

UNIVERSITY COLLEGE CORK

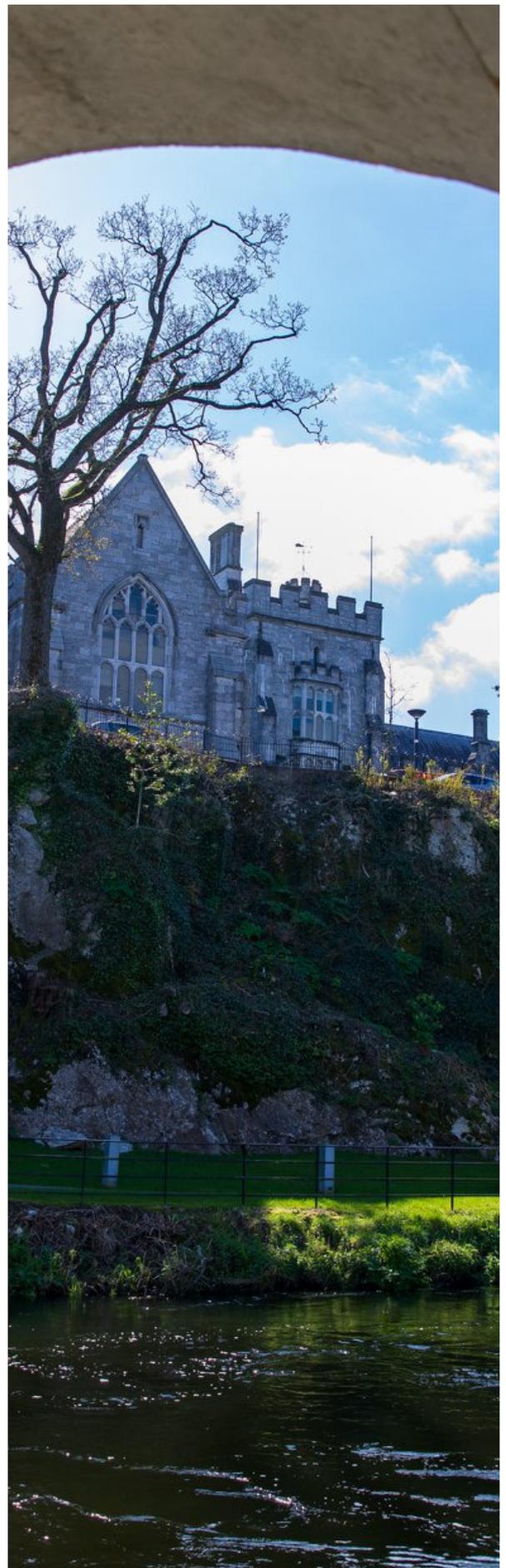
GREEN FLAG REASSESSMENT REPORT 2019



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Green Campus
Committee
Secretary 2018/19

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About UCC

Founded in 1845, University College Cork, National University of Ireland, Cork, (UCC) is one of four constituent universities of the National University of Ireland. 12 years ago UCC students embarked on the Green Campus programme and UCC has become a global leader in sustainability best practice and has continuously improved its environmental performance despite a substantial growth in student numbers and the inclusion of new buildings. UCC has become the only university outside of North America to be awarded a Gold STARS rating from the Association for the Advancement of Sustainability in Higher Education and was ranked 21st global in the recent Times Higher Education Impact ranking, achieving the first position globally for SDG 12 Sustainable Consumption and Production. Thus, sustainability has been deeply embedded in the daily operation of the university and is integral to all strategic plans launched in recent years including the University's overall Strategic Plan, the UCC Academic Strategy, the UCC Community Engagement Plan, and the Glucksman Gallery's Strategic Plan. Sustainability has become an key part of the University's identity and the campus community is proud of its 'green' heritage.



Green Campus Committee

According to the Green Campus Guidelines, the Green Campus Committee (further referred to as 'the Committee') should have the following key characteristics: It should be comprised of students and staff (academic, research and administrative) while students should play a major part in its steering. The aim is to form the committee in such a way that it is as representative of the institution as possible. Further, it should be open for students/staff to join at any time. The committee is the driving force of the Green Campus programme and oversees its operation and progress. The Green Campus Committee UCC is built on those foundations. The exact mode of operation, however, is continuously evolving in order to ensure the successful and efficient running of the committee.

In the academic year 2018/19 33 students and staff joined the committee. As in previous years, key members of the Buildings and Estates team, the commuter manager, the sustainability officer and academic staff members played a major role in the operation of the committee. The main mode of communication was via e-mail, though a Facebook Group was opened for the members of the committee to join. Minutes were taken at every meeting by the secretary and afterwards

circulated to all members of the committee. Meetings were organised every two weeks. Meeting times were decided before every meeting on the basis of a poll. In order to account for the different needs and schedules of students and staff, it was aimed to alternate between lunch and evening times for meetings. As this approach did not result in increased attendance, for the next AY set alternating meeting times will be arranged so that members will at least be able to participate in a meeting every four weeks.

The nature of the Green Campus Committee and the higher education environment create some challenges including:

- To ensure continuity and adequate hand-over of expertise and information at the beginning of each academic year
- A lack of focus due to the different backgrounds and interests of the people involved
- A lack of accountability and initiative as no formal roles/positions are assigned to members
- A small attendance at meetings due to the difficulty of finding a suitable time for everyone involved

Some major adjustments to the structure of the committee have been made over the course of the last years to account for those challenges. At the end of AY 2017/18, a constitution was written to bring more formality to the committee. The most important aspects stated in the constitution are the following:

- The committee is co-chaired by the SU Deputy President and Campaigns Officer and the UCC Environmental Society chairperson to ensure greater student participation and continuity
- The specific role of Campaigns and Events Officer has been introduced to the committee to ensure the successful planning and running of a particular campaign and the events included in it over the course of the year
- Further, some elected positions like Secretary and PRO have been added to ensure that those tasks will be met with responsibility and dedication
- A member of the Clubs and the Societies executive are part of the committee to promote a wider spread of the key ideas of the committee
- The newly introduced position of the SU Environmental Officer also holds a position on the committee

In recent years efforts were made to mirror the running of the societies within UCC which are perceived to be more efficient. This is still a work in progress, however, which is being complicated through the aspect that the Green Campus committee is run by students and staff (whereas societies are only run by students) and the fact that the committee is constructed to be open for new members to join at any time (whereas the committee for societies is elected at the beginning of each academic year and is then a closed entity with very limited opportunities for students outside it to contribute). Having members of a committee elected at a public event not only gives those members more credibility and authority but also the duty to contribute to the project as good as they can.



Here a solution has to be found which ensures the continuity of the openness and inclusiveness of the committee while at the same time guaranteeing the successful and efficient running of the committee by members taking responsibilities for tasks and translating their enthusiasm into action. For the next academic year, a mixed approach will be tested. Specific positions as outlined in the constitution will be elected at an EGM at the beginning of the year while the committee is still open for everyone to join and contribute to meetings. Having assigned roles is deemed to give people more responsibility and make them more inclined to contribute effectively. Furthermore, it was criticised that the committee was not aware enough of their task. This issue will be overcome in the coming years by clearly introducing the committee at the beginning of each AY to their role and purpose of implementing the Green Campus Programme. The members of the committee should be made aware of UCC's Action Plan and the Green Charter. One or two themes/projects will be decided at the start of the year to steer the work of the committee and guide them in their decisions on campaigns and events.

