



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Sustainability Report 2018/19

‘Feeling “This is too big for me” is no use to anybody’

Mary Robinson



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This report covers the 2018/19 academic year (Sep. 2018 – Aug. 2019), except for energy, waste and water which are being reported by calendar year. It is based on the most accurate and applicable data available at the time of writing. All feedback is welcome and actively encouraged by contacting us on sustainability@tcd.ie

“make climate change personal in your life, because it so important. When you go out the door, make up your mind to do something you weren’t doing this morning,” whether recycling, or switching off lights, or using less water, or getting rid of waste, or using public transport. “Do something that is your ownership of the climate issue.”

Mary Robinson, former President of Ireland and now head of the Mary Robinson Foundation for Climate Justice

Feeling “This is too big for me” is no use to anybody: 2019 HIGHLIGHTS

ENERGY & CLIMATE

Versus 2006-08 baseline: **31.9%** Improvement in Energy Efficiency, **17.0%** Decrease in energy related emissions, **15.0%** Renewable Energy (mainly grid electricity)

Versus 2018: **5.5%** Improvement in Energy Efficiency, **8.2%** Decrease in greenhouse gas emissions, **3.4%** Decrease in Renewable Energy

WASTE & RECYCLING

49.8% Recycling rate **13%** increase in total waste generated vs 2012
2% decrease in waste/person **24%** increase in hazardous waste vs 2012

WATER & WASTEWATER

43.8% reduction in water use versus 2006-08 Baseline (2.6% decrease vs 2017/18)
57.0% Reduction in water/person versus Baseline

SUSTAINABLE TRANSPORT

99% of Staff and Students Use Sustainable Transport for Commuting

14% Staff and Students Commute by Bicycle (35% reduction versus baseline)

RESOURCE USE & FOOD

56.7% Reduction in Paper Use vs 2011 (9.6% decrease on previous year)
3% Increase in bottled water cooler use for 2019 vs 2011 (17% decrease on previous yr)

TREES & BIODIVERSITY

2,200+ Total Trees Across University Grounds & New Grounds Added
Campus Pollinator Plan supported

GREEN PROCUREMENT

69% of key tenders issued reference environmental standards

32 out of 93 tenders referenced green criteria, 2 of which had green award criteria

EDUCATION & RESEARCH

All new staff and 86% freshers inducted on sustainability
Improving the campus as a smart living lab via links with Dublin City
Green pages highlight sustainability courses on offer

COMMUNICATION & STUDENT INVOLVEMENT

17th Annual Green Week.
OneStepCloser social engagement platform
Sustainability Fund and Climate Action Group established

For Further Details Please Visit the Trinity Sustainability Webpages (<https://www.tcd.ie/provost/sustainability/>).

Introduction

Trinity College Dublin, the University of Dublin, is Ireland's highest ranked university with an international reputation for research and scholarship, and for the success of its graduates in many fields. Trinity's major activities are carried out on a beautiful historic campus located in the heart of Dublin, with health sciences also located at St James's Hospital and Tallaght Hospital. The university has 168 buildings across 16 locations including a 5 acre technology campus located at Grand Canal Dock, student residences at Darty, a 33 acre sports facility at Santry and the Iveagh Sports Grounds, a 16.5 acre site acquired in 2017. Trinity has a community of 18,407 students, approximately 3,500 staff and over 120,000 alumni. With a tradition of scholarship spanning more than four centuries, Trinity is home to talented and inquiring minds, a liberal education, and research conducted at the frontiers of disciplines.

Sustainability has been at the heart of Trinity for a very long time. The late Professor Simon Perry originally founded the University's green campus committee in 1993 as a means for staff and students to raise campus environmental issues and to propose innovative solutions. Building on this initiative the University published its first Sustainable Development policy in 2008 and in 2013 Trinity was awarded its first Green Flag award for campus sustainability. Trinity's 2020-2025 strategic plan articulates 3 priorities and 9 cross-cutting goals with the following specifically relating to sustainability:

- ✓ Priority 2: Research for impact and sustainability
 - We will align ourselves to the UN Sustainable Development Goals, significantly increasing the extent to which our research and teaching aligns with the aim of achieving a healthy and sustainable planet
- ✓ Goal 5: We will shape our organisation and focus research around the challenge of achieving a sustainable and healthy planet.
- ✓ Goal 7: We will develop and inhabit our space responsibly.

Trinity was named 28th best university in the world when it comes to the UN's Sustainable Development Goals (SDGs) in the 2019 University Impact Rankings from *Times Higher Education*. Trinity was ranked 10th out of 471 universities for climate action and 18th for partnerships with other organisations. The University renewed the internationally recognised 'Green Flag' award by An Taisce's Green-Campus programme for the second time in 2019. The Provost's Advisory Committee on Sustainability and Low Carbon Living has been meeting since 2017 with membership including Student Union and Graduate Student Union representatives, as well as general student activists.

This is our fifth annual Sustainability Report and it is entitled '*Feeling "This is too big for me" is no use to anybody*'. We want to inspire all our Trinity community including our students, staff, alumni, surrounding communities and the over one million visitors we welcome to our campus each year. We also aim to inspire and collaborate with our academic peers, city neighbours and the global academic community to which we belong.

This report covers the nine key sustainability areas we identified as part of our Green Flag campus award in 2013 and reaffirmed as part of the Green Flag renewal in 2016 and again in 2019. These aspects include energy, carbon, waste, water, transport, resource use, green procurement, sustainability education, research, and entrepreneurship, and student/community involvement. The sign convention adopted is that positive % progress is better and negative % progress is worse, with percentages annotated on graphs measured against the target baseline. The first year in each graph is the baseline or the average of 2006 and 2008 in the case of energy and water.

Provost's Welcome Message



This is Trinity College Dublin's fifth annual sustainability report. Much has happened since our previous Sustainability Report, in particular:

- **Political Landscape:** In May 2019, Ireland became the second country in the world to declare a Climate and Biodiversity Emergency, and our Government published a Climate Action Plan. With the Green Party in the coalition government we may well see an even greater drive for climate action. The [Climate Action Plan](#) as it stands will likely mean that Trinity may need to publish more details on its carbon footprint and adopt a Climate Mandate. It also references third level institutions as follows:
 - Built Environment, Action #67: Set a trajectory for commencing and implementing the Department of Education and Skills deep energy retrofit programme, p.83
 - Citizen Engagement, Community Leadership and Just Transition: The third level sector will be supported to host Climate Mitigation Centres to build the capacity to plan and take action to achieve zero-carbon third level institutions, p.137
- **New Buildings:** We are also expanding our facilities with two very significant Near Zero Energy Buildings (NZEB) to our campus, both fronting Pearse Street - the new Business School (BER - A2; opened May'19) and Printing House Square residences (Oisín House, scheduled for completion Q4, 2019). The E3 centre is also at design stage.
- **Education and Research:** Of course, education and research is at the heart of what we do, and we hope you will explore the growing number of courses with sustainability and environmental themes (<https://www.tcd.ie/provost/sustainability/researcheducation/>)

While we have made strides in some areas of sustainability, challenges still remain. Over the next 12 months, we hope to work on updating our objectives and targets under the nine sustainability themes in this report to reflect the changes above. Sustainability is now firmly embedded in our strategic plan but we must continue to leverage our role in society and demonstrate leadership towards providing a sustainable and healthy planet for all.

Patrick Prendergast, Provost

Policy, Strategy & Progress

Our key sustainability drivers are the University's Sustainability Policy (<https://www.tcd.ie/about/policies/assets/pdf/sustainability-policy-15112017.pdf> last updated in 2017) and the University's 5 year strategic plan (2014 -2019: <https://www.tcd.ie/strategy/strategic-plan-201419.pdf>, particularly section C8.1 on Sustainable Campus). The following are the key sustainability extracts from the strategic plan, which follow the definition of Sustainable Development established by the UN Brundtland Commission, which states "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Our baselines and targets are based on our maintenance of Green Flag status. Baseline years vary based on available data and national targets, and we will envisage future targets to be adjusted to coincide with the University's 5 year strategic plan.

MISSION C: FEARLESSLY ENGAGE IN ACTIONS THAT ADVANCE THE CAUSE OF A PLURALISTIC, JUST, AND SUSTAINABLE SOCIETY.

Goal: C8.1 Sustainable Campus

Trinity aspires to be a global leader in university sustainability. The college's properties comprise a significant and integral part of the Dublin conurbation. Trinity has a responsibility to conduct its activities in a manner that protects and enhances the environment, conserves natural resources, reduces greenhouse gas emissions, and supports society as a whole. Much progress has been made in these areas since 2008, marked by the award of the Green Flag campus status in 2013 for which Trinity committed to a series of objectives for energy and carbon emissions, waste management/litter reduction, water and waste-water management, sustainable transport, resource use, biodiversity, green procurement, education and research, communication and student involvement. Our objective is to move further towards becoming a sustainable campus, a key measure of which will be to become the first university in Ireland to join the eminent group of visionary universities constituting the International Sustainable Campus Network (ISCN). We will achieve this objective by:

- publishing an Annual Sustainability Report, including carbon, energy, waste, transport and water consumption data
- ensuring, through the Estates and Infrastructure Development Plan, that all new buildings (in particular our E3 development), refurbishments, and purchases comply with and, where possible, exceed, energy-efficiency standards
- promoting research into, and teaching on, sustainability issues as well as promoting the campus as a living laboratory
- setting up a Sustainable Campus Advisory Group and appointing a sustainability champion
- undertaking sustainability audits and engaging campus users in sustainability targets
- working towards developing an environmental management system and an energy management system
- publishing a carbon footprint and action plan for reducing carbon emissions
- fostering links with Dublin City Council's 'Greening the City' and with national and EU smart city and other relevant initiatives.

Goal: C7.3 Relationship with the City

- promoting environmental sustainability, in partnership with Dublin City Council's 'Greening the City' initiative and developing, via the Estates and Infrastructure Development Plan, a campus infrastructure in line with this objective.

1. Energy, Climate Change & Greenhouse Gas Emissions (GHG)

Objectives	Targets	Status
1.1. Use Energy Efficiently	1.1. 33% Increase in Energy Efficiency by 2020 vs 2006-2008	↑ On Track
1.2. Increase Renewable Energy Use (Onsite & Grid)	1.2. 14% Increase in Renewable Energy Use Until 2020 vs 2006-2008	☺ Achieved
1.3. Reduce GHG Emissions (Direct, Indirect & Embodied)	1.3. 80% Reduction in Greenhouse Gas Emissions by 2050 with 2% Year-on-Year Decrease in Greenhouse Gas Emissions Until 2020	↓ Off Track
1.4. Prepare for Climate Change (Mitigation & Adaptation)	1.4. To Create a Climate Change Action Plan	

Our Progress:

- ✓ 31.9% improvement in energy performance measured in kWh/Research Equivalent Floor Area.
 - Published on [SEAI's Monitoring & Reporting](#) platform annually, despite an increase in built area of 32% since our baseline.
- ✓ 15.0% renewables used by Trinity. 99.2% of this is from increased renewables penetration on the grid, with 0.2% from a new solar PV array on the Trinity Business School, 0.49% from on-site solar thermal panels to provide hot water at 4 locations (Pavillion, Lír Centre, New Square houses 33 and 28), and 0.04% from transport biofuels (excluding weightings). Note that 2019 is the first year since our baseline that there has been a reduction in electricity consumption, and this, for the most, part explains the proportion of renewables plateauing in 2019
- ✓ 17.0% reduction in energy-related carbon emissions as reported through SEAI's Monitoring & Reporting.
 - This decrease is against as 33% increase in the full time equivalent staff and students since the baseline period.
- ✓ 36.6% carbon intensity reduction per full time equivalent (FTE) staff and students

Challenges:

- △ The Government has introduced three new public sector targets for 2030 (Climate Action Plan, May'19):
 - 50% improvement in energy efficiency (on average 1.7% improvement per annum post 2020)
 - 30% reduction in total carbon emissions reduction target. Trinity will be required to report its emissions in SEAI's Monitoring & Reporting platform
 - All public buildings to achieve a Building Energy Rating (BER) of B by 2030. Protected structures would be exempt from this requirement.
- △ We have started collating emissions data on flights with our travel management company and a new iExpense system which will gather details necessary to calculate flight emissions. Other universities are reporting, minimising and purchasing offsets where flight avoidance proves difficult. Emissions from flights procured through our travel management company have increased 52% versus 2015
- △ To achieve the carbon emissions target, we must increase our efforts in improving energy efficiency, undertaking larger energy retrofits of existing buildings, engaging campus users, using energy storage and increasing onsite renewables in order to meet, as well as finding ways to minimise the impact of flights
- △ Climate Change Action Plan to be drafted. For information about Trinity's energy progress, visit the [Sustainability GreenPages website](#).

