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

Sustainability Report 2019/20

2030: Time for a Game Change

tcd.ie/provost/sustainability/

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This report covers the 2019/20 academic year (Sep. 2019 – Aug. 2020), except for energy, waste and water which are reported for the 2020 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.

“The most important thing each of us can do for the climate and biodiversity crises is to have conversations about them. Regardless of your level of knowledge, at least begin the conversation with friends and family,
acknowledge what is happening and discuss what is possible.”

Michele Hallahan,
Sustainability Advisor to the Office of the Provost

Acknowledge what is happening and discuss what is possible: 2020 HIGHLIGHTS

ENERGY & CLIMATE

Versus 2006-08 baseline: **39.8%** Improvement in Energy Efficiency, **29.9%** Decrease in energy-related CO_2 emissions, **15.2%** Renewable Energy (mainly grid electricity)

Versus 2019: **11.1%** Improvement in Energy Efficiency, **14.6%** Decrease in energy-related CO_2 emissions, **7.5%** Decrease in Renewable Energy

WASTE & RECYCLING

43.9% Recycling rate

41% decrease in total waste generated vs 2012

50.3% decrease in waste/person

22.7% decrease in hazardous waste vs 2012

WATER & WASTEWATER

61.9% reduction in water use versus 2006-08 Baseline (31.4% decrease vs 2019)

71.8% Reduction in water/person versus Baseline

SUSTAINABLE TRANSPORT

99% of Staff and Students Use Sustainable Transport for Commuting

Covid-19 has resulted in dramatically reduced commuting with students wanting to walk, and staff to cycle

RESOURCE USE & FOOD

69.1% Reduction in Paper Use vs 2011 (-28.5% decrease on previous year)

48% decrease in bottled water cooler use for 2020 vs 2011 (-50% decrease vs last yr)

TREES & BIODIVERSITY

2,200+ Total Trees Across University Grounds & New Grounds Added

Campus Pollinator Plan supported

GREEN PROCUREMENT

87% of key tenders issued reference environmental standards

51 out of 100 tenders had green award criteria

EDUCATION & RESEARCH

All new staff and 88% of freshers, postgraduates and visiting students inducted on sustainability

Growing research on SDGs and Civicly Engaged works and projects

Green pages highlight sustainability courses on offer

COMMUNICATION & STUDENT INVOLVEMENT

18th 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 17 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 14th best university in the world when it comes to the UN's Sustainable Development Goals (SDGs) in the 2020 University Impact Rankings from *Times Higher Education*. Trinity was ranked 52nd out of 377 universities for climate action and 29th for partnerships with other organisations out of 808 universities. 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 sixth annual Sustainability Report and it is entitled "2030: Time for a Game Change." 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 sixth annual sustainability report. Much has happened since our previous Sustainability Report, in particular:

- **Political Landscape:** With the Green Party in the coalition government we are awaiting the Climate Action and Low Carbon Development (Amendment) Bill 2021 to be enacted which will yield more ambitious climate action plans for the country on an annual basis and will introduce carbon budgets. It is expected that all public bodies will be required to report progress on an absolute carbon reduction target of 50% reduction by 2030.
- **New Buildings:** Coupled with the challenge of decarbonisation there are expectations for more space. We are 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 (Oisin House, scheduled for completion 2021, BER A2, BREEAM Excellent). The E3 Learning Foundry will also be an NZEB building with BER A3 and BREEAM Excellent ratings, and heritage building projects in the pipeline include the Rubrics and Chief Steward's House, and the Old Library. The Rubrics and Chief Steward's House will be substantially refurbished to NZEB within constraints of listing. Notably both will apply renewable heating without onsite fossil fuel using ground source and air source heat pumps.
- **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/)

This report brings to a conclusion all of the targets we set to 2020 when we started out on this journey. While we have made strides in some areas of sustainability, challenges still remain. Of the 37 targets we initially set ourselves we have achieved or got very close to achieving 28 of them. 2 targets are off track and another 7 have proved unclear or difficult to measure. We are now in the process of updating our objectives and targets to 2030 with interim 2025 targets under each of the nine sustainability themes in this report, and we are also measuring our carbon footprint. Increased resourcing will be required if we are to meet our aspirations to 2030. Sustainability and Low Carbon Living are firmly embedded in our 2020-2025 strategic plan. However the challenges are getting ever more urgent and we must continue to demonstrate leadership through action in our own university, and research and advocacy on a national and global scale.

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 (2020-2025: https://www.tcd.ie/strategy/ particularly Priority and Cross Cutting Goals 5 and 7). 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. As we have reached the end of 2020, new targets are being devised to 2025 and 2030

The 2020-2025 strategic plan is based on a CORE Mission

Our Mission

This Strategic Plan will shape the future of this university to benefit Irish society and the wider world. The plan's title, 'Community and Connection', reflects our conviction that, in an increasingly interdependent world, we need to work together more intensely and in new ways to address the formidable challenges facing us.

Civic action

Through our teaching, research and public engagement, we courageously advance the cause of a pluralistic, just and sustainable society.

Organisation

We foster an effective and flexible organisation, which values all members of our community.

Research

Pursued at the frontiers and intersections of disciplines, our research benefits our students, Ireland, and the world.

Education

We challenge our students to think independently, communicate effectively, act responsibly, and develop continuously, equipping them for lives of active citizenship.

Priority 2: Research for impact and sustainability

As Ireland's leading research organisation, we position "research at the heart of the university" and will "stand up for research", as articulated in our recent Living Research Excellence Strategy

> *Underlying all of this activity is a deeply-felt sense that, as members of a university community, we have a unique privilege in being able to shape the future for the better. In order to give this ethical core a point of focus over the next five years**, we have set ourselves a grand challenge: 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.** The E3 initiative, in both its teaching and research phases, addresses these challenges directly; tackling the UN Sustainable Development Goals will, however, require sustained collaborative research across all disciplines that involves the Sciences, Health Sciences, Social Sciences, and Arts and Humanities together. Beyond research and teaching, however, we are deeply committed to sustainability in terms of how we live as a community, and we will continue to find new and creative ways to make our world fairer, healthier and more sustainable, whether it is in our adoption of sustainable commuting and working practices, or how we invest.*

Cross cutting goal #5: We will shape our organisation and focus research around the challenge of achieving a sustainable and healthy planet.