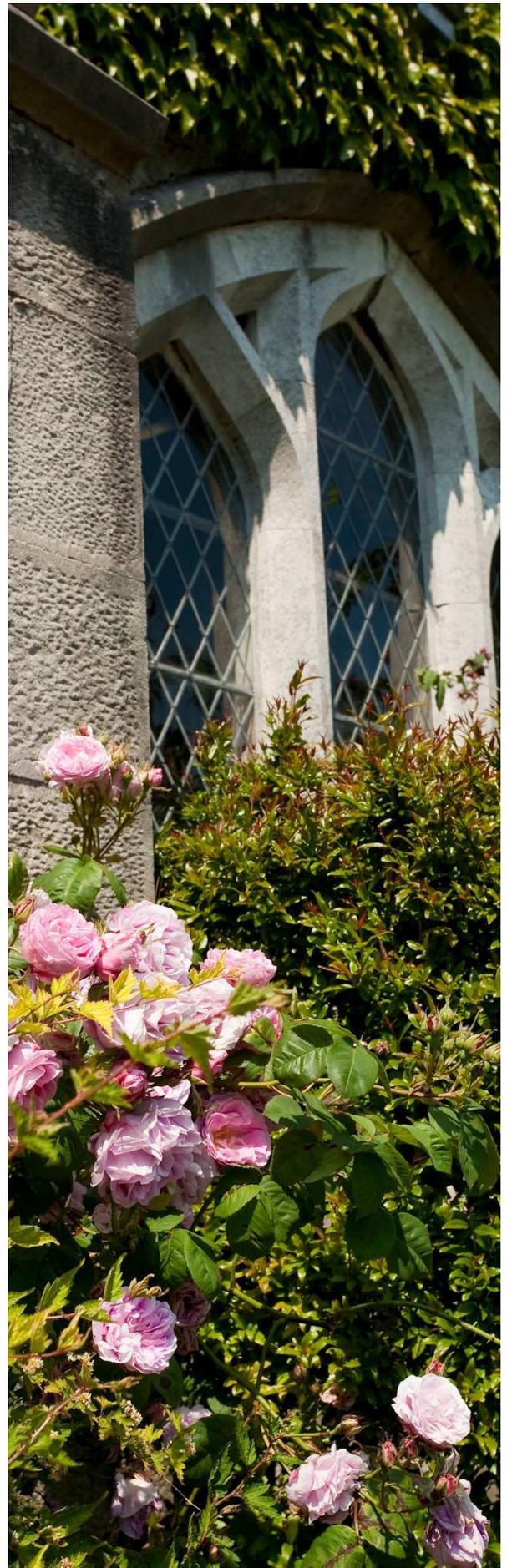
Within UCC, a Green Forum maintains strategic oversight of the university's sustainability action plan and deliverables. This forum has membership from academia, service contractors, UCC Accommodation and the Mardyke Arena. It is chaired by Professor John O'Halloran and Mark Poland and meets twice per year. In addition, the University's Sustainability Officer sits on a number of key groups and committees within UCC including the Restaurant Committee, the Academic Strategy Implementation Steering Group, the Centre for Global Development Steering Group, the Health Promoting Universities Steering Group and the Local Community Engagement Group.



Chapter 3:

Environmental Review, Monitoring and Evaluation

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Litter and Waste

The issue of waste is a very important aspect of sustainability as it leads to inefficient resource use and pollution. In recent months the topic has been widely discussed in the media, especially the issue of plastic waste. In line with this wider movement, UCC and the Green Campus committee are continuously striving to reduce waste and increase recycling. Despite an overall increase in student and staff numbers and the incorporation of new buildings, major achievements have been accomplished:

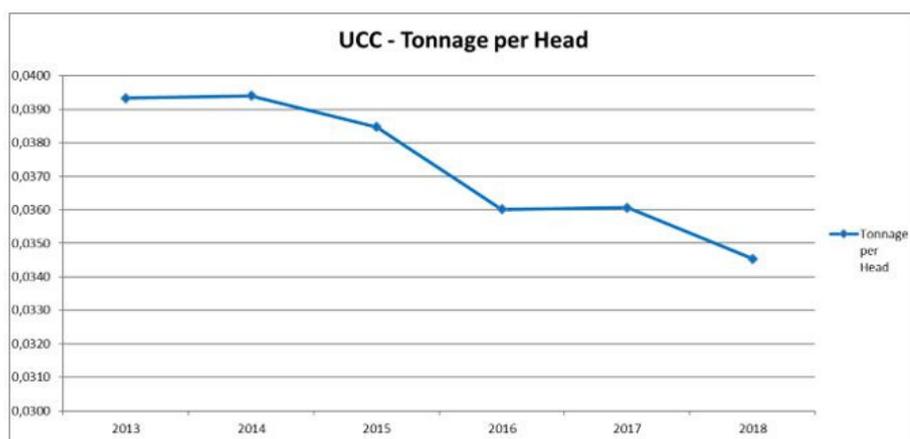
- Tonnages of waste produced per year have decreased by 5% compared to 2013
- If the increase in students is accounted for, the reduction in waste generated from 2012 to 2017 is 30%
- Recovery rate has increased to 95% from 76% in 2013 and 89% in 2016 which means that greater amounts of waste are diverted from landfill by means of incineration or recycling
- The current recycling rate is up to 57%
- Increase in recovered food/compost waste per head year on year

The issue of food waste has been a focus of recent efforts with the aim to divert greater quantities of food/compost waste from general waste bins through better recycling facilities accompanied by efforts to reduce the generation of food waste in the first instance through better portion management and increased awareness. The recycled food/compost waste from campus is then processed at Acorn Recycling in Tipperary into organic compost which is then used in food growing projects on campus (see food) thus closing the loop.

UCC is currently part of the Repak Team Green Recycling Machine pilot project, with a reverse vending style machine for plastic bottles and cans in the main restaurant.



Figure 1. The waste produced per head on campus is continuously declining, a major achievement especially as student numbers increase.



UCC Recycling/Recovery Rate

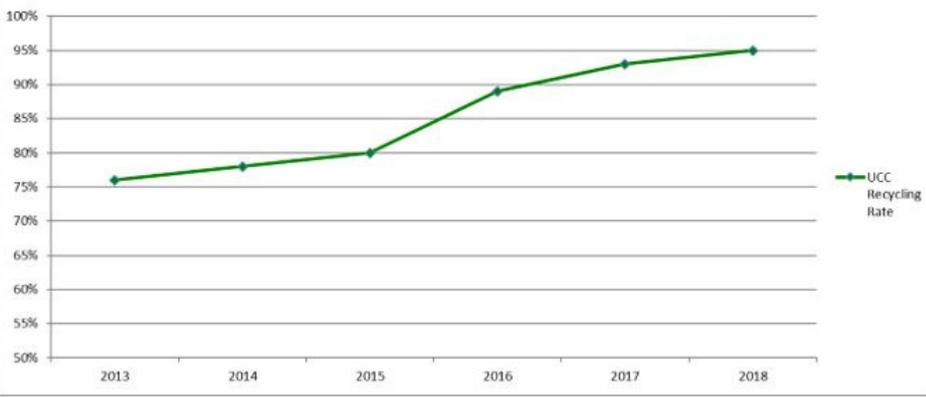


Figure 2. The recovery rate is continuously increasing and has increased by 20% in the last 5 years. Increases in recycling and recovery result in less waste being dumped onto landfills which positively contributes to less pollution.

In UCC’s efforts to optimise waste management, the library serves as pilot building and role model. In the summer of 2017, audits of bins across the building revealed high contamination rates, mostly through the disposal of coffee cups and consequently a very low recycling rate at around 5%.



A two-fold approach was followed to tackle the issue. Firstly, the use of disposable coffee cups was banned (see below) and secondly, steps were taken to increase the recycling rate. To achieve the latter a ‘binless’ system was introduced where all small bins were removed from the building and two recycling stations were instead installed at the ground floor. Those stations are clearly labelled as to avoid confusion on what should go in which bin. This effort resulted in an estimated saving of 10,000 plastic bags a year (that would have lined the smaller bins previously) as well as 625 full bags of recyclables that would have gone to landfill. The recycling rate increased consequently by 700%. The introduction of the new system was supplemented by training for staff of the library and the cleaning team as well as information stands for students. The project shows what can be done if the whole campus community works together towards a common goal but also underlines the importance of getting buy-in from all those involved. The system is continuously evaluated and where possible improved. Shortly, bins for compostable materials and food waste will be added which were missing until now. This will lead to an even greater diversion rate.



Figure 3. The newly installed recycling stations at the ground floor of the library have increased the recycling rate by 700%. They are clearly labelled to guide students and staff in the correct disposal of their waste.

Over the last years UCC, driven by the Green Campus Committee in close cooperation with the SU and the library team, has thrived to reduce the use of single-use plastics on campus. With the Love our Library campaign the library banned the use of single-use plastic cups in the building. The ban was accompanied by the sourcing of bamboo reusable mugs and the securing of discounts when students bring their own mugs to on-campus cafés. From the start of AY 2018/19 the SU secured funding to give every new student a reusable mug in their fresher's bags. The 'ditch the disposable' movement on campus further resulted in the opening of the first single-use plastic free café in Ireland. The 'Bio Green Café', run by UCC's catering company KSG, opened in September 2018. Within this cafe a whole life cycle approach is followed in sourcing food and beverages. The café does not sell food wrapped in plastic and has exchanged water in plastic bottles for water in glass bottles or cans. Food and drinks are served in crockery and for take-away costumers are encouraged to bring their on reusables but compostable containers are provided at a price if needed. Moreover, the Students Union started a 'Plastic Free' petition which was signed by 8747 students and signed by the President and the Deputy President of the university at the 22 January 2019. The petition pledges that UCC will be a single-use plastic free campus by 2023. A committee was set up to oversee the successful implementation of this initiative. This action is a real highlight as it pushes UCC's sustainable development in the long run and secures the continuity of sustainability on campus.



