staff

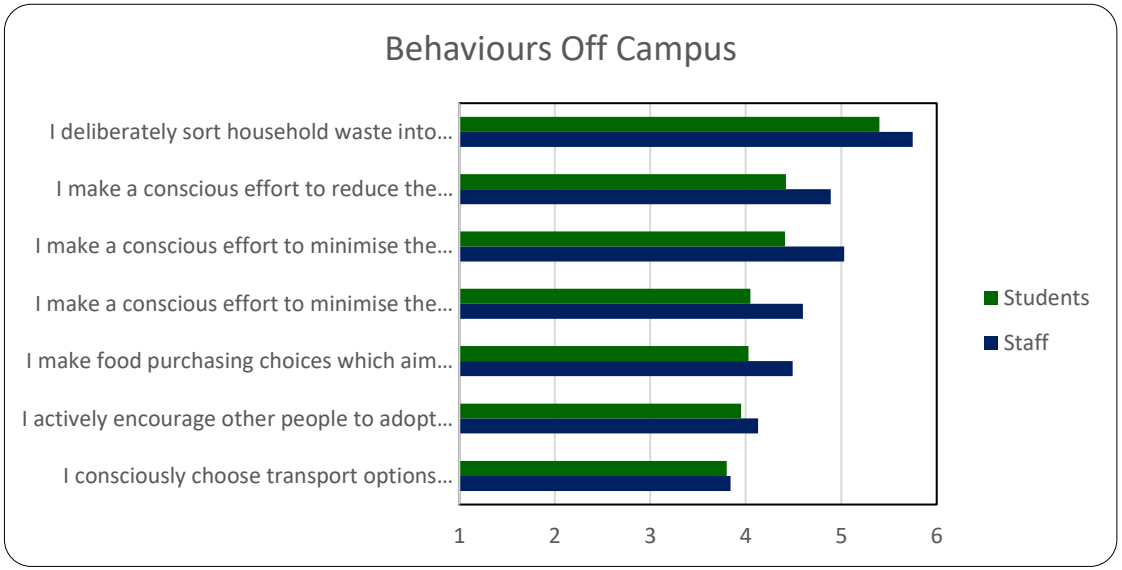




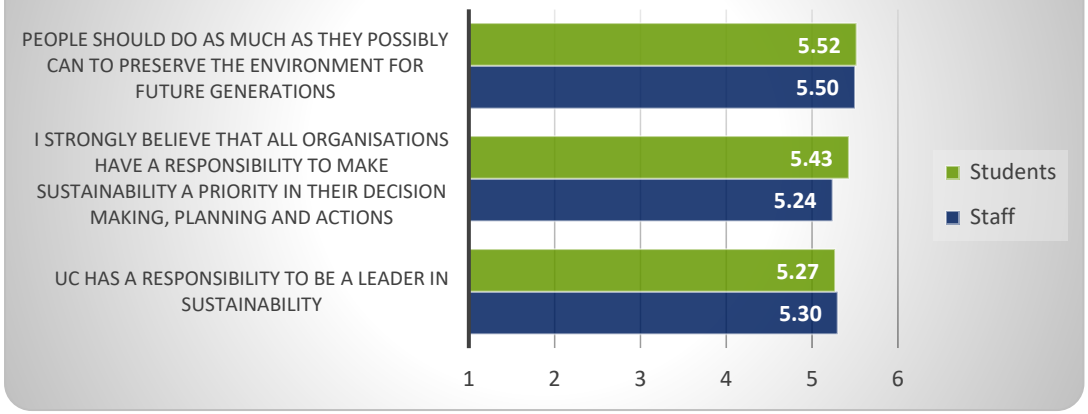
Students reported that they perform sustainability actions slightly less than staff in most areas, both on and off campus. Interestingly, they were more likely to sort waste properly, reduce materials use and choose better transport on campus than off campus. In addition, students reported that they are more likely to encourage their peers to adopt sustainable behaviours off campus than on.