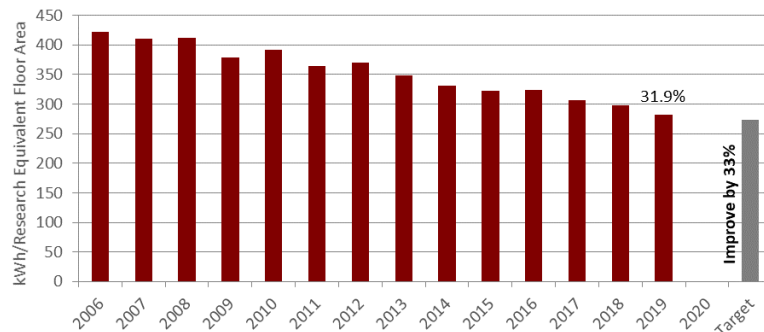
Annual Highlights:

- ✓ **Trinity Business School** is a Near Zero Energy Building (NZEB) with
 - a 40 kWpeak Solar PV array, the first for Trinity
 - full LED installation with centralised lighting control system
 - predominately naturally ventilated building with extensive access to natural light
 - twin wall façade system with automated ventilation, high performance glass and combined brise soleil with integrated green wall
- ✓ **CRANN Sports:** Replacement of 1,000 kW chiller with high efficiency chiller
- ✓ **Lloyd Building:** Replacement of 400 kW chiller with high efficiency chiller with a new supplementary chiller to facilitate lower demand periods

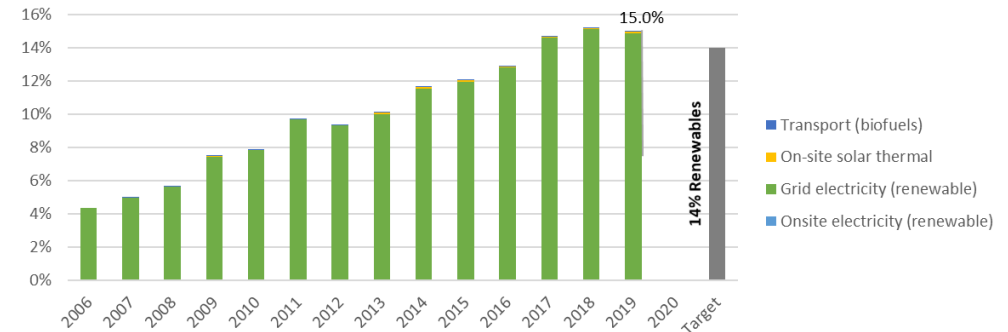


Energy & GHG Data (by calendar year)

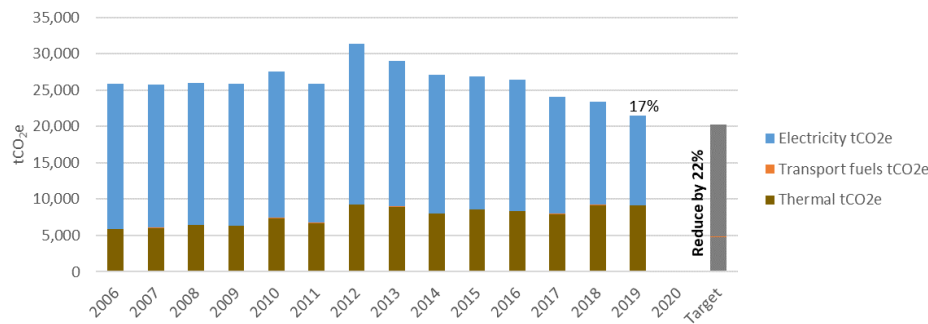
Target 1.1: Energy Efficiency Improvement



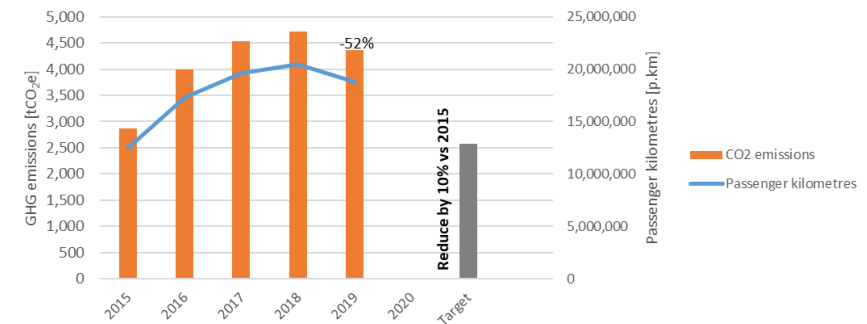
Target 1.2: Increase Renewable Energy %



Target 1.3a: Reduce Energy Emissions by 2% pa



Target 1.3b: Reduce Flight Emissions (Club Travel)



2. Waste, Recycling & Litter Reduction

Objectives	Targets	Status
2.1. Reduce Waste Generation / Prevent Waste	2.1. 10% Decrease in Total Waste Generated by 2020	↓ Off Track
2.2. Increase Recycling & Reuse	2.2. 50% Recycle for Municipal Solid Waste by 2020	↑ On Track
2.3. Reduce Waste to Final Disposal	2.3. ZERO Waste direct to Landfill by 2015	😊 Achieved 2012
2.4. Zero Litter on Grounds	2.4. 100% of University Users to be Within 100m of a Litter Bin by 2012	😊 Achieved 2012
2.5. Minimize Hazardous Waste	2.5. 10% Reduction in Hazardous Waste by 2020	↓ Off Track

Our Progress:

- ✓ Total waste is 9% lower than 2018 and 2% lower than 2012 on a per capita basis, which is testament to recent waste reduction initiatives
- ✓ 49.8% recycling rate achieved in 2019, down slightly from 51.5% in 2018
- ✓ Municipal waste 9% lower than 2012, and 21% lower than 2012 on a per capita basis
- ✓ Zero municipal waste to landfill since 2012 as this waste stream is now recovered as to waste-to-energy
- ✓ TCD awarded litter free status 2012
- ✓ Significant progress on eliminating disposable single-use plastics and move towards reusable cups and water bottles

Challenges:

- △ Although reducing steadily from a peak in 2017, overall waste is still 13% higher versus our 2012 baseline
 - A reduction of 360 tonnes of total waste is required to reach our 2020 target
- △ Hazardous biological and chemical waste is 24% higher than our 2012 baseline
 - A reduction of 14.3 tonnes of hazardous waste is required to reach our 2020 target
- △ WEEE (waste electrical and electronic equipment) continues to be challenging and we aim to apply a materials management approach to our procurement and waste management systems, as they have a direct influence on each other.

Annual Highlights:

- ✓ 'CoCup' deposit-return pilot replacing disposable cups with reusable launched Mar'19 to Nov'19 (31% return rate in May'19)
- ✓ Reusable BPA-free water bottles provided to all Freshers
- ✓ Waste Management Plan drafted and waste audit completed indicating further potential to improve recycling rate
- ✓ Binless Office system in the Arts Building Nov'18
- ✓ Plastic reduction at Trinity Ball & Summer Series

- ✓ Improved bilingual signage and 'Housekeeping Appreciation Coffee Morning' to raise recycling awareness among housekeeping staff
- ✓ Considered Warpit, an online platform to allow redistribution of second hand furniture, equipment, which saved UCD €69,000 in 3 months
- ✓ 'Trash to Treasure' sale: salvaged goods to incoming students from previous May Move-Out campaign held in Sports Hall with support of UPS saved 450 cubic metres of waste from incineration
- ✓ Reverse vending machine and REPAK recycling bin piloted in the Buttery
- ✓ Trinity Today magazine – eliminated multiple copies sent to households saving 6,000 printed copies; move to biodegradable plastic cover

Get Involved & Learn More:

- Remember the golden rule to recycling plastics: if it is soft enough to stuff into your jeans pocket, it cannot be recycled. Make sure to bin soft plastics always.
- All catering outlets on campus offer a discount on reusable cups, so use a travel cup to save on waste and money.
- Pay attention to bins, to ensure you are putting recyclables into dedicated recycling bins.
- Consider buying food in bulk rather than in disposable plastic wrapping. For a list and map of eco-friendly grocery shops see here: <https://www.zerowastefestival.ie/zero-waste/shopping-dublin/>
- End of year clear-outs can be passed onto next year's students during Move Out donation drives



May Move Out



Trash to Treasure
(photo: Michele Hallahan)

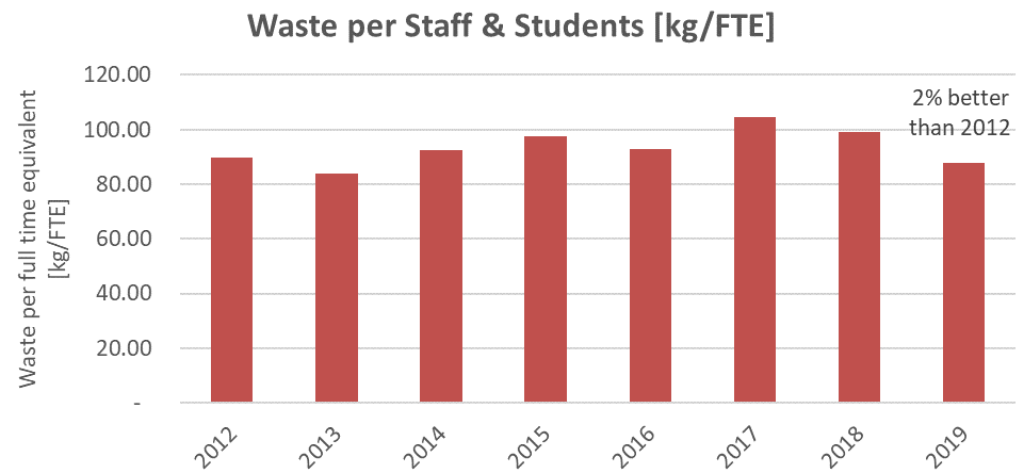
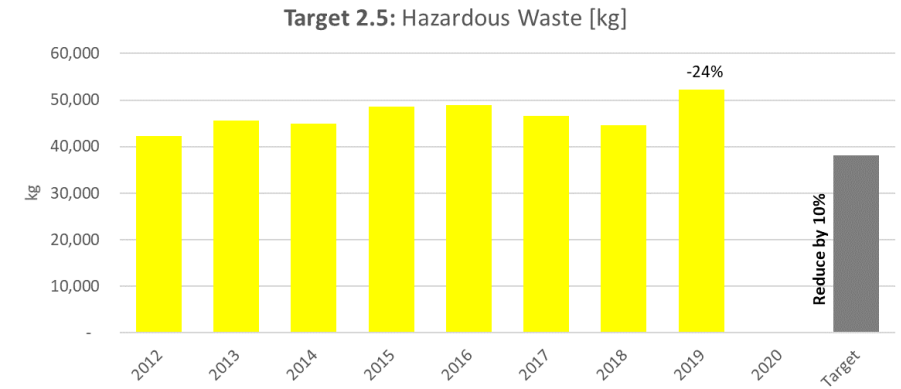
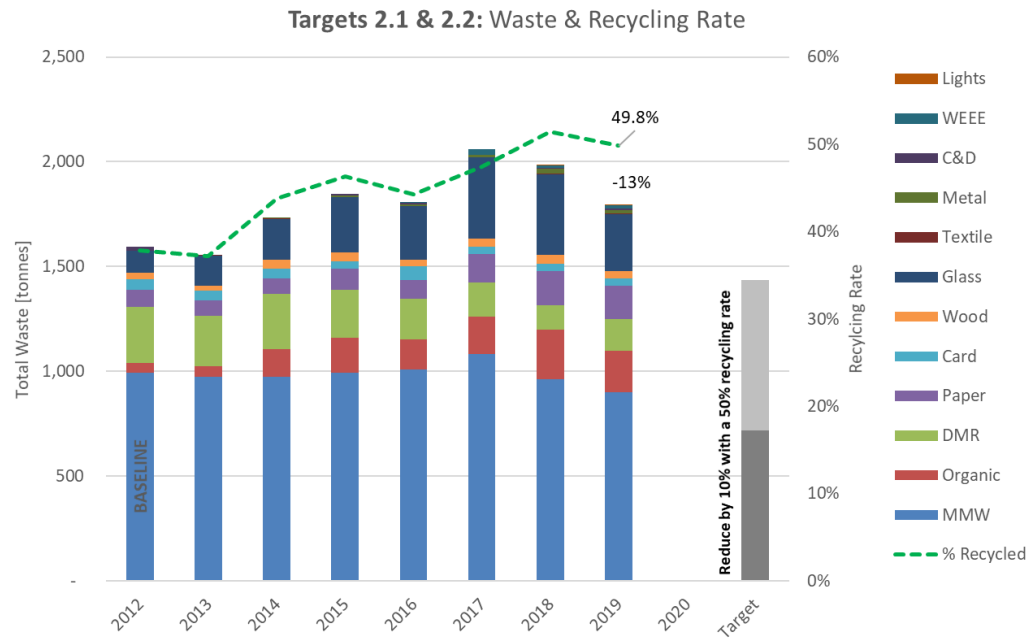