Figure 5. In line with the global movement bringing awareness to the issue of single-use plastics, UCC has launched a petition to ban single-use plastics from the campus by 2023.



Figure 6.

The Green Campus committee and other active groups on campus have run multiple clean-up events to clean the local environment and community. The 'Big UCC Clean-up' was the biggest event so far.

Events organised by the Green Campus committee and other groups like the Environmental Society throughout the years supplement strategic efforts to reduce waste by bringing awareness to students, encouraging behavioural changes and asking students to do their bit to clean up the community:

- 22 November 2017 'Zero Waste Day': Screening of 'A Plastic Ocean', Origami Christmas Decorations workshop using old papers and magazines, Clothes swap-shop
- 20 April 2018 'UCC – Sick of Plastic': encouraging students to sign the Waste Reduction Bill
- 26 September 2018 'Big Plastic Clean-up': in collaboration with KSG BioGreen Caf   and Subowti, UCC Canoe Club, UCC EnviroSoc and Clean Coasts a litter picking event was organised to clean the River Lee and its surroundings from plastic which resulted in the collection of 16 bags of rubbish
- EnviroSoc Litter Picking: the UCC Environmental Society organises litter picking events after weeks like RAG-Week, Freshers or Refreshers Week to clean up the local community as those weeks are especially prominent for unproportionally littering the campus and its surroundings
- Sustainability Market: the sustainability market organised by the Green Campus committee and the sustainability officer only brings vendors on campus which adhere to not using single-use plastics

Energy

UCC continues to reduce its annual energy consumption, despite the growth in flow area and students. UCC reached its targeted energy efficiency improvement of 33%, which it has been assigned under the National Energy Efficiency Action Plan, in 2017, three years ahead of schedule. This is a remarkable achievement considering that, compared to the baseline of 2006-2008, UCC's campus has grown and now incorporates additional buildings like the Western Gateway Building and the Mardyke Sport Complex. This target was achieved by an annual reduction in electricity use in most buildings. Currently, the University is 36.6% below the baseline performance of 2006-2008.

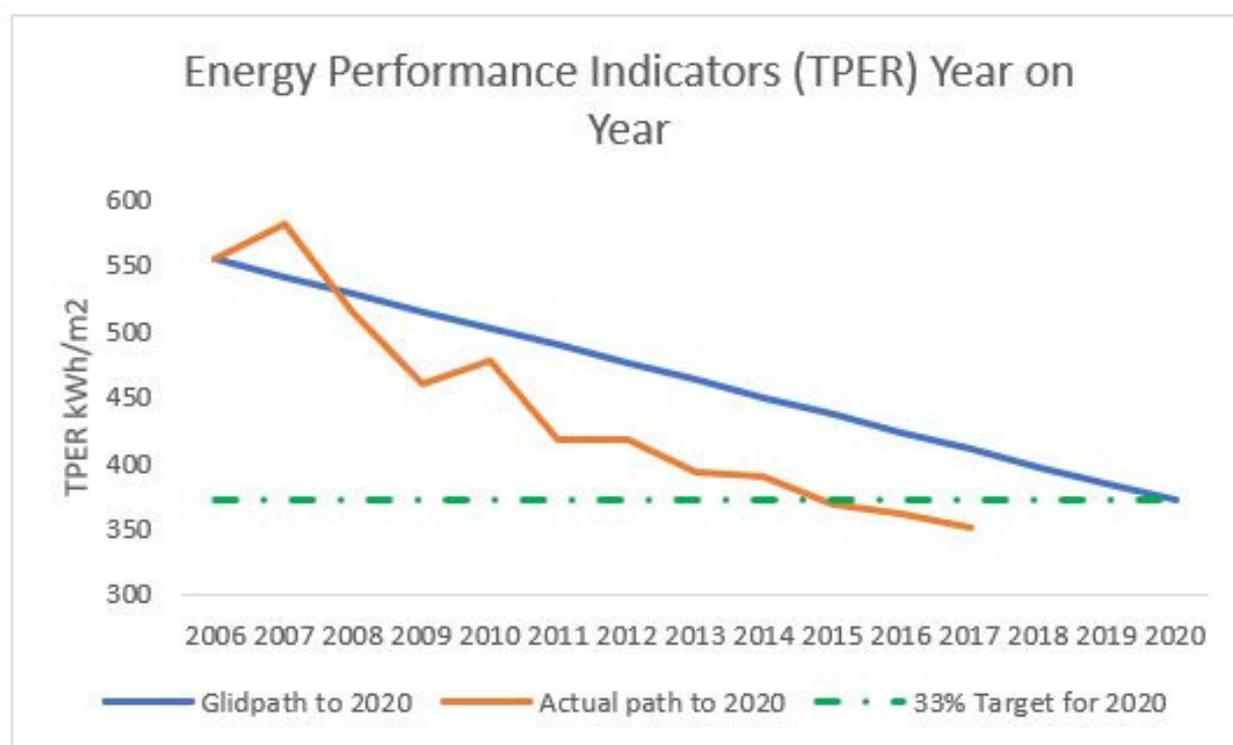


Figure 7.

Total Primary Energy Performance per m² is 36.6% below 2006-2008 levels. The university has reached its target for energy efficiency improvements in 2017.

As a consequence of this development, over 27 GWh of electrical consumption have been avoided since 2009, the equivalent of 18 months energy consumption for the UCC properties.

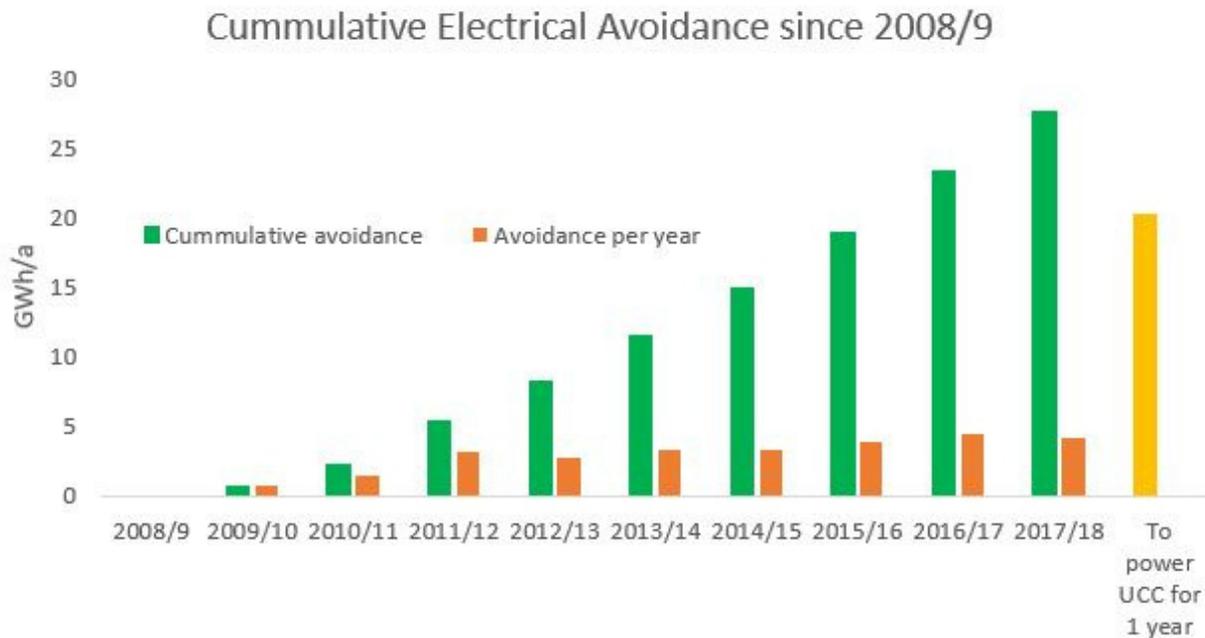


Figure 8. Annual energy savings realised through the energy management program cumulate to more than the energy needed to power the university for one year.