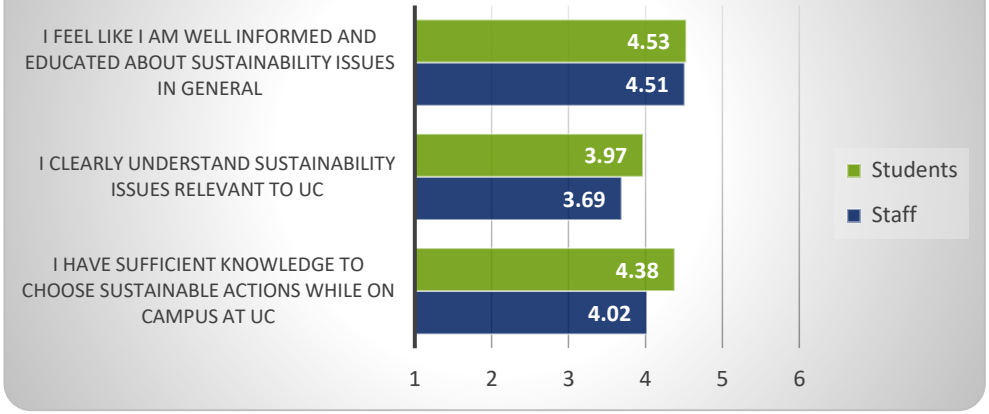




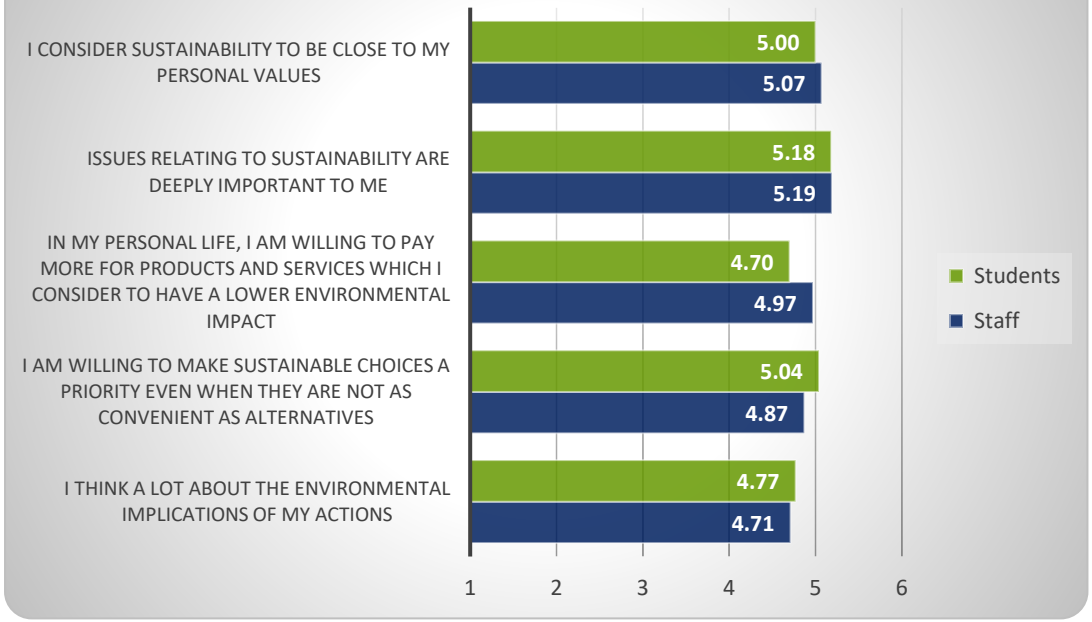
Beliefs about sustainability: Items



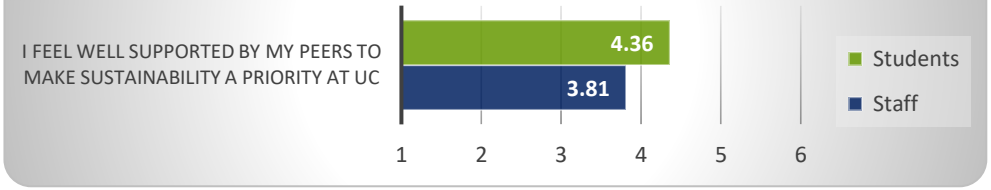
Sustainability knowledge: Items



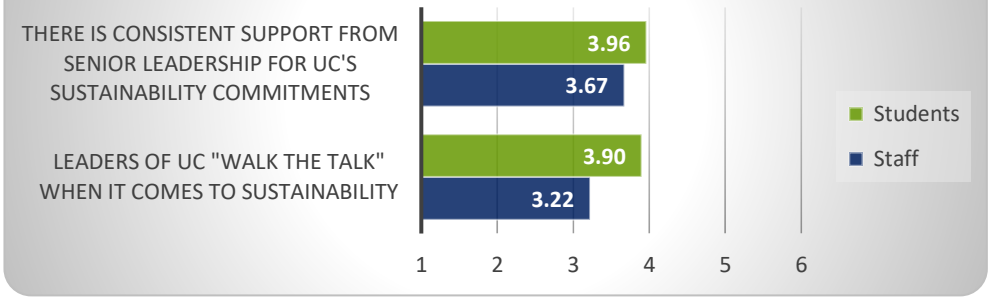
Responsibility for Sustainability: Items