- ✓ 5.1 Commit to strong ethical leadership in all we do, from research to staff development and throughout the activities of our entire university community. [DR; RG]
- ✓ 5.2 Create a UN Sustainable Development Goal Hub using our research data to monitor research in all fields linked to the UN SDGs. [LRES; SST]
- ✓ 5.3 By July 2021, have set targets for the significant reduction of our carbon footprint. [DR; RG]
- ✓ 5.4 Provide leadership in sustainability through improvements in energy use, reduction in waste including single use plastics, promoting areas such as sustainable transport and biodiversity, and ensuring all new buildings are based on sustainability principles. [SST]
- ✓ 5.5 Support and conduct civically-engaged research thereby increasing the number of research outputs connected to UN SDGs by 20% by 2025. [LRES; SST]
- ✓ 5.6 Promote civically-engaged research across the university and host public engagement events relating to the UN SDGs in our schools and research institutes, highlighting to the wider public and policy makers the impact of our work. [LRES]
- ✓ 5.7 Introduce new funded Ph.D. scholarships in line with UN SDGs. [LRES, PC]
- ✓ 5.8 Build the teaching programmes and research projects of the CHARM-EU alliance around the grand challenge of "Reconciling Humanity with the Planet". [LRES; GRS3]
- ✓ 5.9 Achieve an Athena SWAN Silver award by 2025. [AS]
- ✓ 5.10 Integrate the SAGE Charter for gender equality into our policies and practices by 2021. [AS]
- ✓ 5.11 Contribute, as part of the Global Brain Health Institute, to the goal of having 125 Atlantic Fellows for Equity in Brain Health working globally by 2022 to create a zealous, creative community of leaders combining to reduce inequities in the field of brain health. [GBHI]

Cross cutting goal #7: We will develop and inhabit our space responsibly.

- ✓ 7.1 Launch, by 2022, the masterplan for Trinity @ Grand Canal Quay, part of the Grand Canal Innovation District initiative, providing infrastructure for new research linking Engineering, Environment and Emerging Technologies. [E3; T@GCQ]
- ✓ 7.2 Complete work on a new generation teaching space enabled by philanthropy, the Martin Naughton E3 Learning Foundry, in 2023, providing a home for the E3 project, uniting the Schools of Computer Science and Statistics, Engineering, and Natural Sciences. This building will achieve Well Building standards and BREEAM excellence. [E3; ES]
- ✓ 7.3 Develop plans for a new Law School with new and enhanced learning and research facilities. [LSDP]
- ✓ 7.4 Complete architectural plans for and begin the conservation and redevelopment of the Old Library, including a new Research Collections Study Centre and new Exhibition Visitor Centre. [ES; LS]
- ✓ 7.5 Develop plans for the new collaborative off-site Collections Resource Centre, thereby improving the environment for our collections and enabling the re-imagination/re-configuration of our contemporary library spaces. [ES; LS]
- ✓ 7.6 Refurbish, by early 2023, the campus's oldest building, the Rubrics, and Chief Stewards House, providing new student and staff accommodation and a research space for Fellows Emeriti. [ES]
- ✓ 7.7 Begin developing the new Trinity St. James's Cancer Institute. [TSJCI]
- ✓ 7.8 Redevelop our sports facilities and infrastructure at Iveagh Grounds. [ES; TCDSU]
- ✓ 7.9 Commit to a programme of continual improvement and uniformity of standards of our learning and teaching spaces, facilitated by improved data around the use and condition of the spaces ensuring more effective management for a better student experience. [TEP; CSD]
- ✓ 7.10 Encourage sustainable transport and biodiverse rich areas on campus. [SST]
- ✓ 7.11 Ensure that our built structures accommodate staff and students in an inclusive manner. [D&I; ES]

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	↑ On Track
1.4. Prepare for Climate Change (Mitigation & Adaptation)	1.4. To Create a Climate Change Action Plan	→ Close to Track

Our Progress:

- ✓ Energy efficiency improved by 32.2% in 2019 despite an increase in built area of 32%; by 39.8% in 2020 because of Covid-19. Verified & published by SEAI here.
- ✓ Energy-related carbon emissions reduced by 4,633 tCO_2e in 2019 and by 7,732 tCO_2e in 2020 from a 2006 – 2008 baseline.
- ✓ In absolute terms main island campus electricity consumption has fallen from 28,000,000 kWh in 2011 to 22,500,000 kWh in 2019. Representing a 20% reduction and value of €700,000 in 2019.
- ✓ Cumulative saving on the island campus over the 8 years of 25,000,000 kWh or a cumulative value of €3.2M
- ✓ Climate Change Action Plan is work in progress (expected end Jun 2021)
- ✓ 2020 flight emissions booked through travel management company down 74% vs 2016 because of Covid-19 restrictions. Commencing collation of expensed flight data, which is additional to flights booked through the travel management company (incomplete expensed flight data on graph below).