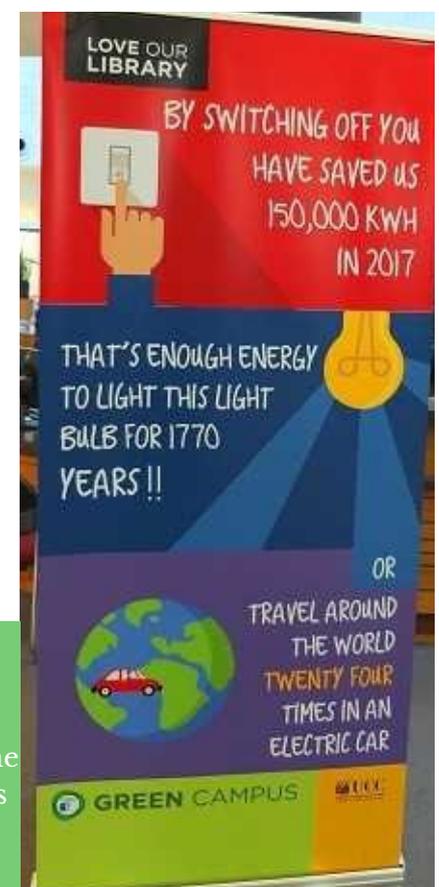
Under the ISO 50001 Energy Management system some 75 energy saving projects were completed since 2016. A sample of the projects include:

- 1,700 light fittings were retrofitted to LED lamps in the Food Sciences building as well as the Connolly Building, reducing the annual lighting loads in these areas by 150,000 kWhrs
- 1200 LED fittings installed in the North Mall campus, avoiding 125,000 kWhrs per annum
- Installation of PV arrays on the Food Science building roofs
- Building refurbishment programs including heating controls and insulation upgrades
- Replacement and modernisation of the Building Energy Management system

Further, in 2016 the university's ISO 50001 Energy Management System was revised and a building by building approach, targeting the largest energy users first and working its way down to the medium energy users, was implemented. The 'Saver Saves' program targets the most energy intensive buildings on campus and incorporates to date the Boole Library (including adjacent lecture theatres), the Cavanagh Pharmacy Building, the Glucksman Gallery, the BioScience Institute, the Environmental Research Institute and the Quad. In each building so called 'Green Teams' have been established which are responsible for tackling the high energy consumption in their buildings through behavioural changes, educational campaigns or more efficient equipment. Financial savings generated through better energy efficiency remain with the building/department to be reinvested in other energy saving projects as a "revolving fund". Over the 2 ½ years of the program UCC has avoided close to 500,000 kWh and reinvested some €75,000 in the participating buildings. The earliest adopter, and most successful building within the programme, has been the Boole Library with their campaign 'Love our Library' (since May 2017). The Library Green Team not only have achieved substantial progress in their waste management (see section on waste) but also in energy efficiency. The building has achieved an annual reduction in energy consumption of 7% and a 45% reduction compared to the base year of 2008. Last year the library was able to save enough energy to power the building for 5 months. Further, through those energy savings, the library was able to extend its opening hours while staying cost neutral in terms of energy costs.

Such savings were achieved by, for example, a reduction in lighting and the use of natural light instead. As those energy savings translate in financial savings, the library had money to install an air barrier at the main entrance to allow for better regulation of the air temperature and also for the installation of a living wall. Those installations will in turn lead to further reduction in energy consumptions in the future.

Figure 9.
Through its efforts to reduce energy consumption and by 'switching off' the library has reached substantial savings in energy consumption.



Further examples of the projects carried out include the change to LED lighting in the Glucksman Gallery, and the replacement of air compressors within the Cavanagh building. Thanks to those measures, the Glucksman Gallery has achieved a 32% reduction in its annual energy consumption and the Cavanagh Pharmacy building has accomplished a reduction in energy consumption of 12% since 2015. With the assistance of the Green Campus Team and the Buildings and Estates department, the Mardyke Arena has realised cumulative electrical savings of 1,290,000 kWh since 2014 and collaboration will continue to realise further savings in the Arena.

While recognising the progress made UCC continues to actively seek out more energy saving opportunities and closely monitors the weekly energy consumption across the University. Weekly energy performance indicators have been set for the significant energy users and any unexpected increases in energy use are quickly flagged and investigated to eliminate the cause of the increase.

Over the last 12 month reporting period we have seen a 15% reduction in total energy consumption (Gas and Electrical) and drew down €115,000 in grant funding from the SEAI to assist us with the energy efficiency programs.

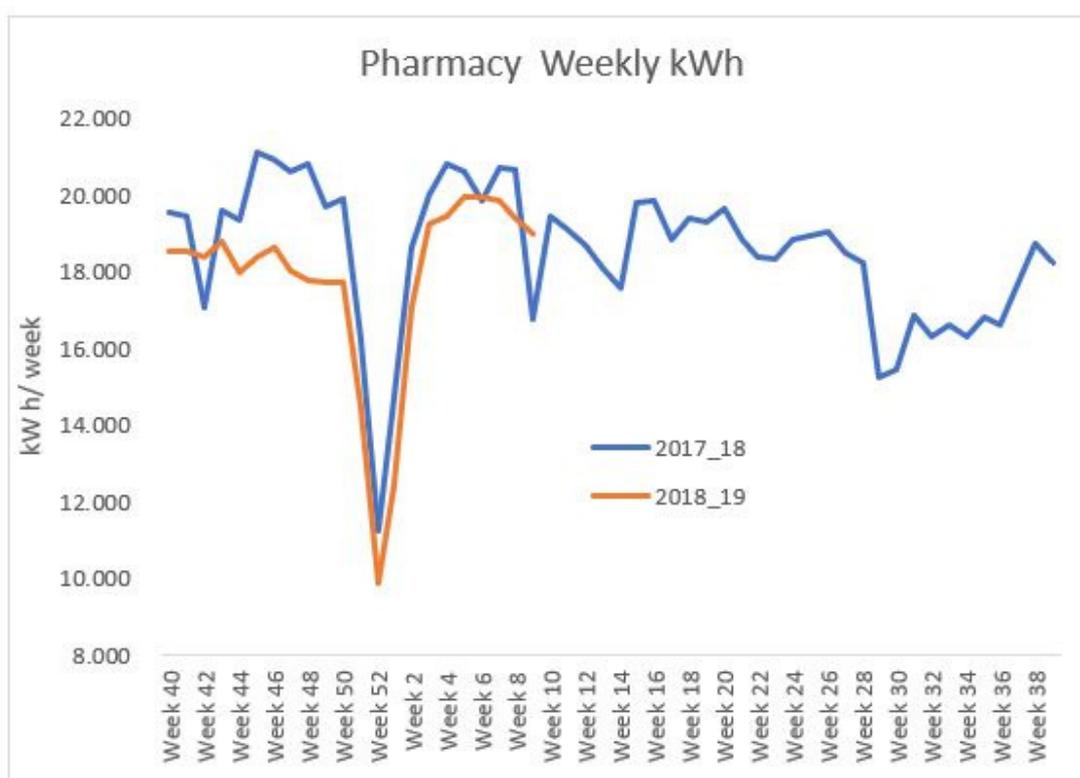


Figure 10. Example of weekly tracking of one of the significant energy users. The weekly tracking helps to identify energy wastage and to address arising issues quickly.

As well as ongoing energy management, the department together with Green Campus actively seeks out collaborations within and from outside the University population. For example, through the #WattsOnUCC campaign which encourages students and the wider campus community to detect energy waste on campus and to bring it to the attention of those in charge. Further, in the last 12 months collaborations with 2 start-up companies to use the University as a living lab have been realised.

While acknowledging the great work that has already taken place and continues to be implemented future plans include:

- Replacement of 40 year old steam based district heating system
- Increased roll out of PV arrays
- Replacement of gas boilers with ground source heat pumps / air source heat pumps
- Continuation of lighting replacement program
- Installation and trialling of battery storage applications
- Continued assistance to start ups and research departments to use the university's buildings as living labs
- Expansion of the Saver Saves Scheme

Water Conservation and Protection

Water is a scarce resource on a global scale, consequently, every institution that thrives towards sustainability should monitor its water use and should implement measures to use the resource as efficiently as possible.

Compared to the base year of 2008 UCC has achieved a reduction in water usage of over 30% (per weighted campus user). Part of this reduction can be attributed to the fact that water usage has been incorporated into the 'Saver Saves' scheme and all participating buildings now look at their water use and how it can be optimised. The team in the Cavanagh Pharmacy Building implemented waterless cleaning in September 2018 as part of their campaign. Other initiatives on campus involve rainwater harvesting for toilet flushing which is utilised in the Beaufort building or the reuse of water from the heatpump for toilet flushing as is done in the Glucksman Gallery and Western Gateway Building.

In order to achieve even more savings in the future, UCC now participates in the Water Stewardship Training Programm by Irish Water which trains and supports Irish businesses and institutions in the sustainable management and conservation of the resource water. As a recognition for protecting the environment, participating institutions get an International Water Stewardship Standards Certification. The participation in the program will give UCC the opportunity to go beyond its current actions and to become a leader in sustainable water usage.