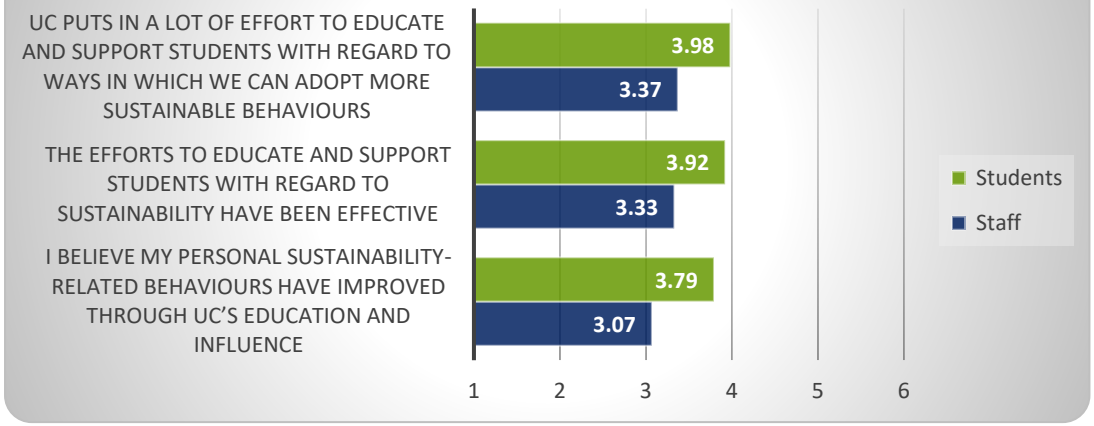
Perceived support: Items



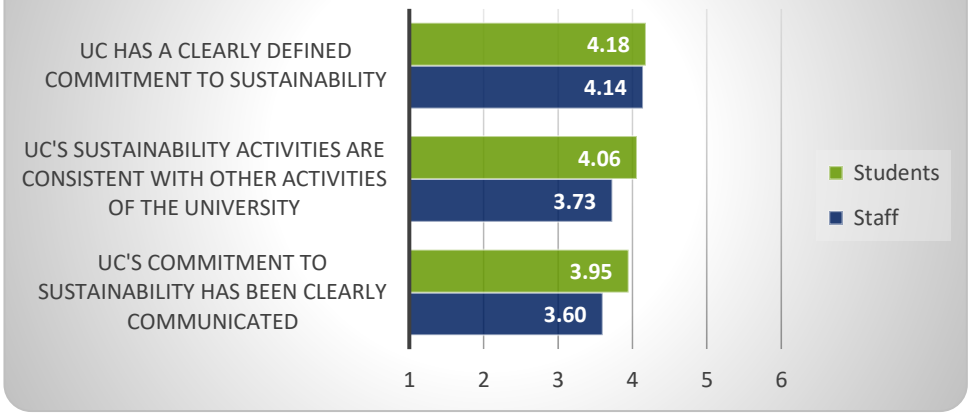
Sustainability Leadership: Items



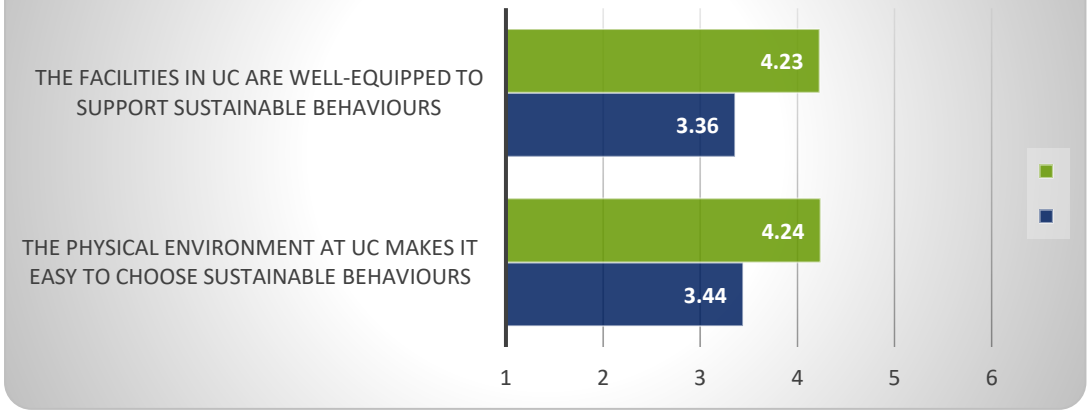
Activities to embed sustainability: Items