Co-Cup Launch



REPAK recycling bin

Waste Data (by calendar year)



3. Water & Wastewater

Objectives	Targets	Status
3.1. Reduce Water Use	3.1. 45% Decrease in water use per capita by 2020/21 vs 2006-2008 baseline	☺ Achieved 2013/14
3.2. Increase Sustainable Onsite Water Use	3.2. 5% Increase in Onsite Water (groundwater and rainwater) Use by 2020 vs 2009	Rainwater harvesting in 2 buildings and planned for 4 more
3.3. Increase Water Reuse & Recycling	3.3. 10% Increase in Water Reuse by 2020 vs 2009	Closed loop water coolers in use in some labs
3.4. Decrease Wastewater Generation	3.4. 10% Reduction & Quality Improvement in Wastewater Released by 2020 vs 2009	SUDs implemented in a number of buildings in the East End.
3.5. Improve Wastewater Quality	No target set	Hazmat program to recover & re use chemical waste in place

Our Progress:

- ✓ 43.9% reduction in total water use
- ✓ 57.1% improvement in water use per full time staff and students, equating to 34.0 litres/day/student
- ✓ Re-baselined from 2009/10 back to 2006-2008 average to align with energy reporting. Water consumption by financial year

Challenges:

- △ No current means of measuring groundwater, rainwater harvesting, grey water recycling or wastewater quality leaving Trinity sites

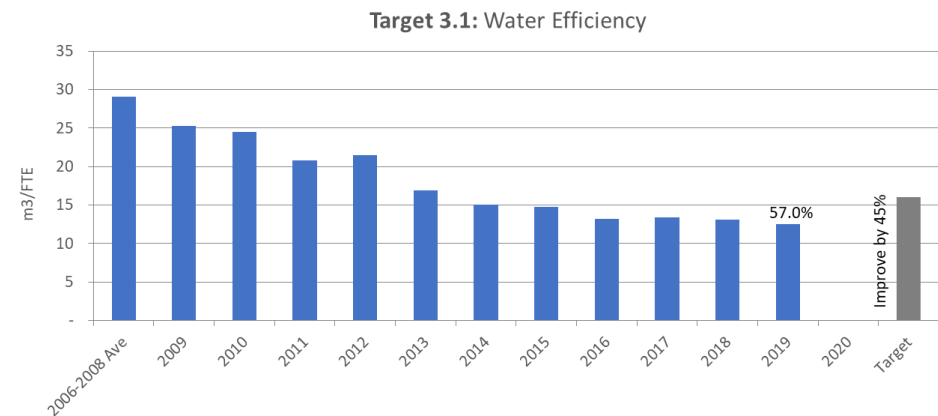
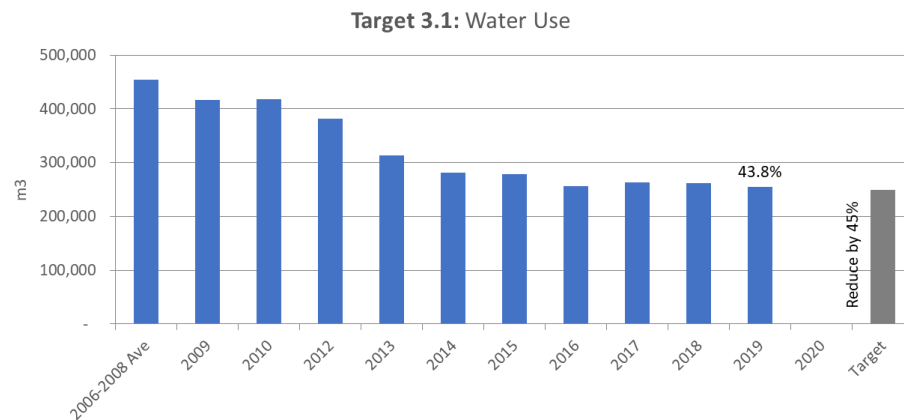
Annual Highlights:

- ✓ Sustainable Drainage Systems (SuDS): New rain-water attenuation tank in compliance with SUD's directive
- ✓ Green roof and rain-water harvesting system installed in the new Trinity Business School for WC flushing and green wall irrigation
- ✓ Water efficiency: Additional spray taps installed in Arts Building and motion controlled taps; Automatic cistern water management systems for urinal flushing installed in new Trinity Business School and 6 – 9 South Leinster Street
- ✓ Water fountains: additional 6 installing two in the Berkeley library, one each in Arts Building, Hamilton and Goldsmith, and an additional fountain in St. James Health Centre (Dec'18); Posters at fountains to encourage hydration and reuse of water bottles (Jan'19).
- ✓ Mapped each water fountain across campus to obtain exact location. Water locations on Green Pages.

Get Involved & Learn More:

- Be more water efficient by carrying a water bottle with you and refilling it at water fountains rather than buying bottled water. One litre of bottled water consumes between 1.4 – 3.7 litres during manufacturing (visit [Trinity's water efficiency page](#) for more ideas).
- Only use dishwashers, washing machines and other water consuming devices when they are full.
- Turn off taps in labs and at home when not actively in use and save up to 41 litres of water per minute.
- Never flush chemicals, oils or hazardous substances down the drain. They could block pipes, cause leaks or damage wildlife and the environment.
- If you find a leaking tap or tap with too high a flow rate, don't ignore it. Report it to estatesandfacilities@tcd.ie.

Water Data (by calendar year)



Re-usable water bottle provided to all Freshers



Sedum green roof to attenuate surface runoff

4. Sustainable Transport

Objectives	Targets	Status
4.1. Maintain Use of Sustainable Transport	4.1. Maintain Over 90% Use of Sustainable Transport to 2020	☺ Achieved
4.2. Increase Renewable Energy Use in University Transport	4.2. 10% Increase in Renewable Energy in Transport by 2020;	☺ Achieved
4.3. Reduce Car Use	4.3. 5% Reduction in Single Occupancy Car Trips by 2020	☺ Achieved
4.4. Promote Cycling & Active Travel	4.4. 10% Increase in Bicycle Use by 2020	↓ Off Track

Our Progress:

- ✓ 99% of participants in the 2019 travel survey use sustainable modes of transport (sample size, n = 1,221). This compares with the 2011 survey where only 93.9% of participants used the more sustainable transport modes (n = 3,906)
- ✓ Currently 27% of staff and students walk, 14% cycle, 30% take the bus, 14% the train or DART and 14% the LUAS.
- ✓ Single car occupancy is down from 4.2% in 2011 to 1% in the 2018 survey
- ✓ The smarter travel survey is carried out every 2-3 years among staff and students (national smarter travel programme). The University campus has access to some of the best public transport in Ireland and has a very limited amount of car parking. Due to this, Trinity has one of the best sustainable transport rates for a university in the world.

Challenges:

- △ Cycling is down from a high of 21.6% in 2011 to only 14%. Target 4.4 may not be achievable due to cycling infrastructure being so poor. Safe segregated cycling is required in Co. Dublin
- △ The impacts of international travel, i.e. flights, on the University's carbon footprint is not being fully assessed – see section 1 on Energy and Emissions.

Annual Highlights:

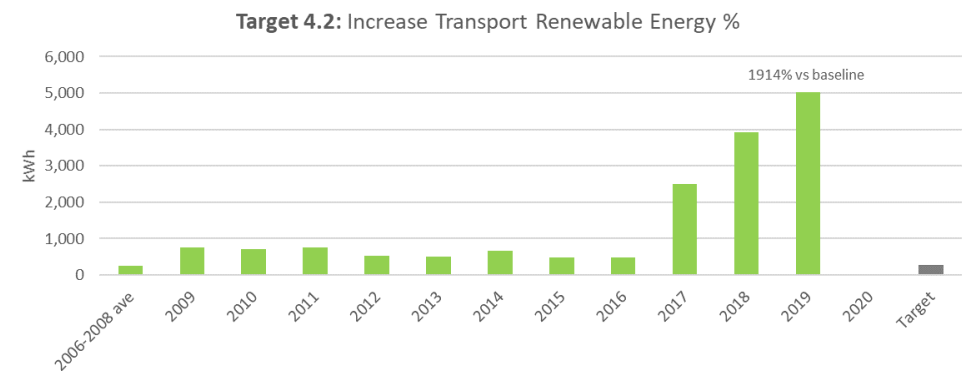
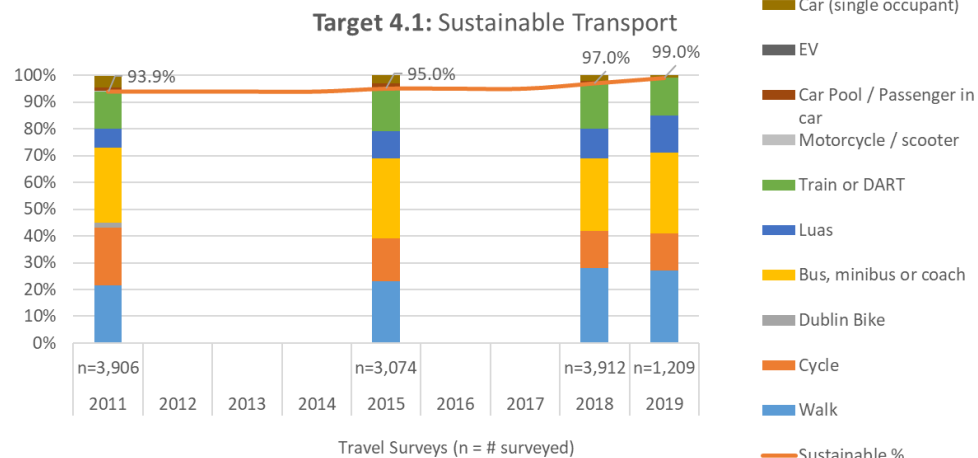
- ✓ Ireland's first disability bike parking located next to the Library Square, is the first of four planned spots, with two more due to open before Sept
- ✓ Velo-City Pop-Up Lab: This Bike Curious event in partnership with Dublin City Council and Bycs Amsterdam was open to the public and included a pop up Dutch lab, an academic and student showcase as well as a seminar with three international speakers on cycling.
- ✓ Online transport survey for staff & students: In 2019, the Smarter Travel Committee completed its fourth survey since 2011.
- ✓ New & upgraded bike parking facilities: extensive upgrading on campus and new parking installed behind the old library.
 - Approx. €100,000 spent in bike parking upgrades
 - Showers available on campus
 - Obtaining funding for bike repair stations. Three to be installed.
- ✓ Submissions to DCC & NTA: The Committee makes submissions on Dublin City Council and National Transport Authority consultations where proposed cycling infrastructure affects routes to Trinity. Submissions made on: Fitzwilliam cycle route, Lombard Street East contraflow and the Climate action plan for DCC. Commented on Trinity Hall draft mobility management plan

- ✓ Campaigns on how fast cycling is and video made by alumnus with visual impairment on why he needs cycling infrastructure

Get Involved & Learn More:

- Why not try cycling/walking to college once or twice a week. It's a great way to keep fit and there are plenty of cycle friendly facilities available.
- Instead of driving or flying to meetings/events, see if you can telecommute using videoconferencing such as Skype, Google Hangouts, FaceTime, GoToMeetings, Zoom etc.
- There is a range of financial incentives for sustainable travel such as bike-to-work tax breaks, tax incentive travel cards and grants for Electric Vehicles (EVs).
- Please visit <https://www.tcd.ie/collegehealth/promotion/travel/> for more on sustainable transport for the campus.