Challenges:

- △ New Public Sector targets for 2030, as indicated in the 2020 Programme for Government (awaiting SEAI's M&R methodology to 2030):
  - 50% "absolute" carbon reduction target related to energy. We are looking to understand what this new target measured in tCO_2e means and how it will impact the operation and development of the University. Ongoing discussion with SEAI, DECC, IUA and U9.
  - 50% "relative" improvement in energy efficiency measured in kWh/Research Equivalent Floor Area (an annual average 1.7% improvement post 2020)
  - All public buildings to achieve a Building Energy Rating (BER) of B by 2030. Protected structures would be exempt from this requirement, but still must be decarbonised.
- △ Covid-19: The pandemic restrictions have resulted in reduction in on site activity since mid-March 2020. On the island campus alone annual electricity consumption has fallen by 17% in comparison to year 2019.
  - Electricity: Some buildings show marginal reductions in electricity due to fact that activity changed very little such as TBSI. Other smaller building such as the School of Nursing showed greater reductions in electricity of 29% over the year.
  - Heating: Thermal energy is predominately natural gas and did not change significantly as requirements remained to keep buildings at a minimum temperature to protect fabric. Several buildings moved to extended hours of operation to facilitate requirements of exceptional Covid-19 demands.

Significantly many buildings remained operational with limited number of personnel. This low occupancy requires a dispropionate amount of the heating plant to remain operational.

For information about Trinity's energy progress, visit the Sustainability GreenPages website

Annual Highlights:

- ✓ **Aras an Phiarsaigh:** LED lighting with occupancy controls on 3rd & 4th floors, improved heating controls and more efficient split AC units
- ✓ **Moyne Institute:** Partial replacement of windows with high performance double glazing and spandrel panels
- ✓ **Chemistry Building:** Boiler replaced with high efficiency condensing gas boiler to serve both Chemistry and Anatomy buildings
- ✓ **PC Huts:** Legacy Computer Science 2-story poorly insulated temporary structure beside ISE Loyola removed. Relocated to a refurbished part floor in Trinity Central with LED lighting and occupancy control.
- ✓ **Trinity Hall:** LED lighting replacement in apartment kitchen areas
- ✓ Secured a SEAI grant under a **HEA Energy Efficiency Decarbonisation Pathway Programme (EEDPP)** to replace part LED lighting, improved heating controls and install an Air Source Heat Pump (ASHP) as a bivalent heating source. Currently under design development, and to commence Q3 2021
- ✓ **Rubrics and Chief Steward's House:** Upgrade fabric insulation upgrade, window infiltration, low temperature heating system and full LED lighting, and install a Ground Source Heat Pump (GSHP) to serve the Rubrics, the oldest building on campus; Similar work to Chief Steward's House but with an Air Source Heat Pump (ASHP) as sole renewable heating source. Both projects go to tender in year 2020/21

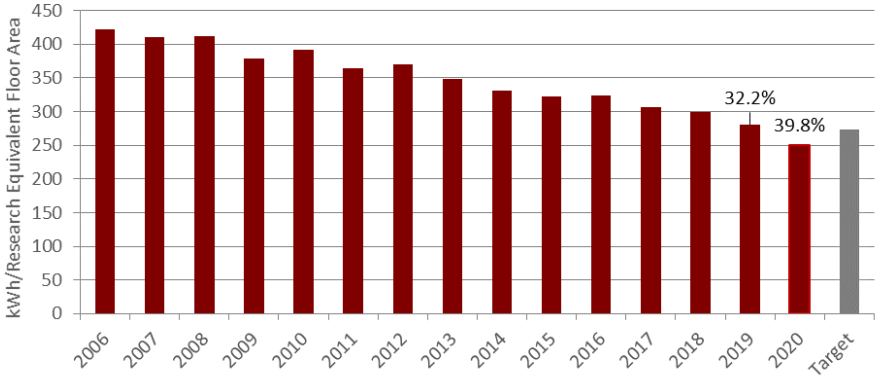
Moyne Institute: Window replacement (photo: Kieron McGovern)

Chemistry & Anatomy Buildings: Boiler upgrade front (left) and back (right)
(photo: Kieron McGovern)

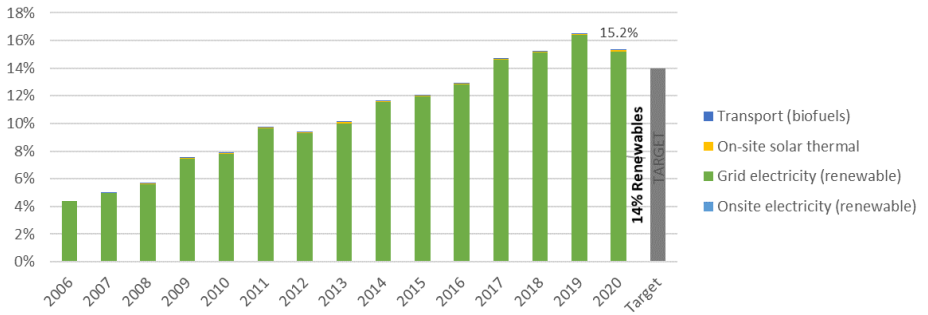
Aras an Phiarsaigh: LED lighting with occupancy controls (photo: Kieron McGovern)

Energy & GHG Data (by calendar year)

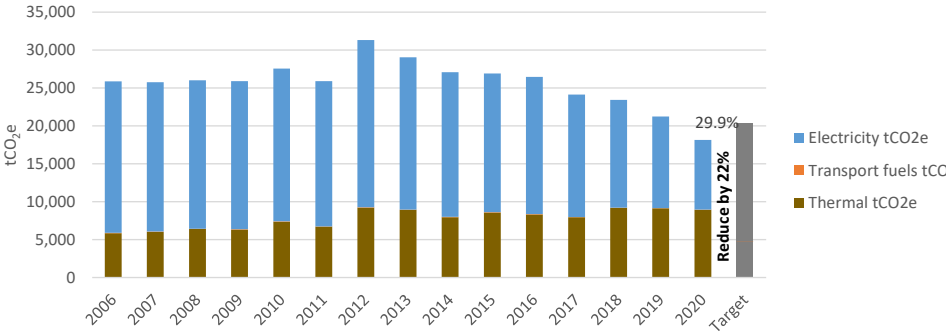
Target 1.1: 33% Increase in Energy Efficiency by 2020