UCC's Environmental Research Institute hosts the UN GEMS Water Quality CDC which is tasked with developing a global water quality indicator under SDG 5. The CDC together with Green Campus took part in the global World Water Day on March 22nd 2018. Events on the day included information stands on issues related to water consumption and conservation in the student center, a guided river walk to explore the local biodiversity and a talk titled 'Towards nature-based solutions to river pollution and flooding'. The day also marked the beginning of the interdisciplinary lecture series 'Water Talks' which run until the beginning of May. On the day the community was encouraged to wear blue in an effort to 'turn the campus blue' to spread awareness of the day and its global significance.



Transportation

Commuting and business travel accounts for approximately one third of UCC's carbon footprint. This reveals a huge challenge but also a big opportunity to make UCC more sustainable. It shows that addressing commuting and travel patterns for students and staff can have a major impact on UCC's environmental performance.

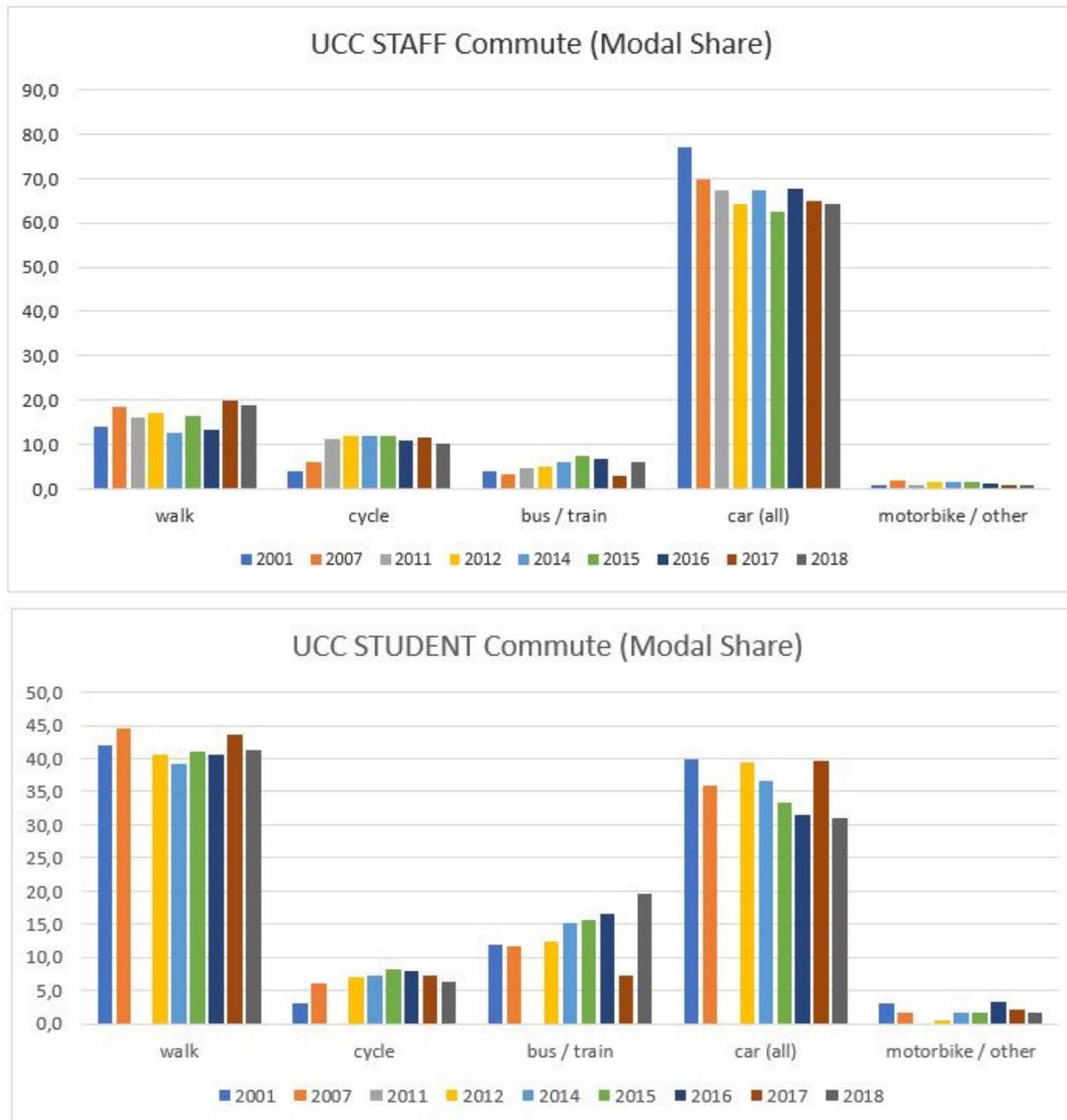


Figure 11.

The graphs show the modal share for the commute by students and staff. It shows clearly the implications for making commuting patterns more sustainable, especially by reducing the usage of the car by students and staff alike.

Travel surveys for students and staff show that car usage continues to decline, however, rate of students and staff cycling to UCC has also declined slightly. The vast majority of staff still travel by car. Most students walk to college, followed by one third still using the car. Measures might be implemented in the future to encourage students and staff to switch from car to public transport, to car pool or to use the park and ride facilities to make travelling more sustainable. The Green Campus Committee, together with other interested and active parties have implemented multiple measures in the last year to encourage more sustainable commuting patterns ranging from infrastructure improvements to educational events and raising awareness.

Considerable effort has been invested in the promotion of cycling to campus. Since 2017 Campus Cycle Week is organised once every semester in collaboration with the other four Higher Education campuses in Cork. The aim of the week is to promote cycling as a more sustainable and also healthy travel mode to students and staff, identify and work on removing barriers to cycling and to develop a voice for cyclists. The week includes on campus events like a Bike Doctor, cycle safety courses and roundtable discussions on bike safety in Cork. Past events have led to the identification of major issues and obstacles preventing students and staff from cycling to campus more often, including a lack of adequate parking facilities and further amenities like showers or lockers. The commuter manager has worked to improve these facilities (see below). The 5th campus cycle week was held in the first week of April 2019.

Figure 12. During Campus Cycle Week, students and staff are made aware of the multiply benefits cycling to campus has: it is better for personal health, better for the environment – and also economic.

EUROPEAN MOBILITY WEEK **CAMPUS CYCLE WEEK**

I BECAUSE...

"...it saves time and money"

Alan Kelly, BEd (Physical Education)

Cycles from Deerpark (2.5 km)

I have lectures all around campus and cycling is a fast way to get around. It saves a lot of time compared to walking – that means less time in the rain in winter! Cycling is also a great way for keeping healthy and saving money.

"...it's easier, healthier and cheaper"

Mary Horgan, Human Resources

Cycles from Passage West (12 km)

With the volume of traffic, it would take longer by car & parking is never an issue on the bike. I have always cycled to work and get my bike through the Cycle to Work Scheme. Admittedly, I don't always feel like cycling home at the end of the day, but when I do get home, I'm always glad I did!

Cork Cycling Campaign **se300** **Environmental Management System** **UCC**

CII CORK INSTITUTE OF TECHNOLOGY **CUH** **Tyndall** **UCC**

Infrastructure improvements for cycle commuting and other measures taken include:

- A bike pump which has been installed on main campus to help those commuting by bike to maintain their bikes. The station also provides guidance on the correct tyre pressure for different types of bikes to ensure that users travel safely.
- To date secure bike storage for 40 bikes, lockers and showers are provided in the Western Gateway Building and accessible to all staff. Further showers and lockers are provided in the Kane Building, closer to the centre of main campus. A secure bicycle storage area will be installed by the end of the semester in the underground area of the BioScience building providing a bike cage for 50+ bikes. A continuing effort is the expansion of bicycle racks on campus. Lately, the number of racks at the North Mall campus has been duplicated, now offering the opportunity to park 26 bikes. Opportunities to offer more bicycle stands in particular secure, sheltered parking facilities around main campus is also explored.
- The Cycle to Work Scheme continues to be a huge success and the number of staff enrolled increases continuously.
- UCC actively shapes the Cycling Works Cork initiative as it is working together with all seven third level education institutions in Cork to write a letter to the NTA and the department of transport lobbying for better cycling infrastructure in the city. Since the institutions involved bring together 50,000 people, it is hoped that the statement, which will be accompanied by a press release, has a major impact on the future of planning for cycling in Cork.
- Two electric bikes have been installed at the Environmental Research Institute for travel between that site and main campus.