Transport Data



Ireland's first disability bike parking



Velo-City Pop-Up Lab (Jun'19)



5. Resource Use & Sustainable Food

Objectives	Targets	Status
5.1. Reduce Paper Use	5.1. 20% Decrease in Paper Use by 2020 vs 2011	😊 Achieved
5.2. Increase Sustainable Food Use	5.2. 50% Food to Meet 1 of 4 Sustainability Criteria (outlined on GreenPages) by 2020	? No data
5.3. Reduce Bottled Office Water Use	5.3. 50% Reduction in Bottled Water Use by 2020 vs 2011	⬇ Off Track
5.4. Reduce Disposable & Single Use Materials	5.4. 50% Reduction in Disposable Materials by 2020	Various schemes in place to reduce single use materials (see highlights below)

Our Progress:

- ✓ 56.7% reduction in paper use since 2011, although still using 10.25 million pages in 2018/19
- ✓ 77,490 disposable coffee cups saved across Trinity Business School, Science Gallery and Perch Cafes with reusable ceramic cups

Challenges:

- △ Not collating data on sustainable sourcing of food (euro spend) or on disposable materials whether single use plastic or compostable (quantities)
- △ 3% increase in campus bottled water use in 2019 vs 2011 baseline, however further roll out of water fountains is on-going to help address this increase
- △ Reusable pint glasses are not being employed at the Ball or Summer Series
- △ PCR paper was trialled in 5 locations to ensure it would work with the equipment, and was successful. However the cost doubled subsequently so PCR paper was never adopted.

Annual Highlights:

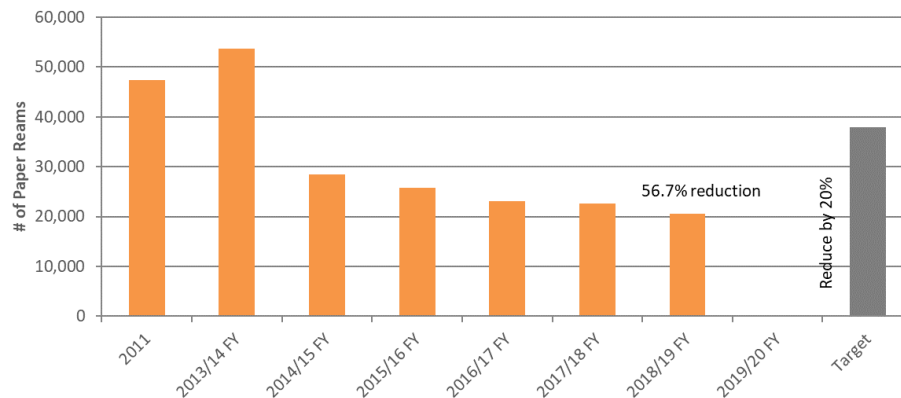
- ✓ **Free Range eggs** introduced since 7th Feb 2019
- ✓ **Vegan Option** introduced Jan'19
- ✓ **Sustainable Procurement Working Group.** Worked on mission statement, language used in tender/procurement documents and draft policy including sustainability objectives and criteria. The Sustainable Procurement Policy was approved by Board in Nov 2019, with Guidelines to be released summer 2020 in tandem with the policy. Gathering best practices from other universities, we trialled the following:
 - a) glove recycling via Terracycle and VWR (glove supplier) trialled in the Berkeley Library/ Conservation in libraries Dec 18
 - b) paper reduction via use of MFDs (multifunction devices) - double sided printing and PCR paper used by staff
 - c) defaulting Trinity purchasing to post consumer recycled (PCR) paper from 'virgin' paper (i.e. paper made from trees). Pilot run for migrating to PCR paper supply to ensure no paper jams began Nov'18
 - d) recycling of computers through existing Dell contract

Get Involved & Learn More:

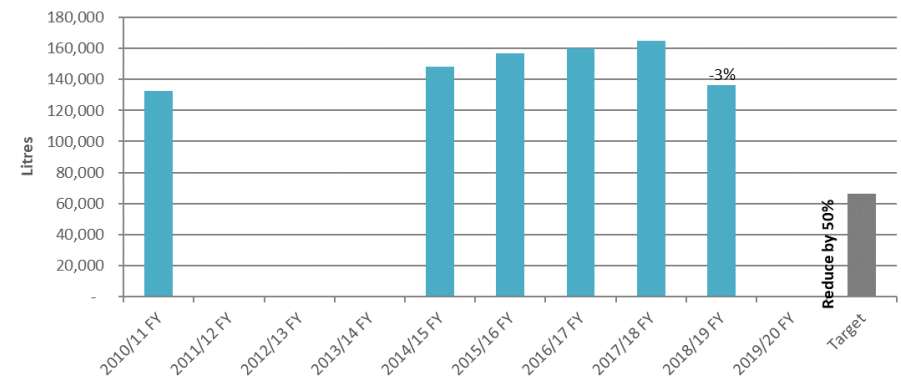
- Every piece of paper has come from a forest, so minimise printing wherever possible, and always print double sided, to save paper.
- Choose vegan or vegetarian food options to significantly lower the environmental impact of your food.
- Bring your own cutlery to campus, to eliminate the need for disposable cutlery
- You can give suggestions to Catering for a more sustainable menu here: catering@tcd.ie

Resource Use Data

Target 5.1: Paper Use

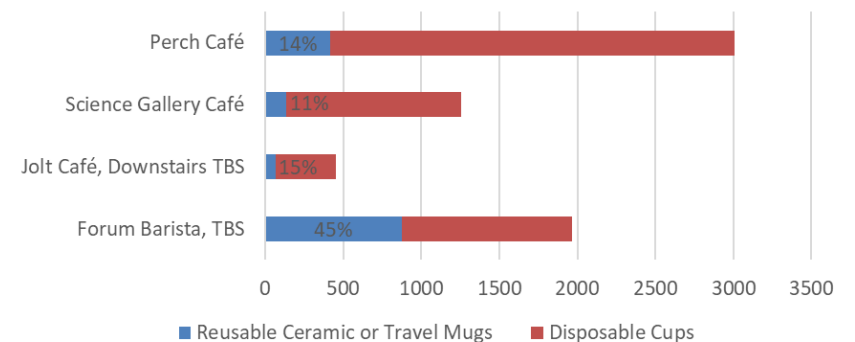


Target 5.3: Bottled Water (19L drums)



Free Range Eggs

Target 5.4: % Reusable Coffee Cups (sample)



6. Biodiversity & Trees

Objectives	Targets	Status
6.1. Increase Numbers of Trees	6.1. 10% Increase in Number of Trees by 2020;	😊 Achieved
6.2. Increase Green Areas & Green Corridors	6.2. Maintain and Improve Green Areas by 2020	😊 Achieved
6.3. Increase Biodiversity & Protect Soil	6.3. 5% Increase in Biodiversity Rich Areas by 2020	➡ Close to Track

Our Progress:

- ✓ 83.2% increase in tree numbers versus our 2011/12 baseline (10% target exceeded mainly by additional 500 young trees or “whips” at Santry, 239 at Darty Halls and 80 on the main campus)
- ✓ 58.9% of space is green with 23.3% more green area since 2011/12, mainly due to the purchase of Iveagh Sports Grounds site in 2017
- ✓ 17.1% of space is biodiverse or pollinator friendly (2.6% improvement against 2011/12 baseline)

Challenges

- △ Improving native biodiversity on campus and recording this improvement. For this we need regular surveying/audits of biodiversity, which are time-consuming and require taxonomic expertise and buy-in

Annual Highlights:

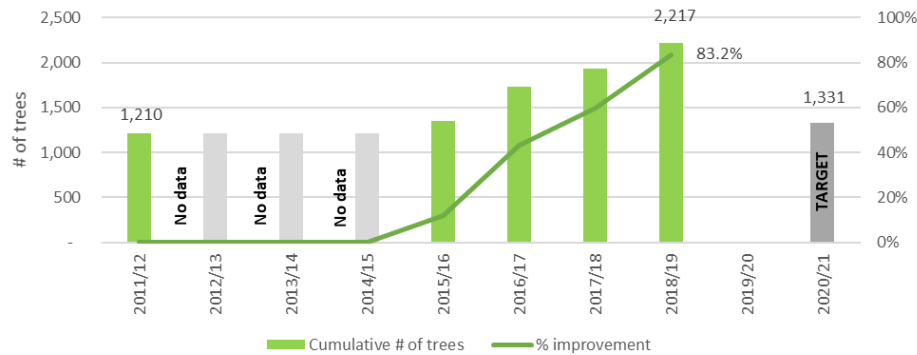
- ✓ Wildflower pollinator-friendly turf with no Glyphosate used at all: Flat Iron (180m²), Pav/ Chemistry (750m²), Old Staff Office Hut (220m²)
- ✓ Greening of the Trinity Business School: 3 sedum beds (423m²) plus flower beds and beehive on roof, green wall (70m²) and brise soleil (285.3m²)
- ✓ Chief Stewards Garden renovation works: Path created around garden and pond, new fern/woodland bed and 1,000s of pollinator friendly bulbs planted
- ✓ Two species of oak and beech planted in Santry: 200 whips planted in 2018 and 300 in 2019
- ✓ Replacement trees (main campus): 2 replacement specimen trees planted in Library square and 4 replacement trees planted on campus
- ✓ 5050 bulbs planted in November
- ✓ Extensive renovation works of the O' Reilly indoor Atrium, The Hamilton indoor Plant range and The Smurfit indoor bed September 2018
- ✓ Plans for Watts Atrium being put in place for 2019

Get Involved & Learn More:

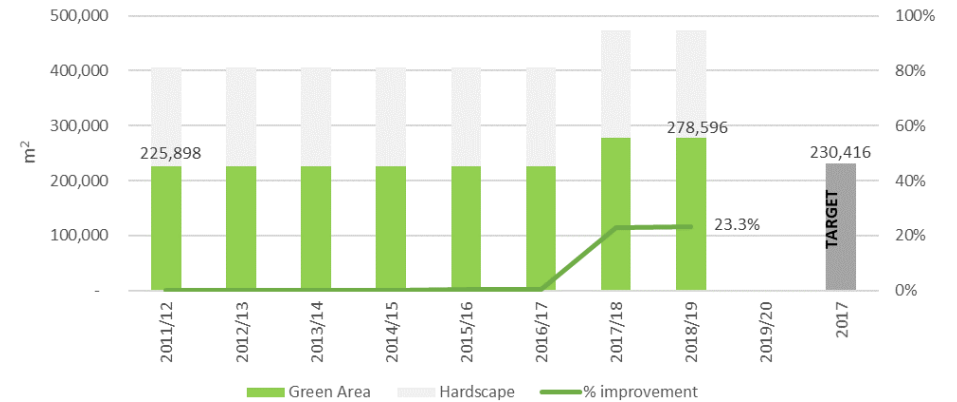
- Spend time in nature, appreciate nature and everything it does for us, and make space for it, i.e. by leaving wild areas in your garden.
- Plant a tree. As the Chinese proverb says, “the best time to plant a tree was 20 years ago, the second best time is now”.
- Support wildlife by avoiding the use of pesticides and chemical fertilizers in gardens and lawns where possible.
- Try to incorporate green roofs and walls into new construction projects or even keep a few office plants if space is limited.
- If you want further information on the trees of Trinity, read the “Trees of Trinity College Dublin” book available in the Library shop.