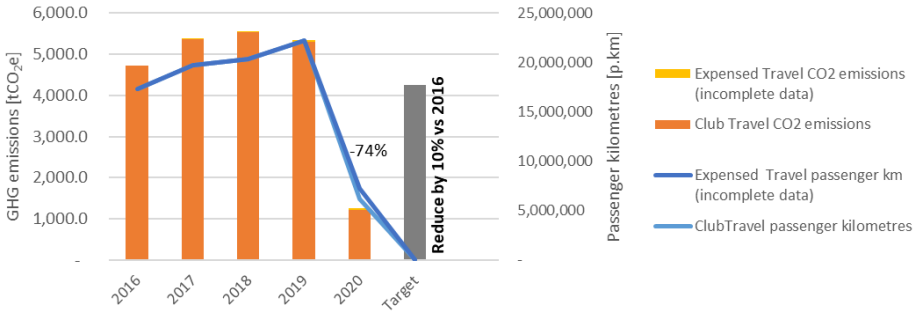
Target 1.2: 14% Renewable Energy Share by 2020



Target 1.3a: 22% Reduction in Energy-Related CO2 Emissions by 2020



Target 1.3b: Reduce Flight Emissions



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	↑ On Track
2.2. Increase Recycling & Reuse	2.2. 50% Recycle for Municipal Solid Waste by 2020	↓ Off 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	↑ On Track

Our Progress:

- ✓ Total waste is 41% lower than our 2012 baseline or 50.3% lower on a per capita basis. This is primarily due to Covid-19 with less people generating waste on site, although the impact of waste reduction initiatives against a growing population is evident from the graph during 2018 and 2019.
- ✓ 43.9% recycling rate in 2020, and generally between 40% and 50% since 2014.
- ✓ Zero municipal waste to landfill since Apr'17 as this waste stream is now recovered as to waste-to-energy (incineration at Poolbeg, Dublin Port)
- ✓ Trinity awarded litter free status 2012
- ✓ 22.7% reduction in hazardous waste compared to our 2012 baseline, mainly due to reduced collection activity during Covid-19. Note that hazardous waste may rebound in 2021/2022 as restrictions lift.

Challenges:

- △ A waste audit by RPS was completed in Feb'20 and identified that 70% of the content of black (rubbish) bins was found to be recyclable or compostable
- △ Still little control over production of hazardous waste, although LabCup was relaunched with some optimism that it will drive change

Annual Highlights:

- ✓ Better World Books: 1,339 books donated, of which 802 books accepted and 537 books were recycled or donated
- ✓ Segregated bins in place in all catering outlets for waste
- ✓ Reverse vending machines to be located throughout campus shortly

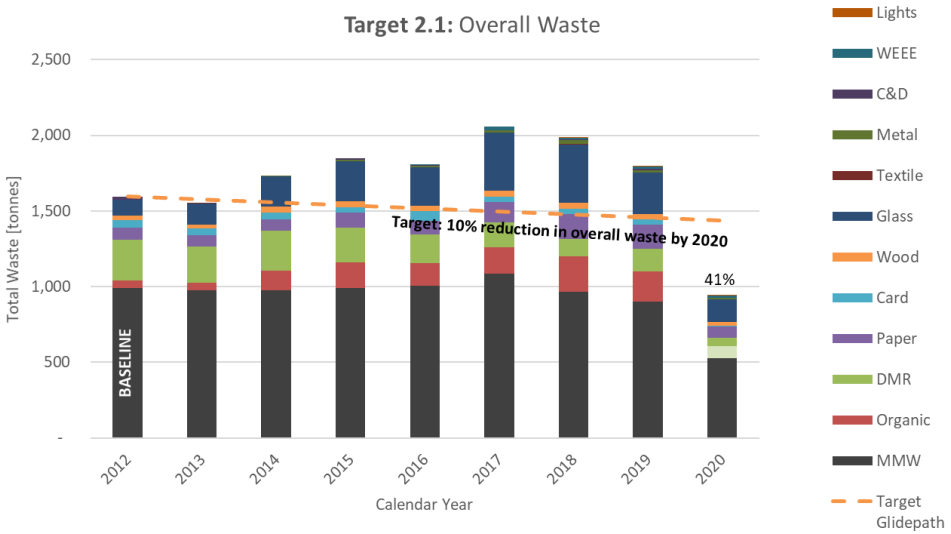
Get Involved & Learn More:

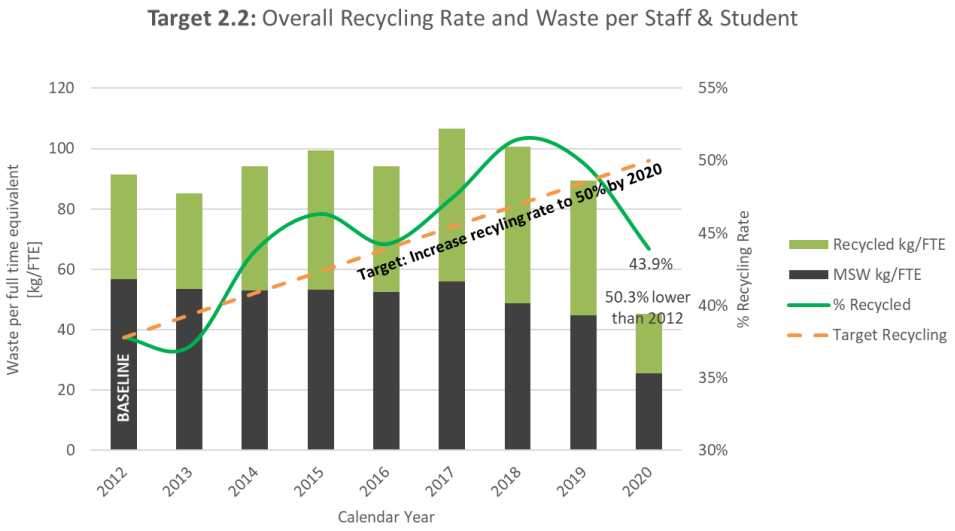
- Remember the golden rule to recycling plastics: if it is soft enough to stuff into your jeans pocket, it cannot be recycled. Make sure to bin soft plastics always.
- All catering outlets on campus offer a discount on reusable cups, so use a travel cup to save on waste and money.
- Pay attention to 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