UCC also encourages students and staff to walk more since walking, besides cycling, is the most sustainable and low-impact commuting option. The campus continuously strives to become even more pedestrian friendly. The newly opened Cavanagh Bridge provides another access for pedestrians to and from Western Road cutting the time pedestrians need to reach their destination. Moreover, the development of a pedestrian spine from the main campus to the Western Gateway building is in progress. To ensure better walking opportunities between the campuses, it is planned to build a walk and cycleway along the river from the bridge at Castlewhite Apartments to the Western Gateway Building completing the pedestrian spine.

UCC is represented on the Cork Transport and Mobility Forum, which has representation from Irish Rail, Bus Eireann, Cork Chamber and Cork City and County Councils. The group organises an annual "Mix your Mode" seminar.



Figure 13.
The newly build Cavanagh pedestrian bridge ensures better access by foot to main campus.

Besides infrastructural improvements, events and campaigns have been organised to encourage the UCC community to walk:

- Participation in the NTA's annual Step Challenge (formerly Pedometer Challenge)
- Marchathon: in 2018 UCC logged an average of 1,811,147 steps over the month and the UCC team "Insighters" were placed second nationally

The commuter manager and those involved with promoting sustainable travel patterns will continue to work together closely with UCC Health Matters to promote cycling and walking to students and staff as an environmentally friendly but also health promoting alternative.

To make commuting more sustainable for those individuals who are dependent on using the car, the university has initiated a carpooling initiative for staff. Due to a change in the location of reserved parking spots as a consequence of the construction works on the new student hub, however, it is not optimal for staff to use at the moment. It is envisioned to provide reserved car parking opportunities at another location to make the scheme more attractive and operational for staff again. Once this has been done, the scheme will again be advertised broadly to make staff aware of the advantages of it. Carpooling is not only a more environmentally friendly option for the daily commute, but it can also have a positive impact on the congested streets of Cork City. Further, it is a fast and immediate solution which does not require action from any planning authorities in the city.

Further, the university offers the All UCC Travel Pass Scheme whereby employees can purchase annual bus or rail tickets through UCC. The employee will not pay tax, PRSI, USC or pension related deduction on the remuneration sacrificed. Through this scheme employees get a financial incentive to use public transport as a more sustainable alternative to the use of private vehicles.

Regarding long term planning and development, the university has an ambitious mobility plan for the developing Cork Science and Innovation Park. The park is envisioned to be a model for good bike and pedestrian accessibility and is planned to be a public transportation node. Further the university participates in the public consultation process of the Regional and Special Economic Strategy (RSES) for the Southern Region as part of the National Planning Framework Ireland 2040. The document will target issues around housing, traveling and sustainability in the City and is hoped to result in major improvements in public transport provision in the future. In the process of developing the Cork Metropolitan Area Transport Strategy UCC will also lobby for the emphasis on sustainable initiatives and development within the city.

Finally, the first overall update of the UCC commuter plan is just being finalised to be published later this year. It will address issues like active travel and health, climate change and sustainable traveling, which have been lacking from the old commuter plan.



Biodiversity

Two-thirds of the campus is greenspace and a total treeline of 2.3km exists comprising of more than 2,500 trees. This underlines the potential of the campus in terms of biodiversity enhancement and protection. Recently, a number of events have been organised to raise awareness on the issue of biodiversity on campus and also to contribute to the enhancement of biodiversity locally.

- BioBlitz 2016: 233 species were recorded, ‘Wildlife Awareness Day’ with walks guided by local wildlife experts, bat detecting walk during which the Common and Soprano Pipistrelles and notably Daubenton’s bat were discovered along the river
- 21 January 2017: The Green Campus Committee organised the planting of 400 native acorns
- 11 February 2017 ‘One Million Trees in One Day’: UCC joined the national campaign and acted as the distribution point for all the trees planted in Cork

A habitat assessment of all UCC grounds has been conducted which resulted in the development of UCCs Biodiversity Action Plan which aims to enhance and protect biodiversity on campus and to encourage students and staff engagement with the topic. A highlight of the assessment was the discovery of an Annex 1 habitat under the habitats directive. Further, opportunities for biodiversity enhancement were recorded, such as the addition of bat and bird boxes, and a number of sites were identified for management as “Pollinator Friendly” habitats, work has already been undertaken to implement these measures. The survey also identified some invasive species of concern and following those results a comprehensive programme for the removal of Japanese knotweed was started.



Further, since May 2018 ten honey bee hives managed by a local beekeeper are situated at the North Mall campus. This diversity enhancement feeds into the All Ireland Pollinator Plan. In the future the hives will also be used as resource for teaching. UCC honey "Alma Nectar" is now available to purchase at the UCC Visitor's Centre.

From Spring 2019, the Estates department have agreed to reduce the mowing frequency on grass across campus, in keeping with the All Ireland Pollinator Plan. This will be included in tender documents for grounds maintenance from now on. This resulted from a Pollinator Plan for UCC campus, which was completed by a 4th Year BEES students, Fiach Byrne as part of a UCC Works Internship Project in summer 2019 (available at <http://greencampus.ucc.ie/wp-content/uploads/2019/01/UCC-Pollinator-Plan.pdf>)



Figure 14.
The arrival of the honey bees on the UCC campus marks an important step in measures taken to support and enhance local biodiversity.

Procurement

The topic of sustainable procurement has been addressed largely in recent years and multiple efforts have been taken to ensure that the products used on campus are sourced sustainably. Especially in the realm of food consumption and procurement major steps have been taken as outlined below.

In June 2017 a new catering contract was negotiated in which sustainability was part of the award criteria. Criteria were partially based on recommendations from the Green Campus committee like sourcing from local supplies, reducing packaging, using of eco-label products and an efficient waste management. Since the beginning of AY 2017/18 the energy manager and the sustainability officer sit on the restaurant committee which oversees the operation of the catering contract to ensure that these sustainability criteria are met. This has resulted in KSG, being awarded the highest accolade from the Sustainable Restaurant Association, a three star “Food Made Good” award.

Since September 2016 some of the vegetables used on campus come from a farm within a 5-mile radius operated by KSG and a local farmer. The ‘Farm to Fork’ initiative provides 300kg of vegetables per week from September to February. The vegetables are used in 6 out of 13 outlets on campus. The initiative promotes sustainable food consumption by sourcing local foods, preventing transport emissions, supporting the local economy and also being more environmentally friendly than conventionally grown food as no synthetic chemical are used on the farm and crop rotation is utilised to ensure soil health. Further KSG grow herbs and salad leaves on campus grounds in two glasshouses behind the Food Sciences Building. As part of UCCs STARS assessment, all the food purchased by KSG in a year has been inventoried and can be downloaded online for interested parties. The inventory showed that 40% of all food purchased for use in UCC is either third party verified for sustainability (e.g. organic or Fair Trade) or is locally sourced. It is hoped to utilise this list to identify future possibilities in making food procurement within UCC more sustainable. It could be used to assess UCCs carbon footprint in relation to food consumption and to determine carbon intensive food products and to exchange those for relatively more sustainable produce.

Apart from the sustainable sourcing of food products, KSG and Green Campus also work together to promote more sustainable food choices. Meatless Mondays together with information stands on the day, are held to make students more aware of the impact their food choices, in particular meat consumption, have on our environment. It is hoped to increase the frequency of Meatless Mondays to at least once a month as the reduction of meat (and other animal products) consumption offers major opportunities in fighting climate change and global environmental depletion. Furthermore, it will be investigated to also exclude fish from the menu on Meatless Mondays. Future plans in relation to sustainable catering include the refurbishment of the main restaurant to become a vegan/vegetarian only restaurant, and the rolling out of single-use plastic free elements (front-of-house to begin with) across the rest of campus in September 2019.

Figure 15. UCC main rest takes part in the meatless Monday campaign once per semester. The aim of the event is to reduce the negative impact on the environment generated by the consumption of meat and also to raise the campus' community awareness on the issue.