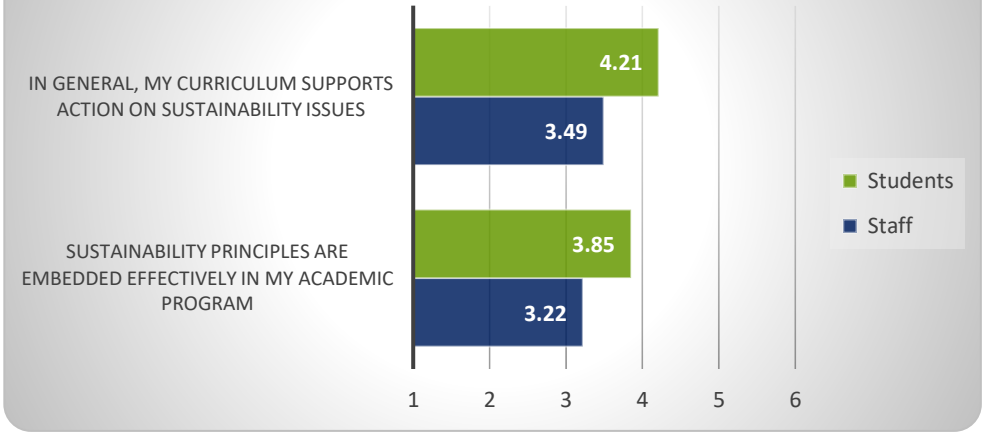
Strategic Commitment: Items



Facilities: Items



Curriculum: Items



Sustainability Indicators

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
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	26,937,348
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	24,359.66	16800
coal burned (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	4770.14
Air Travel (tonnes CO_2-e)									8,094.88	9,568	8,767.00	1650
Air Travel (kms)										52,027,773	49,034,888.00	11,585,212
waste to landfill (tonnes)		219.79	197.11	233.44	256.14	312	386.47	337.77	314.61	319.41	315.08	221.998
comingle waste adjusted for 2018 proxy weight per bin		43.53	36.06	61.32	73.52	27.56	40.12	41.27	16.31	12.38	16.19	13.068
IT Recycling Service (tonnes)					26.07608	25.66912	18.5535	18.6285	23.20	31.88	20.58	16.70
water use (litres)								292,875,000	293,571,240		324,943,000	257,268,745.40
cycle stand count				2513	1749	1749	2004	2458	2364	2870	3860	3662
dr bike - bikes fixed						100	100	115	140	71	85	33
native birds								187	119	201	208	128
Partnerships and Engagement												
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	14010185	9020250
fair trade fresh coffee (% units)								39	100	98	100.00	100
fair trade coffee and milo (% units)								18	73	80	79.00	78
fair trade tea (% units)								10	94	94	94.00	96
fair trade sugar (% units)				0%	5%	3%	5.00%	5	13	11	14.00	11
sustainability event attendance	23	1227	1135	2383	2221	1985	1495	1167	1634	2501	2794	2175

newsletter (total) - including mailchimp signups						416			519	693	1059	1415
blog views combined							2,700	9160	7087	6,801	8047	6822
blog views - sustainability office										1,635	1827	2370
Tū ki te tahi blog views										1296	2071	360
Insider's Guide blog views										3,870	4149	4092
instagram followers										743	1025	1421
instagram reach (UC Sustain)								0	0	106	25337	86308
facebook total reach (main)								76880	80363	174,487	190987	196226
facebook total reach (garden)										16,225	8976	14367
facebook reach (UC Sustain + UC Community Gardens)								76880	80363	190,712	199963	210593
facebook reach (SDG Summit only)								0	0	0	0	33972
facebook likes (main)			305				1,428	1736	2075	2361	2850	3193
facebook likes (garden)			48				451	581	679	752	850	1010
facebook (rideshare 2011- 2016, UC Carpool 2018)			17					16		63	65	61
facebook (eco volunteers)											119	220
Facebook fan count (combined pages)			370	640	872	1172	1879	2317	2754	3176	3884	4484
SDG summit socials												
Facebook likes												333
Facebook reach												33972
Instagram followers												92
Instagram reach (SDG Summit only)								0	0	0	0	771

total reach												331644

Sustainable Development Goals