Reverse Vending Machines being considered by Catering

Waste Data


Target 2.1: Overall Waste
Total Waste [tonnes]
2,500
2,000
1,500
1,000
500
-
BASELINE
Target: 10% reduction in overall waste by 2020
41%
2012
2013
2014
2015
2016
2017
2018
2019
2020
Calendar Year
Lights
WEEE
C&D
Metal
Textile
Glass
Wood
Card
Paper
DMR
Organic
MMW
Target Glidepath


Target 2.2: Overall Recycling Rate and Waste per Staff & Student
Waste per full time equivalent [kg/FTE]
120
100
80
60
40
20
0
BASELINE
Target: Increase recylingrate to 50% by 2020
43.9%
50.3% lower than 2012
55%
50%
45%
40%
35%
30%
% Recycling Rate
2012
2013
2014
2015
2016
2017
2018
2019
2020
Calendar Year
Recycled kg/FTE
MSW kg/FTE
% Recycled
Target Recycling


Target 2.5: Hazardous Waste [kg]
kg
60,000
50,000
40,000
30,000
20,000
10,000
-
Target: 10% reduction in hazardous waste by 2020
22.7%
2012
2013
2014
2015
2016
2017
2018
2019
2020
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 2014
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:

- ✓ 61.9% reduction in total water use vs 2006-2008 baseline, or a 31.4% reduction vs 2019 prior to Covid-19
- ✓ Water use per full time staff and students is distorted because of Covid-19 but was 71.8% better in 2019 vs 2006-2008 baseline

Challenges:

- △ No current means of measuring groundwater, rainwater harvesting, grey water recycling or wastewater quality leaving Trinity sites
- △ No meters on the following wells:
  - Iveagh grounds well - used for the few pitches and a connection to the clubhouse in case of emergencies
  - Santry well - used for the hockey and GAA pitches

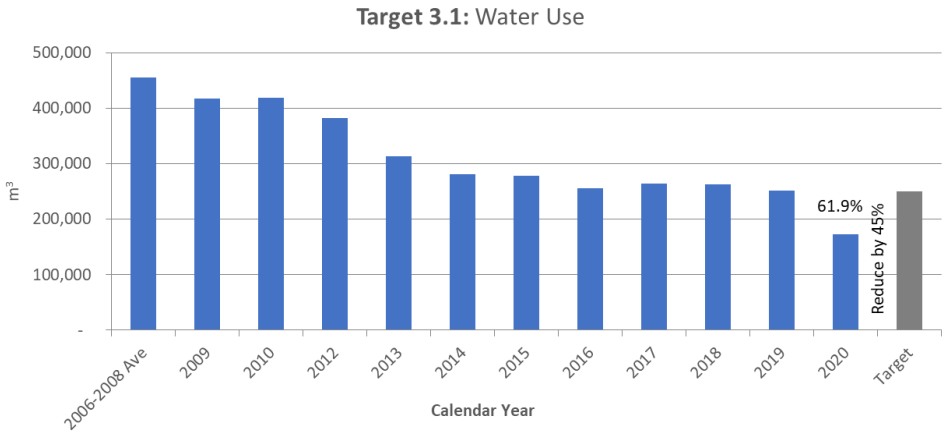
Annual Highlights:

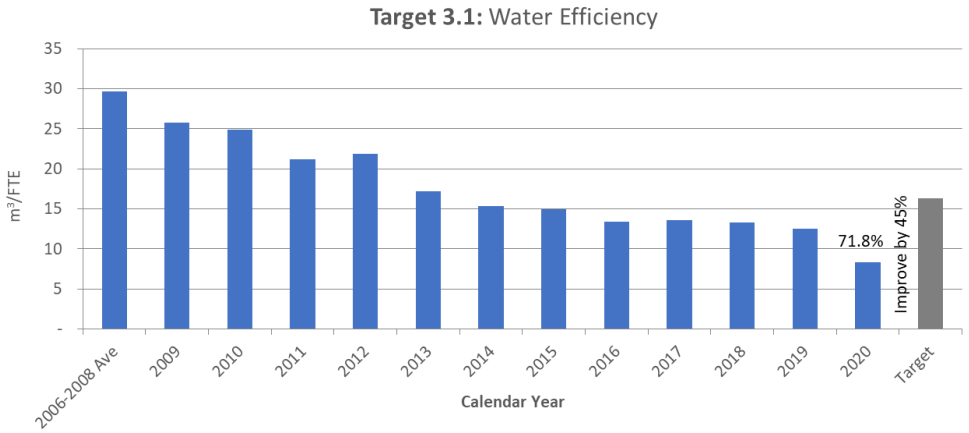
- ✓ The well at the rear of the O'Reilly now services the rugby pitch, reducing requirement for mains water. This well is also used for other campus maintenance operations e.g. power washing outdoor watering etc.