Biodiversity & Trees Data

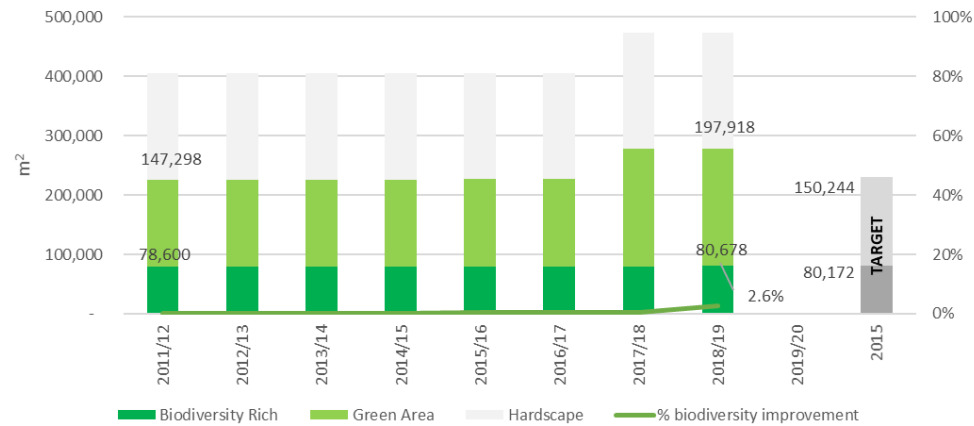
Target 6.1: Increase # of trees by 10% by 2020 vs 2011



Target 6.2: Increase Campus Green Areas by 2% by 2017 vs 2011



Target 6.3: Increase Biodiversity Rich Areas by 2% by 2015 vs 2011





Trinity Business School brise soleil, behind the Botany School, Jul 2019
(photo: John Parnell jnr)



Brise soleil planting ready for transfer, Mar 2019
(photo: John Parnell jnr)



Brise soleil being planted, May 2019
(photo: John Parnell jnr)



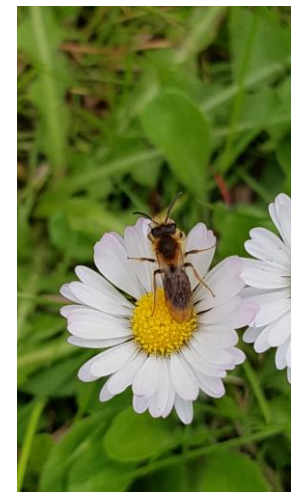
Brise soleil Trinity Business School, Feb 2020
(photo: Kieron McGovern)



Wildflower pollinator-friendly turf outside the Chemistry school, Aug 2018
(photo: John Parnell jnr)



Wildflower pollinator-friendly turf flat iron, Apr 2018. Andrena fly (right).
(photos: Prof Jane Stout)





Chief Steward's Garden with new paths and fern walk, July 2019 (photos: Prof Jane Stout)



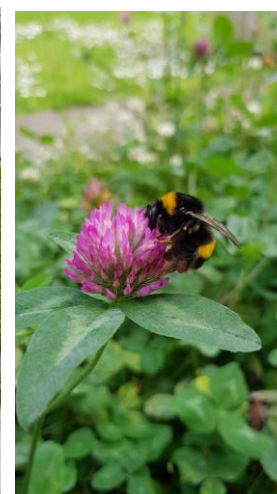
No. 1 Grafton Street, July 2019
(photo: Prof Jane Stout)



Provost's Garden, July 2019 (photo: Prof Jane Stout)



Wysteria, Botany School, May 2019
(photo: Prof Jane Stout)



Bombus terrestris outside Botany July 2019 (left).
GMB, May 2019 (right)
(photos: Prof Jane Stout)

7. Green Procurement

Objectives	Targets	Status
7.1. Increase Environmental Awareness of Suppliers	7.1. 100% Tenders Requested to Submit Environmental Information by 2020	↓ Off Track*
7.2. Increase Green Criteria in Tender Marking	7.2. 10% Increase in the Number of Tenders with Green Award Criteria by 2020	↓ Off Track^
7.3. Improve Use of Whole Life Cycle Costing (WLCC)	7.3. Maintain or improve levels of sustainable criteria used in category management	Early phase#

Our Progress:

- ✓ Environmental information requested in 64 out of 93 tenders
- ✓ Marks awarded for green criteria in 32 out of 93 tenders
- ✓ 7.1: * Category management approach to increase awareness. Formal vendor review process has been adopted and applied to Top 20 vendors.
- ✓ 7.2: ^ Office of Government Procurement (OGP) have advised caution regarding Green criteria which must be narrowly defined and based on quantifiable criteria. Therefore, the increase in tenders being placed on our behalf by other agencies such as the OGP, EPS and HEAnet, means that the University must align with the sectoral approach for eligible green award criteria.
- ✓ 7.3: # EU Green Procurement Policy project has acknowledged the need for WLCC training to mitigate legal challenge to tender outcomes
- ✓ https://ec.europa.eu/environment/gpp/toolkit_en.htm

Challenges:

- △ Trinity spends €100 million on consumables annually. We aspire to use this buying power to move to more environmentally and socially responsible suppliers
- △ A software based system is required to track sustainable criteria in category management. The University Procurement & Contracts Office has engaged a consultant and has committed to developing a system a system from Q1 2020. 'Go live' date September 2020.

Annual Highlights:

- ✓ Sustainable Procurement Policy was approved by board in Nov 2019
- ✓ The Printing House Square being constructed to and the E3 Learning Foundry at early design stage are to BREEAM Excellent standard
- ✓ Trinity continues to promote sustainability throughout its supply chain. This includes day-to-day purchases, teaching/research equipment and capital projects. The University's strategic plan via the Estates and Infrastructure Development Plan commits all new buildings, refurbishments and purchases to comply with and, where possible, exceed, energy-efficiency standards. We also strive to incorporate further sustainability into building design. In the technical specifications of each individual item of equipment, we often detailed particular "green" requirements, such as:
 - Biannual supplier maintenance and management;
 - Sustainability criteria in food/drinks catering tenders;
 - Light bulb LED purchasing;

- Hazardous waste procurement management.
- ✓ WARPit (a Waste Action Reuse Portal), an IT system for reusing unwanted furniture on the campus is still under consideration subject to funding approval.
- ✓ Yammer Repurpose/ Reuse group set up for staff to reuse/ repurpose equipment and furniture. It has over 200 users currently (TCD staff use their normal login to gain access). Link here: https://www.yammer.com/tcd.ie/#/threads/inGroup?type=in_group&feedId=15704503&view=all
- ✓ An energy performance contract initiative in early stages of investigation to improve the results and cost effectiveness of energy efficiency upgrades.

Get Involved & Learn More:

- What will you do with what you are buying at the end of its life? Make sure you think cradle-to-cradle for lifecycle of purchases.
- Think before buying. The item you need may already be in your department, elsewhere on campus or available from a reuse website. Find out more on the [Yammer Repurpose/ Reuse group](#).
- If you want to see if there are any sustainable alternatives for your purchase, contact the Trinity procurement office directly at procurement@tcd.ie.
- Buy A-rated lab appliances and for home appliances to reduce energy use.

8. Education, Research & Entrepreneurship

Objectives	Targets	Status
8.1. Induct all College Users into Green Campus	8.1. 100% Staff and Students Inducted into Green Campus by 2020	↑ On Track
8.2. Increase Sustainability Focus in Taught Courses	8.2. 10% Increase in Sustainability Course Content by 2020	😊 Achieved
8.3. Support Sustainability Research	8.3. Promote and Increase the Use of the Campus as a Living Lab by 2020;	↑ On Track
8.4. Support Sustainability Focused Entrepreneurship	8.4. Create an Annual Sustainability Award (i.e. Green Carpet Awards) by 2020	↓ Off Track
	8.5. Increase and Support Entrepreneurship in Area of Sustainability by 2020.	↑ On Track

Our Progress:

- ✓ 3,000 out of 3,500 freshers inducted to green campus annually (86%), 1,000 postgraduates and 1,200 visiting and Erasmus students
- ✓ 58% increase in courses and modules with sustainability content vs 2017/18
- ✓ 6 launchbox alumni set up businesses on sustainability topics since 2011/12 and growing

Challenges:

- △ There are still over 3,000 existing staff that have not received the sustainability awareness presentation

Annual Highlights:

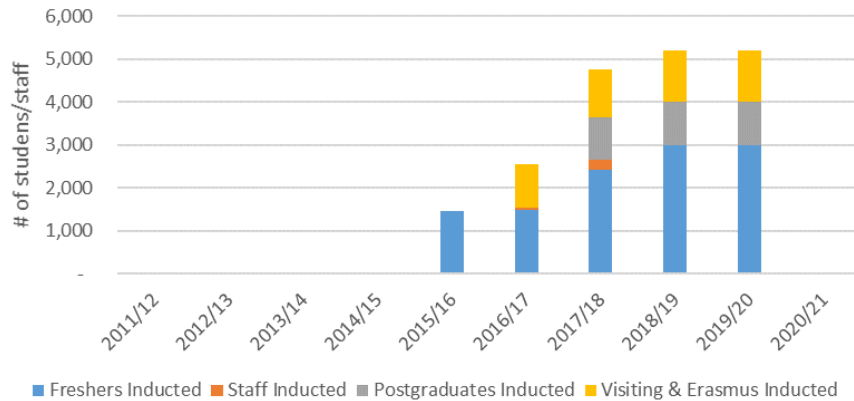
- ✓ Trinity-DCC biannual dialogue to establish closer links and co-operation with the City: academics whose work/ research/ teaching coincides with sustainability were invited to participate in the Dublin City Council (DCC) data sharing workshop, November 2018 with the aim of providing access to utilise Dublin City data for research purposes
- ✓ An SDG online 'hub' is planned for 2020 to connect over 45 researchers and their work in one accessible location. Incorporation of SDGs into Trinity Sustainability Initiatives will begin in 2020
- ✓ Living Lab: working with Smart Docklands to discuss opportunities for Trinity to become a Living Lab for some of their projects

Get Involved & Learn More:

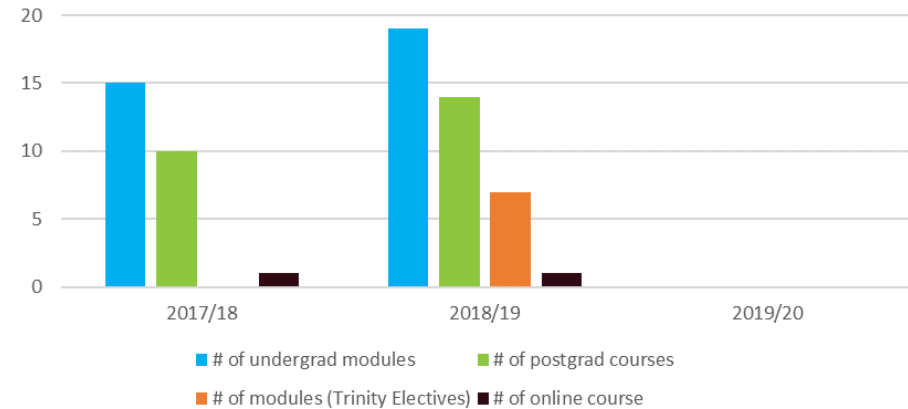
- Visit the sustainability greenpages website to induct yourself into the green campus programme (<https://www.tcd.ie/provost/sustainability/>).
- Get involved with the Green Campus Committee (<https://www.tcd.ie/provost/sustainability/greencampuscommittee/>)
- If you have a suggestion for increasing the sustainability focus of your chosen subject, ask your lecturer if it could be included in future teaching.

- If you are interested in research in the area of sustainability, contact the Research Office (<https://www.tcd.ie/innovation/contact/>)
- Launchbox, Trinity's accelerator for student start-ups, is always looking for sustainable startup ideas. Why not apply on <http://www.launchbox.ie/> and join the list of previous sustainable start-ups including FoodCloud and LabCup.