Meatless Monday
24th September @ UCC



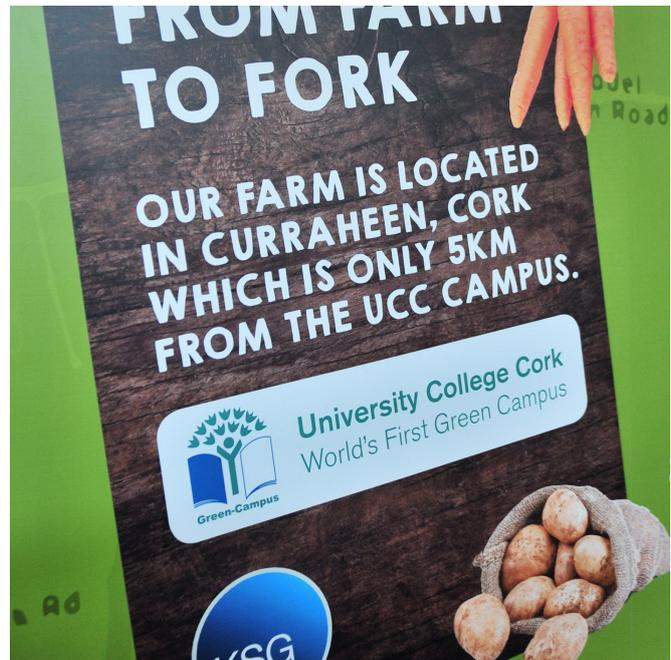
Why go meatless once a week?





<p>It takes 39 gallons of water to produce one pound of Veg, compared to 1850 gallons for a pound of beef</p>	<p>It takes 2.2 Kcals of Fuel to produce 1 Kcal of grain based protein products, while taking 25 Kcal to produce 1 Kcal of all meat based protein</p>	<p>Carrots, potatoes and rice produce .42, .45 and 1.3 kg GHG per kg of food, respectively compared to 30Kg for Beef</p>
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Further, in Spring 2018 the UCC Farmers Market was established which brings local vendors on campus which promote sustainable consumption. In the past the market included organic vegetables (without packaging), refill station for cleaning products, homemade jams and chutneys and self-made jewellery. The Green Campus committee is working on making the market a regular event to enable students, staff and the local community to make more sustainable (food) consumption choices. The market promotes reuse, low impact packaging and healthy diets.

Apart from those developments in food procurement, UCC's new procurement strategy was launched in 2017, which sets out sustainability as one of six key principles. Further, workings are in progress, driven by the SU and Green Campus, to make UCC a Fairtrade campus and to implement sustainability criteria with particular emphasis on waste and plastic into the policy for markets and stalls on campus.

Moreover, UCC has signed up to the United Nations Principles of Responsible Investment (UNPRI) in July 2018 as the first HE institution in Ireland to do so, pledging ethical and sustainable investment beyond just divesting from fossil fuels. Currently over 70% of the University's Trust is invested in what would be considered "positive sustainability investments". These include forestry funds, ethical global equity fund, Irish energy efficiency fund, and renewable energy funds. UCC will be required to openly report on its investments as part of its membership of the PRI.

Figure 16.

The introduction of the UCC Farmer's Market is a major development in recent years, promoting more sustainable consumption on campus and beyond and also supporting a more engaged and lively community. The Green Campus committee is working on extending the market in future years and to make it a more regular event.



Climate Change

The issue of climate change is one of the most important and severe issues that needs to be addressed globally and also locally. Consequently, the university is constantly striving to raise awareness of the issue and also to play its part in mitigating climate change.

UCC's carbon footprint has been re-evaluated in 2016/17 with the outcome that scope 1 and 2 emissions have remained stable since the last assessment in 2011/12 despite an increase in student numbers and area. Compared to the first calculation in 2008/09 a slight increase in emissions from 22,190.70 metric tonnes of CO₂ equivalent to 23,049.30 metric tonnes of CO₂ equivalent in 2017 can be observed, however, when accounting for increases in student numbers and area, a reduction of approx. 8% can be derived. Building on this a research support officer is being employed to develop a carbon management plan and climate action plan for UCC campus.

Recent events to raise awareness around the issue of climate change included:

- 6 November 2017 'Storms are brewing, what are we doing?': Local politicians addressed question regarding the Fossil Fuel Divestment Bill, Ireland's greenhouse gas emissions target and questions raised by the over one hundred people in attendance. The event was particularly timely as the recommendations of the Citizen's Assembly had been released the previous evening and the country was still dealing with the aftermath of Storm Ophelia.
- 26 February 2018 'Climate Conference': In 2018 the Environmental Society UCC organised its first annual Climate Conference which was held in the Aula Maxima and attracted a lot of interested students and also people from the wider community. The conference was sponsored by the Environmental Research Institute and featured a host of speakers from across UCC and further afield. Topics of the day included the politics and legalities of climate change as well as solutions to climate change. In 2019 the event was held again on the 23rd of February.



An important part of UCCs efforts to be a leading institutions in tackling climate change is the Climate Lab at the ERI. It brings together researchers working in all four areas of Climate Change research, namely: understanding climate science; decarbonising and climate mitigation; responding to Climate Change through adaptation; and transitioning to a low carbon economy. The aim of the lab is to provide and generate knowledge and solutions for a transition to a low-carbon and resilient society in Ireland and beyond. As part of this mission the Climate Lab organises a series of lectures focusing on spreading awareness and disseminating knowledge into the wider community. Lectures in the series in 2018 included:

- 'The prospects for Climate Finance in addressing climate change' with Dr. Paul Oquist Kelley, Minister for National Policies of the Republic of Nicaragua (April 19th 2018)
- 'Are biofuels sustainable? If so, under what conditions?' by Prof. Ganti S Murthy, Department of Biological and Ecological Engineering, Oregon State University, USA (May 21st 2018)
- 'Carbon Cycling at the Coastal Terrestrial-Aquatic Interface' by Dr. J. Patrick Megonigal, Smithsonian Environmental Research Center, USA (May 22nd 2018)
- 'An Taisce and UCC, partnership for a greener campus' by Michael John O'Mahony (May 24th 2018)

Further, the UCC Centre for Law and the Environment also offered public talks concerning the issue of climate change. Examples are

- 'It's a Meaningful Life: Law in the Age of Climate Change' by Fulbright Scholar Doug Ruley hosted by the UCC Centre for Law and the Environment (October 18th 2018)
- 'Ireland's Climate Policy Failures: Time for the Courts' hosted by the UCC Centre for Law and the Environment and SHEP Earth Aware in anticipation of the High Court litigation having been taken by Friends of the Irish Environment (November 9th 2018)

Environmental Citizenship

To educate students for and to encourage environmental citizenship on campus and beyond is one major aim of the Green Campus committee and the university. Consequently, UCC Green Campus continues to participate in the UCC Works Scheme, employing students from a variety of different academic backgrounds. The programme not only offers students a structured approach to engage in co-curricular activities but also gives students recognition of their commitment to sustainability on their certificate and promotes intersectionality and transdisciplinary thinking by students. The above-mentioned Savers Save Scheme and the #WhatsOn Campaign also contribute to environmental citizenship among students and staff as the projects encourage the campus community to actively shape sustainability issues on campus, to be aware of unsustainable practices on campus and to take action on those themselves.

With the launch of UCC's Strategic Plan for 2017-2022, UCC reaffirmed its commitment to the Centre for Global Development at UCC which was launched in 2011. The CGD aims to stimulate engagement by students and staff in global development initiatives and to enable interdisciplinary cooperation on the issue. Thus, it promotes global (environmental) citizenship.



Figure 17 above.
UCC students Ana Pascanu, Susan Butler and Robyn Dennehy attend An Taisce "Change Makers Summit" in October 2017.

Figure 18 below.
Students raising awareness of plastic pollution and recycling in the library.



Further, in the AY 2018/19 the UCC Student Leadership Awards have been extended to include a 'Sustainability Leader of the Year' Award which acknowledges outstanding work done by a student in the realm of sustainability on campus. This will further encourage student's environmental citizenship in the years to come.

Action Plan

Future developments on campus will be shaped by the new Academic Strategy 2018-2022 which strongly stresses the importance of education for sustainable development through the focus on a connected curriculum. The university aims through this to educate its students to contribute to a sustainable future and to enable the campus community to meet the challenges of this century. To achieve this, the existing sustainability initiatives on campus should be more closely linked to the curriculum through trans- and interdisciplinary learning and teaching.

Apart from this document the UCC Sustainability Strategy 2016 will be the guideline for sustainable initiatives on campus and will contribute to the continuous efforts in making the campus more sustainable. The main aims governing the Sustainability Strategy are the following:

- To facilitate the development and empowerment of future leaders in sustainability through our research, teaching and learning activities
- To engage our student body, staff and wider community in becoming active citizens for sustainability
- To minimise the local, regional and global environmental impacts of our educational, research, and ancillary operations, and infrastructural development
- To enhance the health and well-being of the University and wider community through the facilitation and promotion of healthy eating and living as an integral part of sustainable living
- To be an overall positive force in the journey towards creating a sustainable world for all

One key area of the Sustainability Strategy is the integration of and support for initiatives around food, health, well-being and sustainability. Here, the Green Campus Committee can actively contribute by focusing on aspects like sustainable food procurement and low-carbon transportation. Consequently, the action plan for the years to come contains some of the objectives and performance indicators outlined in the Strategy and is complemented by ideas from within the Green Campus Committee.