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





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:

- ✓ With Covid-19 forcing remote working and studying, daily commuter activity was significantly down in 2020
- ✓ A travel survey in Jun'20 asked participants what travel mode they would use post Covid-19 and the results of this are displayed in the graph overleaf. According to this survey (n = 2,653), which presumably reflects the fears of Covid-19 transmission in public transport:
  - Walking would remain relatively static at 27% but cycling would increase from 14% to 27.8%, provided safe, segregated cycling infrastructure is provided by the Dublin Local Authorities
  - Overall public transport share (bus, Luas, train, DART) would shrink from 58% to 26.7%
  - Car would increase from 1% to 15.6%
- ✓ 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:

- △ Post Covid-19: In aggregate, the recent travel survey would mean that only 81.8% would use sustainable modes of transport, down from 99% in the Mar'19 online travel survey
- △ Safe segregated cycling is still required in Co. Dublin, with 4 main routes of primary importance to staff and students travelling to the main campus identified by Healthy Trinity as follows:
  - Trinity Hall (1,200 students)
  - St. James Hospital
  - Pearse St. - No obvious pathway like Bus Connects exists through which we can influence this route
  - Nassau St.
- △ Cycling to Tallaght is not safe
- △ 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:

- ✓ Secured €100,000 funding from NTA for bicycle facilities at St. James (Sheffield stands and showers) in Nov'19.
- ✓ Liveable Dublin Event: Over 60 people attended and made over 280 suggestions for changes to Dublin to make it more liveable.
- ✓ 4 submissions made advocating wide footpaths & safe, segregated cycle tracks:

- The group is advocating for a liveable Grand Canal Innovation District (GCID) campus with wide footpaths and a segregated cycle track from the College Green campus to GCID.

✓ **Trinity Hall Mobility Management Plan:** Smarter Travel Committee made some inputs into the development of Trinity Hall. We know Trinity Hall residents want cycling because of the results of our 2019 travel survey.

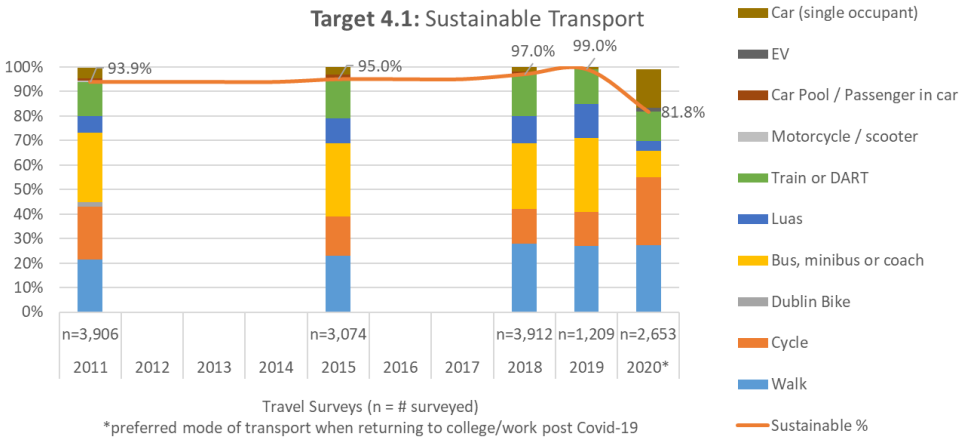
✓ **Travel Survey** with Brian Caulfield on what commuters want. Students want to walk, staff to cycle.

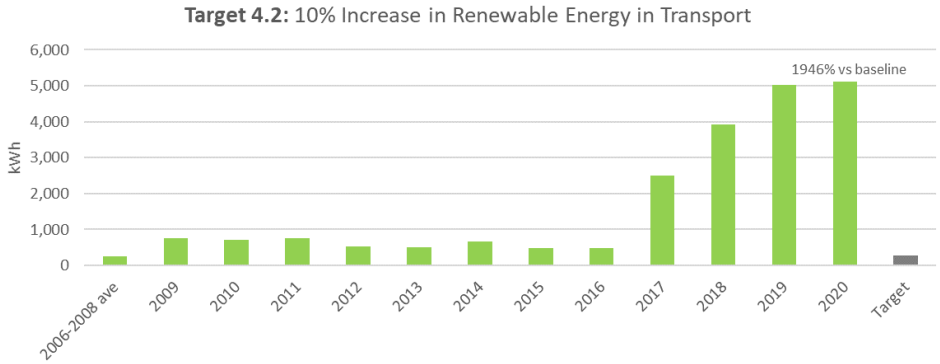
✓ Transport policy to Support Social Distancing as Dublin reopens after Covid-19 Restrictions

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





Cycling for All video featuring graduate Ronan Griffen who highlights that for those who can't drive, cycling is a fast alternative that gives great freedom (Feb'20)

Liveable Dublin Lunchbox Lab (Nov'19)

New Bicycle parking facilities around the Berkeley Library

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	➔ Close to 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:

- ✓ 69.1% reduction in paper use since 2011, although still using 7.327 million pages in 2019/20 with half this time period during Covid-19 restrictions
- ✓ 48% reduction in water drums and consequent reduction in the use of disposable cups
- ✓ The last graph overleaf also shows a move from single use plastics to paper cups at water drum stations, transition completed in the 2019/20 financial year

Challenges:

- △ Covid-19: Reopened in Aug 2020 with entirely takeaway offering. While volumes are down, the % disposables and packaging is up as all items must be individually wrapped. Cannot offer jugs of water and therefore 7oz disposable glass are down
- △ Managing expectations: Demand for increased vegetarian/vegan options must be balanced, as some people still want meat in their diet
- △ Cost of supply, e.g. still buying in compostable single use items albeit at a green premium, e.g. 72c green premium over standard single use items for knife, fork, spoon, box, soup container and bag
    - Must opt in for packaging as catering trying to bring the use of packaging down
- △ Grow it yourself polytunnels - H&S of food requirements make these suggestions difficult to achieve
- △ Not collating data on sustainable sourcing of food (euro spend) or on disposable materials whether single use plastic or compostable (quantities)

Annual Highlights:

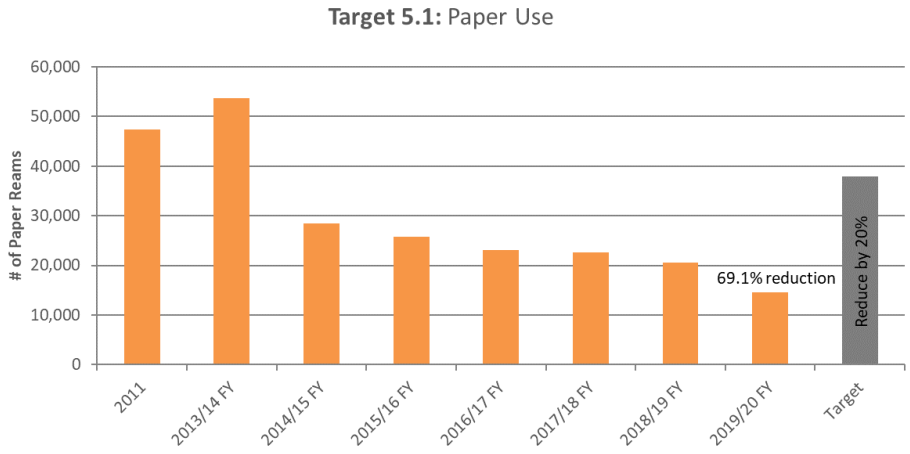
- ✓ All disposable items in catering are fully compostable
- ✓ "Conscious cup campaign", which promotes outlets that accept and incentivise customers bringing their own mug/cup (BYOM). Discounted rate in all catering outlets if you bring your own cup or use the 2GoCups which are for sale and accepted in all outlets (reduced price of €1.05 as opposed to €1.30 for Tea & €1.45 for Coffee served in a crockery mug or disposable cup). 2GoCup campaign: 1,000 cups and lids received 18th Nov and scheme launched 19th Nov 2019; Up to lockdown 1 (13th Mar 2020) 308 cups in, 104 cups out (€1 deposit paid when purchasing and returned when cup brought back for reuse)
- ✓ Catering has replaced all eggs with free range eggs as of 2019
- ✓ Consolidation of deliveries: down from 39 approx. per week to 17 per week

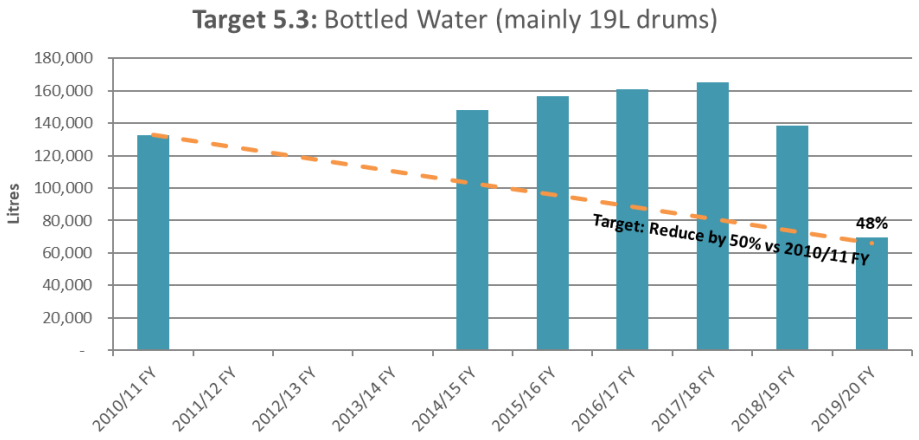
- ✓ Increased Vegan and Vegetarian offers:
    - Main menu was 3 options of which 1 vegetarian/vegan, but over Green Week moved to 3 options of which 2 vegetarian/vegan
    - Increased offering such as vegan scones, sausage rolls, burgers, soups, etc
    - The Perch Cafe in the Arts Block will become a vegetarian café in 2021.
- ✓ Commercial Revenue Unit (CRU) initiatives
    - Retail bags: Substitution of paper for plastic shopping bags for customers; A wide selection of cotton tote bags are also now on offer
    - Retail clothing: We have encouraged our clothing suppliers to investigate the use of recycled cotton and recycled polyester in product production which is testing now
    - Continue to introduce sustainable product options/ranges: Supplier sustainability manifestos as part of the decision to collaborate and the insistence to the larger suppliers that they use recyclable packaging in deliveries, e.g. Carve-On – Recycled paper packaging to be introduced; Caulfield County Boards – Upcycled Trinity Wood Range; Traditional Craft recycled plastic bottle clothing options in the pipeline
- ✓ Sustainable Procurement Policy approved Nov'19: this was a major achievement and publishing the policy and guidelines has given the sustainable procurement programme more weight and focus.
    - Catering tender to have 10% points for sustainability as an award criteria

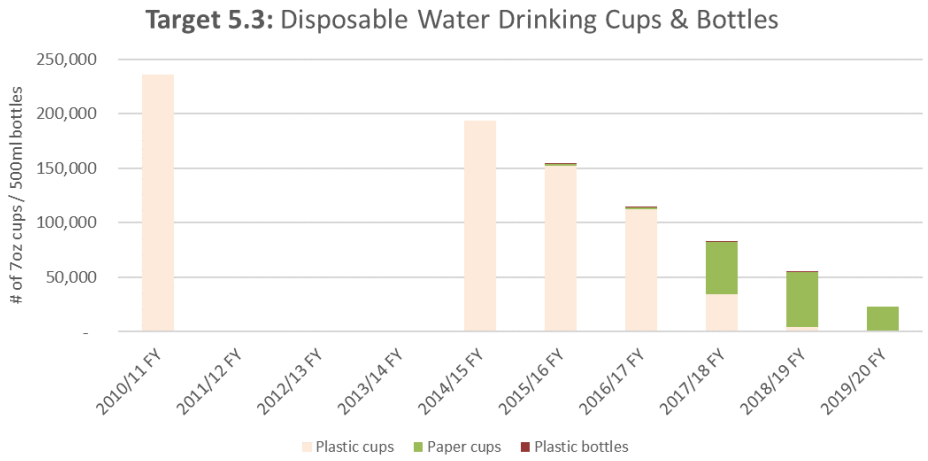
Get Involved & Learn More:

- 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







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:

- ✓ 84.8% 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)
- ✓ 41.4% of space is green with 33.5% more green area since 2011/12, mainly due to the purchase of Iveagh Sports Grounds site in 2017
- ✓ 17.4% of space is biodiverse or pollinator friendly (4.8% 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. A biodiversity audit is planned for the end of summer 2022.