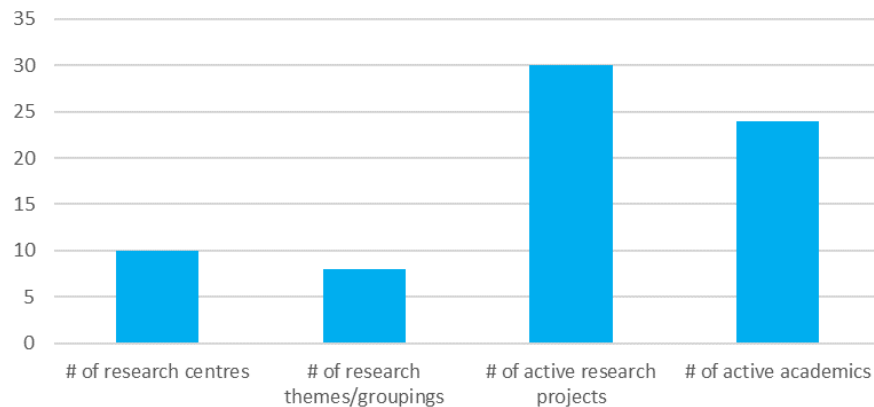
Target 8.1: Sustainability Induction



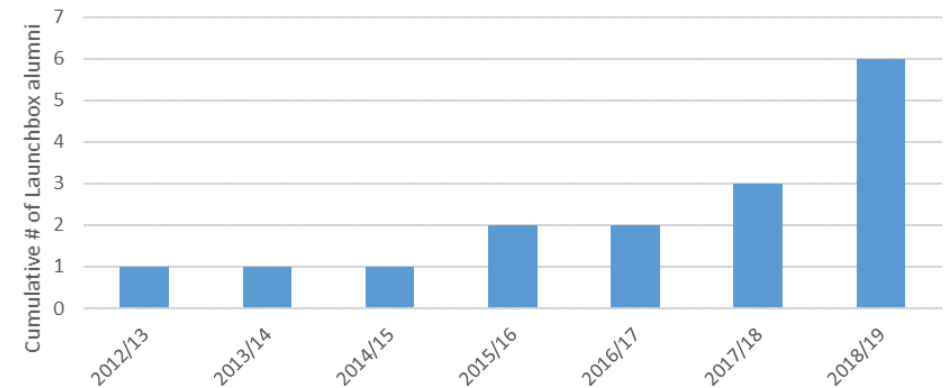
Target 8.2: Courses with Sustainability



Target 8.3: 2018/19 Sustainability Research



Target 8.4: Sustainability Related Startups



9. Communication, Student Involvement & Transparency

Objectives	Targets	Status
9.1. Increase the Number of Green Events & Attendees on Campus	9.1. Maintain or Improve Levels of Sustainable Events by 2020	😊 Achieved
9.2. Increase the Number of Societies Involved with Green Week	9.2. 10% Increase in Number of Societies Participating in Green Events by 2020	Several societies involved in Green Campus Committee.
9.3. Meet all Requests for Access to Information on the Environment	9.3. 100% Fulfilling of Requests for Information on the Environment (On-going)	😊 Achieved
9.4. Report on all Environmental Aspects	9.4. Develop and Launch Annual Sustainability Report by 2016	😊 Achieved
9.5. Increase the Use of Trinity Green Pages Website	9.5. 5% Increase in Visitors to GreenPages Website by 2020	😊 Achieved

Our Progress:

- ✓ Five-fold increase in number of green events since 2016, with 235 events in 2019 (in part due to improvements in tracking event numbers)
- ✓ No requests for access to information on the environment
- ✓ This is our fifth Annual Sustainability Report

Challenges:

- △ No data tracked on number of societies involved in green week

Annual Highlights:

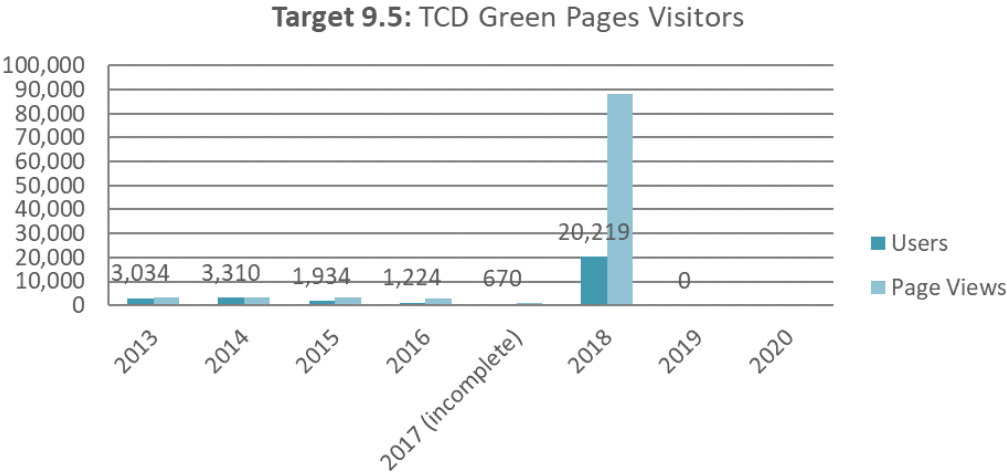
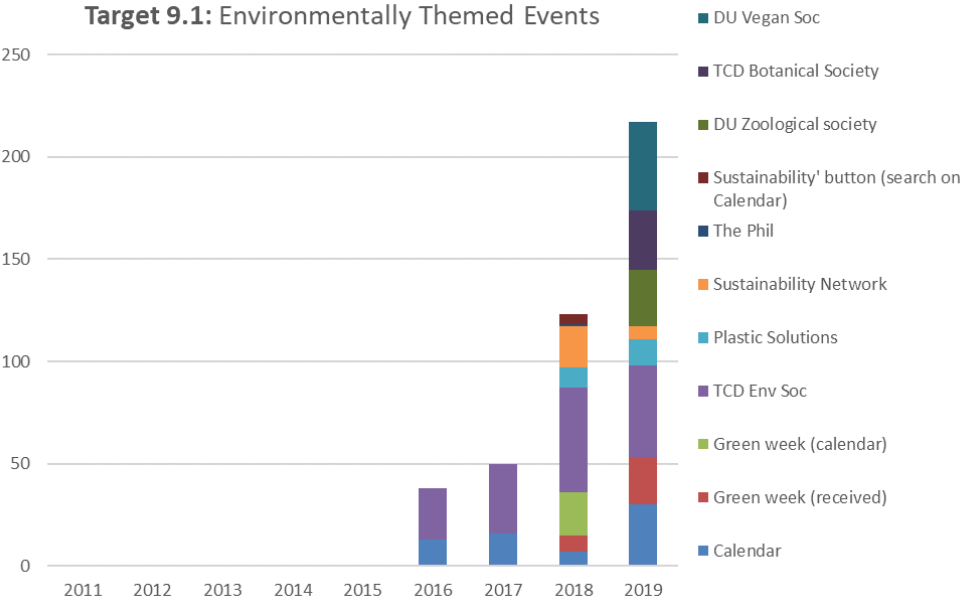
- ✓ **OneStepCloser** social engagement platform on the:
 1. Use of post consumer recycled paper (Oct'18). 639 votes out of a possible 3,100. 573 staff prefer PCR paper
 2. Stocking of SU shops with sustainable products (Nov'18). 1555 students vote
 3. Location of new water fountains (Dec'18). Received 2,443 votes from students (an engagement of 15%)
 4. Conversion of one meat dish to one vegetarian dish in the Buttery (Jan-Feb'19). 1,368 votes. lasagne was the dish chosen to be converted to vegetarian.
 5. Future campaigns on Wildflower/Biodiversity; Recycling Cigarette butts; Zero Waste; Earth hour 30th March; Residents/Sust Champions/Move out 'Recycle_Reuse_Reimagine' campaign
- ✓ **“Train To Be a Recycling Champion” session** to students, which instructed attendees on how to deliver the 15-minute workshops to teach other students how to recycle properly
- ✓ **Resident Student Sustainability Champions recruitment.** Recruited 36 students for training on energy, waste, water, food and resource consumption and climate change

- ✓ **Sustainability Manager forum for HEA:** Trinity participates with UCC, DCU, UL, DIT, NUI Galway, GMIT, NUIM
- ✓ **Recycling / “Sort Your Shit” workshops** during Freshers Week for Incoming first year students to improve recycling rates
- ✓ **Trinity sustainability awareness presentations** to various groups including Academics Induction session, Faculty of Health Sciences Executive Committee, residents in rooms (about 200 students) and to Trinity Hall students (about 400 students), ‘Nerd’ group in Zoology, School of Nursing, Student Life Committee, Law School, Climate KIC summer workshop, Trinity Communications office, new SU officers & President, Smart Docklands came in to give a presentation to Staff Sustainability Network.
 - Discuss draft sustainable procurement policy, Green Flag raising, Trash to Treasure and draft Waste Management Policy
- ✓ **Social Media Outreach: Facebook page** had a reach of 92,247 and an engagement of 11,544 for the year, **Twitter and Instagram accounts** established for Trinity Sustainability in Jan'19
- ✓ **Greening of Societies:** Created a Sustainable Guide for Events; switch to digital cards eliminated 49,000 cards from production; continue to work with CSC on 'greening' Freshers' Week
- ✓ **Communications Office:** working with Communications Office on various methods to publicise correct recycling habits and education on sustainability issues
- ✓ **Sustainability Funding:**
 - United Parcel Services (UPS) donated €450k (over 5 years) to Trinity for sustainability related educational projects, as well as logistical support for Move Out in May, and 12 hours of time to transporting donated belongings from Rooms to TTEC for storage during summer.
 - 9 applications for Sustainability Fund - Provided CRU and United Parcel Services with ideas for engagement in sustainability projects
 - CRU looking at how we package stuff in our library shop and ensure the most efficient way to ship using proper custom sized packaging is used
- ✓ **Green Campus renewal to An Taisce** completed Jan'19 with Green Flag raising Aug'19
- ✓ **Green Week 2019** on the **UN Sustainable Development Goals** launched with Chancellor Robinson, the Registrar and Senator Norris
- ✓ **Climate Action Group** formed in May'19 to work on climate mitigation and a plan for climate resilience and adaptation for the campus. Greatest threat is flooding, to archives and collections held in basements. Labs may also be at risk. Efforts will be coordinated with Dublin City Council to align with local DCC Climate Action plan.

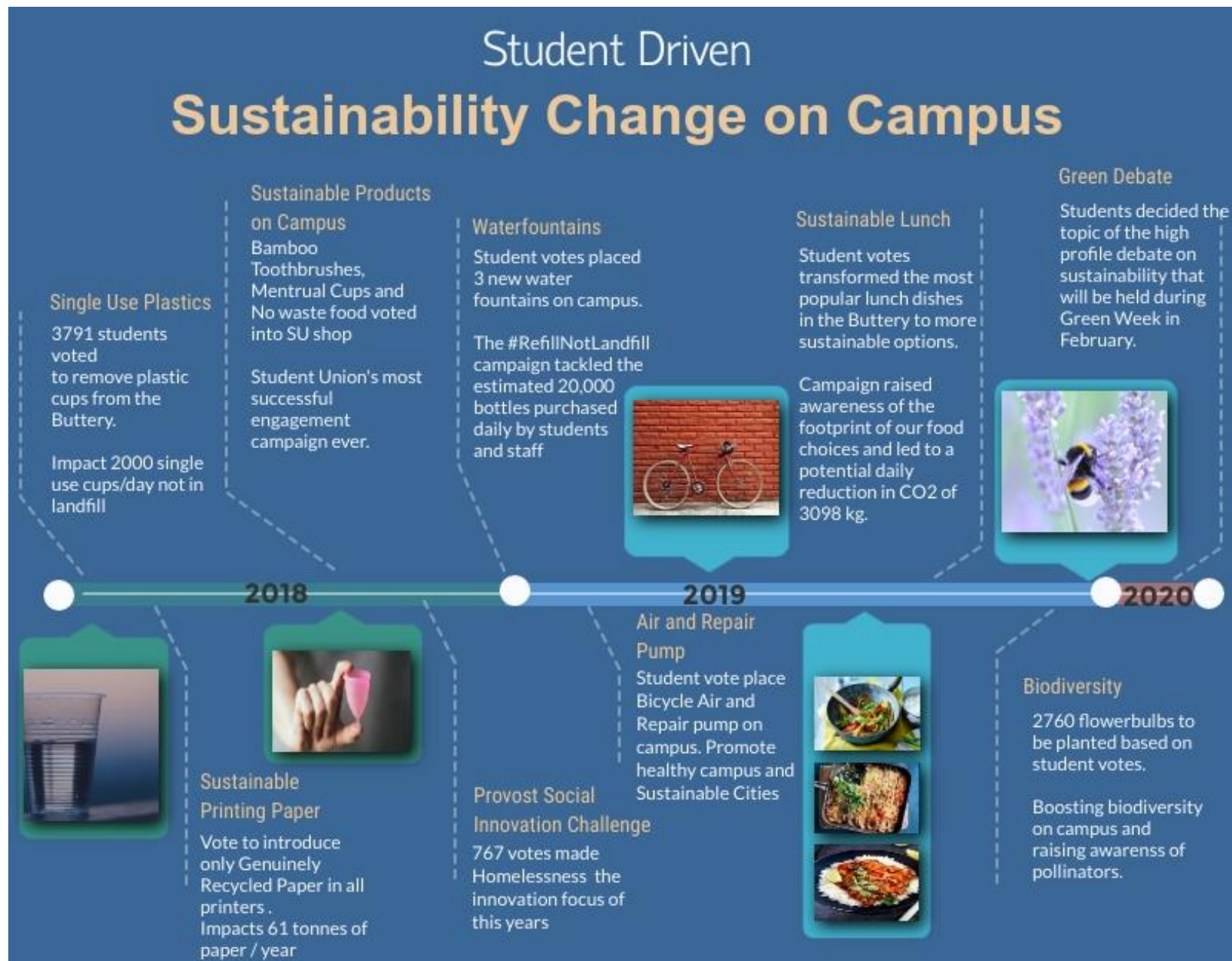
Get Involved & Learn More:

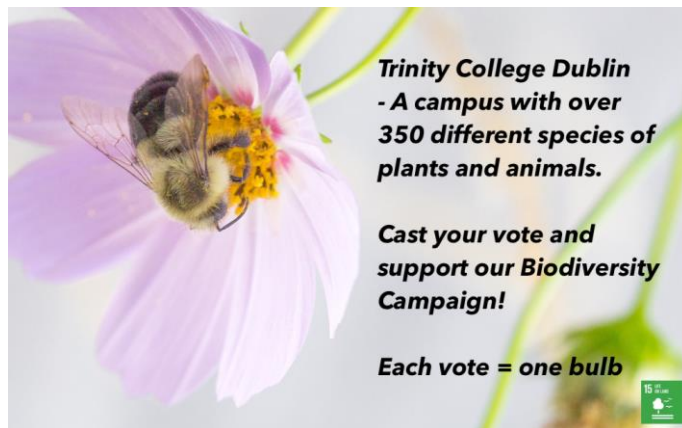
- If you are involved in a society or sport club why not organise a sustainability event for your members.
 - Why not volunteer for the Green Campus committee or organize an event for the annual Trinity Green Week.
- Visit the Trinity Sustainability – GreenPages website to learn more about what you can do (<https://www.tcd.ie/provost/sustainability/>)

Engagement Data



OSC map of awareness campaigns conducted to date





OneStepCloser campaign on biodiversity



Green Week launch



E3 Garden at Bloom



Green Flag Raising

CAMPUS RESIDENTS: GIVE YOUR STUFF NEW LIFE!

Bring your **gently used items** to the Students' Union Front Office in House 6 to allow them to be salvaged and reused

WHAT Donate clean, reusable items for re-sale to students in September to raise funds for environmental projects on campus

ITEMS CAN INCLUDE:

 BICYCLES	 CUTLERY & UTENSILS	 BOOKS	 FURNITURE
 CROCKERY	 CLOTHING	 DECORATIONS	 ELECTRICAL ITEMS

WE WILL NOT ACCEPT BROKEN OR DAMAGED GOODS

HOW Clear plastic bags are available from Housekeeping. Borrow a trolley from SU Front Office, House 6.

Drop off before 5pm, Mon-Fri, April 29th - May 8th

SU Trinity College Dublin

May Move Out



UPS support with storage of donations

Gaps & Challenges

There are a number of areas we hope to improve on as we report on our sustainability journey. This section of the annual sustainability report has been included to help us outline to the Trinity community, areas where we are facing challenges and gaps in the data we collect and report on. It is part of our transparency objectives to highlight where we think we can improve the accuracy or content in the future. In particular, 9 of our 38 targets do not yet have robust data sets. It should also prove useful to other institutions to highlight challenges they might also experience in reporting on sustainability in their own organisations.

- Embodied carbon. We are currently investigating how we can account for the carbon emissions associated with the embodied carbon in materials used in construction projects on the campus. This becomes more important as newer buildings become more energy efficient and the embodied carbon in materials used becomes more significant. We will also endeavour to look at the embodied carbon in our purchases including food, drinks, paper and other consumables.
- The majority of renewable energy consumed in the campus comes via grid-based renewables, which contribute, to electricity supply in Ireland. We also are limited in purchasing green electricity sources by government procurement rules.
- Carbon emissions from travel. We are currently investigating how much carbon is emitted as a result of staff taking flights for work purposes. This is a significant challenge for Universities, in particular around participating in international projects and conferences. We do not currently generate commuter carbon emissions data for staff and students travelling daily to University.
- We report on carbon in total emissions and in an indicator (per full time equivalent). This helps to show how sometimes our absolute carbon emissions grow but on a per capita basis we can still be improving.
- Fugitive emissions from refrigerant gases (HCFCs) are usually lost when equipment fails and vents the gases to atmosphere. We are currently working with our contractor in the area to collate this data on an annual basis.
- We do not currently include construction and demolition (C&D) waste in our statistics. This waste is generally very heavy and usually 100% recycled. While this would skew our recycling rates upwards significantly, it does not reflect how people are disposing of their waste in general and so, when the data becomes available, will be reported on separately.
- We do not currently report on wastewater or indoor air quality. This is an area we hope to improve on in future possibly as part of our living lab initiative. A post occupancy evaluation study on Trinity Business School will monitor environmental parameters including air quality.
- While the numbers of people walking has increased, our numbers of cyclists continues to decrease. We assessed how far students live from campus in 2019. Around 80% live within 10kms of campus. The barrier to cycling is lack of protected, comfortable infrastructure beyond campus walls.
- The majority of renewable energy in transport comes from biofuel blended at a national level for use in meeting Ireland's biofuel obligations around renewable energy in transport.
- We have found quantifying the sustainability of food served on the campus problematic based on difficulties with available data and definitions of sustainability. We will continue to work with our catering departments to better quantify sustainability.
- Trinity has recently lost some of its oldest and most famous trees. While we endeavour to protect and enhance our trees on campus, sometimes due to age and disease, we continue to lose some of our most iconic trees.
- Collecting data on the sustainability content of all courses and research carried out across the University has been challenging, as there is no central repository. We continue to investigate practical ways to gather and improve this information. Currently we review the green webpages annually
- Keeping staff and, in particular, students engaged in sustainability initiatives is difficult especially as students change each year. How we communicate and reach them is also changing rapidly with technology so we continue to experiment with the best ways to reach all our community.

Our Journey

A Brief History of the Sustainability Actions in Trinity College Dublin – The University of Dublin.

- 1979
 - Trinity Environmental Sciences Unit created
- 1990s
 - Focus on improving recycling of waste on the campus
- 1993
 - First recorded minutes of the College Recycling Committee (CRC)
- 1998
 - Establishment of Trinity Centre for the Environment
- 2000s
 - CRC renamed College Recycling and Environment Committee (CREC)
- 2003
 - First student led Green Week event held
- 2007
 - Drafting of University Sustainable Development Policy
- 2008
 - Trinity Sustainable Development Policy approved by Board
- 2012
 - CREC Renamed the Green Campus Committee (GCC) as part of Green Flag application
- 2013
 - Trinity applied for and awarded Green Flag Award for campus sustainability
- 2015
 - Trinity reapplies for Green Flag Award for Campus Sustainability and GCC student led co-chair position established
- 2016
 - Trinity publishes its 1st Annual Sustainability Report and the Board approves it;
 - Trinity divested from fossil fuel investments thanks to a student-led campaign
- 2017
 - Provost's Advisory Committee on Sustainability and Low Carbon Living established & Sustainability Policy updated
 - Sustainability Champion and Sustainability Advisor appointed
 - Trinity Pollinator Plan launched
- 2018
 - First university in Ireland to join the International Sustainable Campus Network (ISCN); the Provost presented at a panel discussion entitled "Leadership for Sustainable Development" at the annual ISCN conference in June 2018, hosted by KTH Royal Institute of Technology, Stockholm
 - Established a Plastic Disposables Plan to reduce disposable plastics from catering outlets on campus by 2020.
 - Sustainable Procurement Working Group established
 - Move-Out donation of student belongings to charity to divert waste from incineration
 - Sustainability Fund for education/ awareness raising projects established.
- 2019
 - Green Flag re-awarded
 - Climate Action Group established
 - OneStepCloser platform proves very useful in engaging students
 - Ireland's first disability parking space
 - Trinity's first NZEB building – Trinity Business School (May'19)
 - First on-site solar PV installation on the main campus
 - Trash to Treasure Sept 2019 - resale of salvaged/ donated items from Move Out in May 2019.

Roll of Honour

“None of us is as smart as all of us.”

Special thanks to all our contributors to this report who make Trinity a more sustainable place to live, work, play and learn, in no particular order: Michele Hallahan, David Hackett, Ben Hartnett, Gordon Hughes, John Parnell, Prof John Parnell, Tony Dalton, Prof Jane Stout, Moira O’Brien, Ciara Murphy, Eimear Rouine, Louise Power, Patrick Prendergast, Jane Stout, Joe Borza, Pat McDonnell, Martina Mullin, Kieron McGovern... and the many, many others that have contributed to Trinity’s journey to sustainability.

Photos contributed by:

Go Raibh Maith Agat.

Web: <https://www.tcd.ie/provost/sustainability/>

If you have any questions or would like to know more, feel free to contact us: sustainability@tcd.ie

Printed on 100% recycled materials & disseminated electronically where possible.

Annex 1 – International Sustainability Campus Network (ISCN) Report

The International Sustainability Campus Network (ISCN) is a network of universities and colleges from across the world who have committed to achieving sustainable campus operations and integrating sustainability in research and teaching.

Principle 1: To demonstrate respect for nature and society, sustainability considerations should be an integral part of planning, construction, renovation, and operation of buildings on campus. A sustainable campus infrastructure is governed by respect for natural resources and social responsibility, and embraces the principle of a low carbon economy. Concrete goals embodied in individual buildings can include minimizing environmental impacts (such as energy and water consumption or waste), furthering equal access (such as nondiscrimination of the disabled), and optimizing the integration of the built and natural environments. To ensure buildings on campus can meet these goals in the long term, and in a flexible manner, useful processes include participatory planning (integrating end-users such as faculty, staff, and students) and life-cycle costing (taking into account future cost savings from sustainable construction).

Topics	Goals and Initiatives		Results				
Priority topics (with units of measurement)	Objectives and targets (for...	Key Initiatives (in reporting year, and /or planned for the following and beyond)	Baseline	Performance 2015/16 2016	Performance 2016/17 2017	Performance 2017/18 2018	Performance 2018/19 2019
Resource use							
Water Consumption (m ³)	Reduce water use by 51% by 2020 compared to 2009/2010 levels	On-going leak detection and water management programme. Water awareness campaign as part of annual Green Week.	454,559 m ³ (29.1 m ³ per person per year) (2006-08 Average)	44% Reduction. 256,293 m ³ (13.2 m ³ per person per year)	42% Reduction. 263,561 m ³ (13.4 m ³ per person per year)	42% Reduction. 262,339 m ³ (13.1 m ³ per person per year)	43.8% Reduction vs 2006-08 baseline 255,488 m ³ (12.5 m ³ per person per year)
Rain/Grey Water Consumption (m ³)	Increase onsite water generation by 5% by 2020.	Rainwater harvesting on Biosciences Building & in New Square. No new initiatives.	Zero (2009/2010)	Estimates based on rainfall levels for 2016.	Reduction based on estimates for rainfall levels in 2017.	Estimates of rainwater harvesting potential. No submetering data for rainwater harvesting.	Estimates of rainwater harvesting potential. No submetering data for rainwater harvesting.
Energy (kWh)	Improve energy efficiency by 33% by 2020 (public sector target) compared to 2006-2008 baseline.	Various energy efficiency projects on-going including better heating controls, LED lighting, energy efficient equipment, insulation retrofits & behavioural campaigns.	414.6 kWh / Research Equivalent Floor Area (2006/2008)	324.0 kWh / Research Equivalent Floor Area (21.9% saving versus baseline)	306.2 kWh / Research Equivalent Floor Area (26.2% saving versus baseline)	298.5 kWh / Research Equivalent Floor Area (28.0% saving versus baseline)	282.2 kWh / Research Equivalent Floor Area (31.9% saving versus baseline)
Renewables and Combined Heat and Power (kWh)	Increase renewable energy use to 14% by 2020	Use of grid electricity to facilitate grid based renewables. Onsite solar water panels.	5.0% energy from renewables (2006/2008)	12.9% energy from renewables	14.7% energy from renewables	15.2% energy from renewables	15.0% energy from renewables
Paper Reduction	Reduce paper consumption by 20% by 2020	Numerous processes going paperless including board meetings and SU meetings.	47,363 Reams (2011 Baseline)	25,782 Reams	23,048 Reams	22,668 Reams (52% reduction vs baseline)	20,500 Reams (57% reduction vs baseline)