An overview of the Action Plan for the next three years is presented below, a more detailed version is provided in the supplementary material.

Theme	Action
Overall environmental management and assessment	Maintain ISO 50001 certification
	Retain top 20 position in UI Ranking
	Retain Green Flag status through reassessments
	Assess progress against and update every three months
Litter and Waste	Waste audits of recycling zones on campus to identify significant waste streams
	No disposable cups or plastic bottles on campus
	Assess availability of drinking water fountains and installation of new fountains where required
	Upgrade outdoor recycling bins - consistent style and centralised points for disposal
	Introduce compostable/reusable packaging in food outlets/market stalls
Energy, Water and Climate Change	Extend Saver Saves scheme to other SEUs - BEES, SEFS, ERI
	Development of "Green Building Rating" for UCC buildings including potential for individual sites to be "carbon neutral"
	Update carbon footprint and produce carbon management plan, with targets for carbon reduction
	Install PV for electricity generation at ERI (ESCO)(PILOT)
	Produce water management action plan in line with energy management targets

Theme	Action
Transportation	Assess feasibility of live bus times and improved bus shelter facilities
	Implement guidelines for offsetting business related travel
	Installation of covered bicycle parking within defined distance of building clusters
	Realtime car-pooling database supported by new parking control system
	Replace fleet vehicles with EVs
Biodiversity	Review mowing regime and potential to reduce number of mows per year in certain areas
	Review usage of chemicals on grounds and potential for alternative maintenance
	Ogham alphabet planting and Quercus planting
	Assess potential for further food growing areas on campus (edible campus)
	Implement UCC Biodiversity Action Plan
Environmental Citizenship	Student Sustainability Leaders Programme - training to help students run campaigns
	Identify sustainability "Learning Outcomes" and measure their integration in curriculum
	Develop a toolkit for academic staff from different disciplines to integrate SD "Learning Outcomes" into modules
	Include student members (or student input) into Green Teams

Theme	Action
Procurement	Calculate and advertise carbon footprint (calories) of food sold on campus
	Supplier negotiations to reduce packaging/remove on delivery
	Investigate contract renewals over next three years and include sustainability criteria
	Extend waterless cleaning approaches and implement with ISS
	Make UCC a Fairtrade Campus
	Increase the share of certified organic produce
	Increase the number of Meatless Mondays per semester and to make it a more frequent and regular event
	Substitute GHG intense foods like beef with low-carbon products like pork/legumes

Links to Learning on Campus

UCC actively seeks to embed sustainability and education for sustainable development into the formal and informal curriculum. Currently, an estimate suggests that 6% of all UCC modules address sustainability directly or are related to one or more SDGs while 45% of academic disciplines taught at least one module related to sustainability. A number that is hoped to increase in the future. A success in this field has been that the UCC degree in Process & Chemical Engineering was awarded the 2016 IChemE Sustainability Teaching Award at the IChemE AGM and Awards at the ICC Birmingham on 10th May 2017. Further, the university wide module in sustainability continues to be a huge success with places being filled very fast each year due to high demand. The module is open to students, staff and the general public and can be taken for interest, additional university credit, Continuing Professional Development or a Digital Badge. In the AY 2017/18, the lectures were also streamed to Skibbereen and Dingle for the first time to give more people the opportunity to benefit from the lectures and to broaden their knowledge on sustainability issues.

In May 2018, delegations from the Universidad Nacional de Colombia, University of Massachusetts, Lowell, and the Central American University in El Salvador took part in UCCs first “Sustainability Summer School” under the topic of ‘Global Goals, Local Action: Making Sustainability Work’. From within the UCC community 25 staff and students attended the event.

Issues of sustainability also play a major part in UCCs research focus. Currently, just under 15% of UCCs researchers are working in the area of sustainability. This number will increase in the future as the university has committed to invest €44million in environmental and sustainability focused research projects. A flagship for inter- and transdisciplinary research on sustainability issues in UCC is the Environmental Research Institute. The institute incorporates a number of environmental research centres, for example the Marine Renewable Energy Ireland and the Centre for Research on Atmospheric Chemistry. Following their new Strategic Plan the focus of the institute in the next years will be climate action, circular economy and healthy environments. The ERI collaborates on various occasions with the Green Campus committee and engages actively in outreach events. Furthermore, in April 2018 the new Centre for Law and the Environment was launched, which will engage in interdisciplinary research, outreach and advocacy activity.

For early 2019 UCC Green Campus has called out for applications for projects funded by the new UCC Green Campus Living Laboratory Seed Fund. The aim of the fund is to provide financial support for research aiming at improving UCCs sustainability in line with the SDGs. As a 'Living Laboratory' approach, the projects funded use UCCs community and the knowledge embedded in it to test and research solutions for sustainability issues concerning the institutions infrastructure and practices in line with the university's sustainability strategy. The fund will support research master projects and demonstration projects, thus promoting education for sustainable development on campus. Further, the knowledge and best practices generated should be shared with the local community and beyond to support local and global sustainable development.

Informing and Involving Campus and the Wider Community

The Green Campus Committee constantly strives to build new connections and to strengthen old ones to the campus community and beyond to make sure that as many people as possible are engaged in promoting sustainable development. The more people work towards a sustainable future, the easier and more successful it can be built.

Regarding the university community, the engagement with the wider student body on issues of sustainability is ensured through collaboration with the Clubs and Socs Executive. As part of this, the UCC Sustainability Officer gives a presentation at Captains/Chairperson training each year to make those students running clubs and societies aware of the various sustainability issues and measures on campus. In the AY 2018/19 an award has been introduced for the club/society with the most sustainable event, the ‘Green Initiative Award’, to incentivise clubs/societies to consider sustainability in the planning of their events.

UCC students and staff further engage with sustainability promoting groups off campus. Examples include the Cork Nature Network, Cork Environmental Forum, Cork Climate Action and the Cork Learning City Network. UCC Sustainability is also represented on the University’s local community engagement group, which is looking at ways to improve the relationship between the university and residents living in the vicinity of UCC’s campus.

The Glucksman Gallery together with Green Campus has implemented an educational outreach programme on climate action and sustainability for primary and secondary schools. As part of the ‘Classroom Museum’ project, artworks addressing issues of environmental degradation and urban encroachment were brought to schools in rural Cork. Students could examine the artworks and were invited to create their own works in response. In this way they were encouraged to think and thematise local and global environmental issues. Following the success of the programme, further collaborations between UCC Green Campus and the Gallery will follow which will work with local schools to explore environmental concerns through art.

Students from the university, organised by the SU and the Green Campus Committee, have supported national and global movements, especially in the last months, and have made their opinions heard. For January 22nd, the day on which the Irish government was taken to court for its inaction on climate change by its citizens, UCC SU and Green Campus have organised a solidarity rally outside Cork city hall to show support for the case. On March 15th students have supported the global movement initiated by Greta Thurnberg and have joined local second level pupils in their strike for climate action. The event was a huge success with 5.000 people showing their discontent at a very uplifting and inspiring event. Over the course of the next month, UCC will continue to work closely together with local groups on similar events.

As mentioned above, the university community also works together closely with other third level institutions in Cork to promote sustainable developments in Cork, especially around the issue of transportation infrastructure and participates in the public consultation process of the Regional and Special Economic Strategy (RSES) for the local area. This underlines the action taken by UCC to influence developments in Cork and to promote sustainable action beyond the campus.



Figure 17.
On 22 February 2019, the SU together with Green Campus has organised a solidarity rally in support for the Climate Case.

Green Charter

As outlined above, currently sustainability practices on campus are guided by the Sustainability Strategy and other strategic documents like the Academic Strategy or the Biodiversity Action Plan. Further, the plastic free petition will strongly influence future developments on campus. As all those documents are rather recent, it is planned to update the Green Charta following this reassessment to make it more up-to-date with recent developments.

Conclusion

The success of the efforts taken by the university community have been recognised by the university being ranked 9th in the UI Green Metric ranking in 2018 keeping the rank it has achieved in 2017 and by being awarded Green Public Sector Organisation of the Year at the Green Awards Ireland.

In the coming months and years UCC Green Campus will strive to build on those successes and to make the campus a bit greener and more sustainable step by step. UCC will continue to be a global leader in sustainability best practice to help building a sustainable future for all.