Waste, recycling, local emissions, and non-compliance							
Total waste produced (tonnes MSW, Recyclables, Compost)	Reduce total waste by 10% by 2020	Binless office system expanded and source separate bins installed in buildings. Behaviour	1,595 tonnes (2012 Baseline)	1,806 tonnes	2,059 tonnes (29% increase vs 2012 baseline)	1,984 tonnes (4% decrease vs previous year)	1,796 tonnes (9% decrease vs previous year)
Hazardous Waste	Reduce total hazardous waste by 10%	Labcup trial rolled out to help prevent purchase of chemicals already in stock. Training on	42,270 kg (2012 Baseline)	48,890 kg	46,670 kg (4.5% decrease)	44,550 kg (4.5% decrease vs previous year)	52,333 kg (17.5% increase vs previous year)
Research/IT facilities and sustainability							
Green Data Centre	Reduce Energy and GHG emissions	Award winning Green Data centre opened in 2014.	NA	On-going monitoring.	On-going monitoring.	On-going monitoring.	On-going monitoring.
Users							
Stakeholder engagement	Increase visitors to green pages website	Annual Green week held and investigation of induction into student orientation.	3,000 users on green pages (2013 Baseline)	1,224. Being updated due to website revamp.	670 visitors. New website being developed.	20,000 visitors with launch of new sustainability pages.	7,933 page views for /provost/sustainability vs 2,394 in 2018
Building design aspects							
Sustainable Building Standards	Increase campus as a living lab.	New building designed to excellent standard and near zero energy buildings.	NA	2 significant building projects still in design stage. Business School and Oisin House residences.	2 significant building projects in construction stage. Business School and Printing House Square (Oisin House) residences. E3 centre in design stage.	2 significant NZEB building projects in construction stage. Business School (BER - A2; opened May'19) and Printing House Square (Oisin House, scheduled for completion Aug'19) residences. E3 centre in design stage.	Trinity's first NZEB building, Trinity Business School (BER - A2) opened May'19; Printing House Square (Oisin House, scheduled for completion Aug'20) residences. E3 centre in design stage.
Campus Strategic Plan	Green, energy efficient campus.	All new buildings aim to meet or exceed building energy codes.	NA	New buildings in planning.	New buildings in planning.	Next Strategic Plan 2020-2024 being drafted	Next Strategic Plan 2020-2025 published. The Martin Naughton E3 Learning Foundry, by 2022 will achieve Well Building standards and BREEAM excellence.

Principle 2: To ensure long-term sustainable campus development, campus-wide master planning and target-setting should include environmental and social goals. Sustainable campus development needs to rely on forward-looking planning processes that consider the campus as a whole, and not just individual buildings. These processes can include comprehensive master planning with goals for impact management (for example, limiting use of land and other natural resources and protecting ecosystems), responsible operation (for example encouraging environmentally compatible transport modes and efficiently managing urban flows), and social integration (ensuring user diversity, creating indoor and outdoor spaces for social exchange and shared learning, and supporting ease of access to commerce and services). Such integrated planning can profit from including users and neighbors, and can be strengthened by organization-wide target setting (for example greenhouse gas emission goals). Existing low-carbon lifestyles and practices within individual campuses that foster sustainability, such as easy access for pedestrians, grey water recycling and low levels of resource use and waste generation, need to be identified, expanded and disseminated widely.

Topics	Goals and Initiatives		Results				
Priority topics (with units of measurement)	Objectives and targets (for...	Key Initiatives (in reporting year, and /or planned for the following and beyond)	Baseline	Performance 2016	Performance 2017	Performance 2018	Performance 2019
Institution-wide carbon targets and related achievements							
Carbon Emissions (tCO2e)	Short Term: reduce carbon emissions by 2% year-on-year.	See energy efficiency. Investigating use of electric vehicles in fleet. Review of climate change plan.	25,876 tCO2e (2006-2008) 1.66 tCO2e / full time equivalent	26,452 tCO2e	24,118 tCO2e	23,430 tCO2e	21,476 tCO2e
	Long Term: reduce carbon emissions by 80% by 2050.			(2.2% increase vs 2006-08) 1.36 tCO2e / full time equivalent	(6.8% decrease vs 2006-08) 1.23 tCO2e / full time equivalent	(9.5% decrease vs 2006-08) 1.17 tCO2e / full time equivalent	(17% decrease vs 2006-08) 1.05 tCO2e / full time equivalent
Master Planning							
5 Year Strategic Plan	Sustainable Development	Implementation of sustainability elements of strategic plan & updating of sustainable development policy.	2009 – 2014 TCD Strategic Plan.	On-going.	Sustainable Development policy updated and renamed Sustainability Policy.	2020-2024 strategic plan being drafted	2020-2025 strategic plan published
Campus Development Plan	Sustainable Development	In development.	NA	Master plan in development.	Master plan in development.	Estates Strategy published Nov'18	Condition Survey underway to establish a ten-year assessment of the maintenance liabilities across the buildings and supporting infrastructure.
Transportation							
Transportation initiatives	Promote sustainable transport.	Review strategy and set objectives and targets to increase the sustainability of business travel.	1,700 bicycle spaces (2011)	Not counted (run every two years due to resourcing).	1,615 bicycle spaces (decrease of 6% from baseline).	97% surveyed in 2018 using sustainable transport, with only 3% travelling by car. No data on cycling spaces.	99% surveyed in 2019 using sustainable transport, with only 1% travelling by car. No data on cycling spaces.

Food							
Stakeholder engagement	Promote sustainable food.	Student led talks on sustainable food and food waste. Support for trinity start-up FoodCloud.	Not recorded.	Catering investigating improving sustainable food.	On-going catering investigating improving sustainable food.	OneStepCloser, a social engagement platform used to engage students and staff on elimination of disposable plastics on campus and vegetarian choices of food at the Buttery Café (23% participation rate).	OneStepCloser, a social engagement platform used to engage students and staff on elimination of disposable plastics on campus and vegetarian choices of food at the Buttery Café (23% participation rate).
Food purchase	Promote sustainable food.	Reduce pre-consumer and post-consumer waste.	None.	On-going.	On-going. Free water available in catering areas.	No data	No data
Land-use and biodiversity							
Sustainable Building Standards	Enhance campus biodiversity	Green roofs on campus at arts block, Long Room Hub and Biomedical Sciences Institute.	Green roofs.	None added.	None added.	Trinity Business School to have green roof (completed May'19)	Trinity Business School to was first NZEB building. Printing House Square (Oisin House, scheduled for completion Aug'20) residences. E3 centre in design stage with Well Standards and BREEAM excellent.
Pollinator plan	Enhance campus biodiversity	Campus pollinator plan being drafted.	NA	Drafted.	Completed and published. https://naturalscience.tcd.ie/pollinator/	Pollinator Plan in place	Pollinator Plan in place

Principle 3: To align the organization's core mission with sustainable development, facilities, research, and education should be linked to create a "living laboratory" for sustainability. On a sustainable campus, the built environment, operational systems, research, scholarship, and education are linked as a "living laboratory" for sustainability. Users (such as students, faculty, and staff) have access to research, teaching, and learning opportunities on connections between environmental, social, and economic issues. Campus sustainability programs have concrete goals and can bring together campus residents with external partners, such as industry, government, or organized civil society. Beyond exploring a sustainable future in general, such programs can address issues pertinent to research and higher education (such as environmental impacts of research facilities, participatory teaching, or research that transcends disciplines). Institutional commitments (such as a sustainability policy) and dedicated resources (such as a person or team in the administration focused on this task) contribute to success.

Topics	Goals and Initiatives		Results				
Priority topics (with units of measurement)	Objectives and targets (for...	Key Initiatives (in reporting year, and /or planned for the following and beyond)	Baseline	Performance 2016	Performance 2017	Performance 2018	Performance 2019
Topical Integration							
Sustainability in Courses	Increase sustainability focus in courses.	Sustainability is taught to undergraduates via the broad curriculum programme and via some course content i.e. engineering.	NA.	2 relevant broad curriculum courses open to undergraduates in area of sustainability. On-going review of general course content.	2 relevant broad curriculum courses open to undergraduates in area of sustainability. On-going review of general course content.	Website currently lists: - 15 undergraduate courses - an online course on Achieving Sustainable Development (5,000 participants) - 3 modules for Trinity Electives	Website currently lists: - 19 undergraduate courses - an online course on Achieving Sustainable Development (5,000 participants) - 7 modules for Trinity Electives
Sustainability Training	Induct all college users into Green Campus.	Induction for new staff and for Campus residents includes promotion of campus sustainability.	None.	Continuing to be expanded.	All new staff inducted into sustainable campus initiative.	285 new staff inducted on sustainability + approx 80% of 3,000 freshers	Continue to induct new staff inducted on sustainability + approx 80% of 3,000 freshers
Sustainability Focused Courses	Increase courses with sustainability education.	Review of all current courses and those with sustainability at their core.	NA.	Review continuing Including running open online courses in area.	Review continuing. New open online courses in sustainable development launched.	See above and https://www.tcd.ie/provost/sustainability/researcheducation/	See above and 14 postgrad courses up from 10 in 2017/18
Social Integration							
External Organisations	Increase green areas.	Linking with the Dublin City Council Greening the City initiative.	0	Continued contact with DCC.	Biannual meeting at executive level to discuss synergies and opportunities.	Continue to meet with DCC to liaise on cycling infrastructure; addition of Iveagh Sports ground provides 67,000m2 green space	1,780m2 pollinator friendly areas added
Green Campus Committee (GCC)	Increase the number of green events on campus.	The GCC run the annual green week for the university with events held each day to raise sustainability awareness across the campus community.	21 (2011)	Data collection under review.	Increase in green events during the annual green week.	Green events up to 123 in number in 2018	Green events up to 235 in number in 2019

Research & Education projects on Laboratory/IT facilities and sustainability							
LabCup software – chemical management trial.	Facilitate living lab & support sustainable start-ups.	LabCup was trialled in the campus to help reduce hazardous waste generation and improve safety.	0	Further roll out and expansion.	Embedded and training for staff.	Hazardous biological and chemical waste down 4.5% for two consecutive years	Hazardous biological and chemical waste up 17.5% vs previous year
Commitments and resources for campus sustainability							
Green Campus Committee (GCC)	Student involvement.	The GCC is made up of staff and student volunteers (approx. 20 people) who run the annual Green Week and the University's Green Flag programme.	NA	The Green flag award and status was successful for another 3 years.	The Green flag award interim review (retained).	GCC continue to maintain green flag status, host green week and discuss sustainability initiatives and engagement strategies	GCC continue to maintain green flag status, host green week and discuss sustainability initiatives and engagement strategies
Green Campus Co-ordinator	Running Green Flag reporting.	Data collection, TCD GreenPages website updates and reporting.	1	Additional external support provided.	Additional external support provided via communications support.	Green Campus report completed Jan 19; In addition this Annual Sustainability report has been completed for 4th consecutive year	Green Campus report completed Jan 19; In addition this Annual Sustainability report has been completed for 5th consecutive year
Sustainability Task Force	Joining ISCN & annual sustainability reporting.	Initial database creation for sustainability data including energy, waste, water, transport, etc.	NA	Research into creation of TCD Sustainability Task Force is continuing with the development of its scope and composition. Due to report directly to the University's Provost.	Application to ISCN commenced. Annual report 2017. Provost Advisory Group Established.	Provost's Advisory Committee on Sustainability (PACS) established, co-chaired by the registrar as "Sustainability Champion" and support by "Sustainability Advisor" Michele Hallahan	Provost's Advisory Committee on Sustainability (PACS) established, co-chaired by the registrar as "Sustainability Champion" and support by "Sustainability Advisor" Michele Hallahan

Annex 2 - Green Flag Campus Report

This annex is used to provide any additional material required for the annual update to An Taisce for the Green Flag campus programme.

1. Green-Campus Committee

<https://www.tcd.ie/provost/sustainability/greencampuscommittee/>

2. Environmental review

<http://www.tcd.ie/provost/sustainability/initiatives/>

3. Action plan

See section 1 – 9 of the annual sustainability report.

4. Monitoring and evaluation

See section 1 – 9 of the annual sustainability report.

5. Link to learning on campus

<https://www.tcd.ie/provost/sustainability/researcheducation/> & <https://www.tcd.ie/OnlineEducation/free-online-course/>

6. Informing and involving campus and wider community

<http://www.tcd.ie/provost/sustainability/initiatives/communicationstudentinvolvementtransparency/>

7. Green Charter

<http://www.tcd.ie/provost/sustainability/policies/>