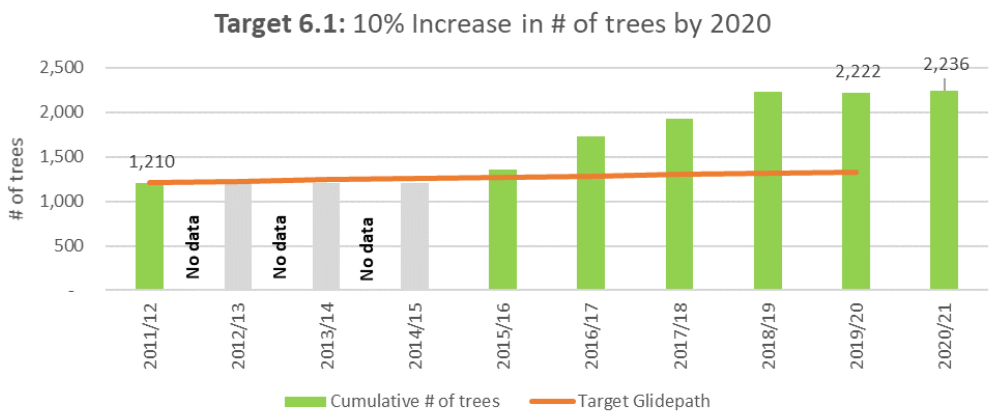
Annual Highlights:

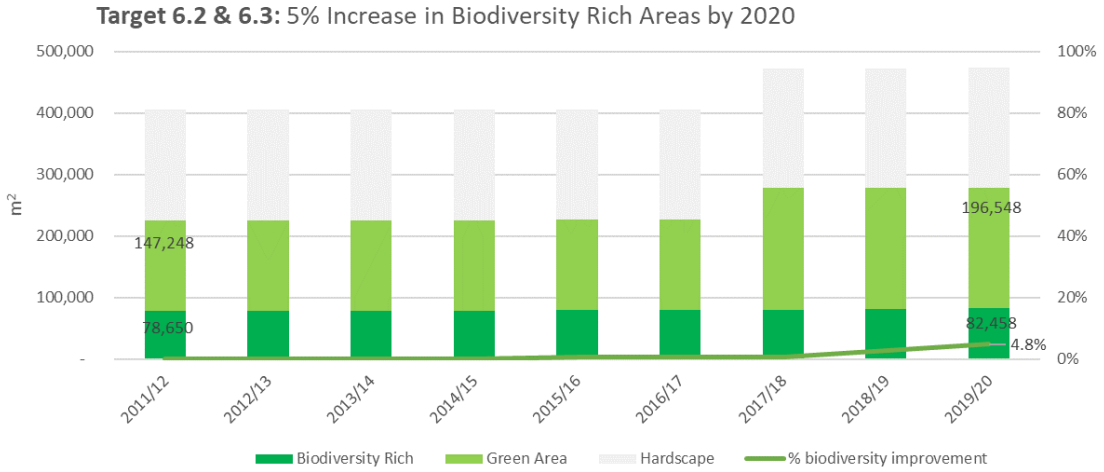
- ✓ Bulbs: One step closer student engagement programme (2,660) and Trinity (2370) planted 5030 bulbs in total
- ✓ Wildflowers: 7,000m^2 created
  - The Front lawns transformed into Wildflower areas, circa 650m^2 in total. Prof John Parnell, chair of Trinity's grounds and gardens committee and professor of botany, said the area in question is very formal in layout and has for at least 150 years been under grass. "To change it will send out a strong signal that Trinity College Dublin is not bound by the past but engaged with the future," he said.
  - 850m^2 Provost Lawn made a low mow area with 3 cuts per year, and 200m^2 wildflower improvement area at the O'Reilly Institute
  - Santry Demense: wildflower meadows in two areas beside the playing pitches and two Swales created, circa 5,000m^2 in total
  - Looking at redeveloping the old sedum roofs in the arts block into wildflower meadows, circa 350m^2 in total between the 5 beds
- ✓ Watts indoor atrium: Massive renovation of this abandoned atrium, logistically very challenging area; extremely successful transformation of the area, great response from those in the building

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







Staff Annex wildflower meadow (photos: John Parnell jnr)

Santry wildflower meadow areas outlined in yellow

Trinity planting new wildflower meadow on front lawn

7. Green Procurement

Objectives	Targets	Status
7.1. Increase Environmental Awareness of Suppliers	7.1. 100% Tenders Requested to Submit Environmental Information by 2020	➔ Close to Track*
7.2. Increase Green Criteria in Tender Marking	7.2. 10% Increase in the Number of Tenders with Green Award Criteria by 2020	☺ Achieved 2018^
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 87 out of 100 tenders
- ✓ Marks awarded for green criteria in 51 out of 100 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) and quantifiable criteria: Progress with regard to inclusion of green criteria in Trinity's tenders is bound by OGP, EPA and HEAnet rules. We are progressing nonetheless with inclusion of this criteria where possible and legal.
- ✓ 7.3: # EU Green Procurement Policy project has acknowledged the need for Whole Life Cycle Cost (WLCC) training to mitigate legal challenge to tender outcomes https://ec.europa.eu/environment/gpp/toolkit_en.htm

Challenges:

- △ Only 13 tenders out of 100 ran without sustainability applied, mostly for consultants, Financial services & recruitment where it's much harder to apply for the requirements.
- △ 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 engaged a consultant and the new system went 'live' in September 2020.

Annual Highlights:

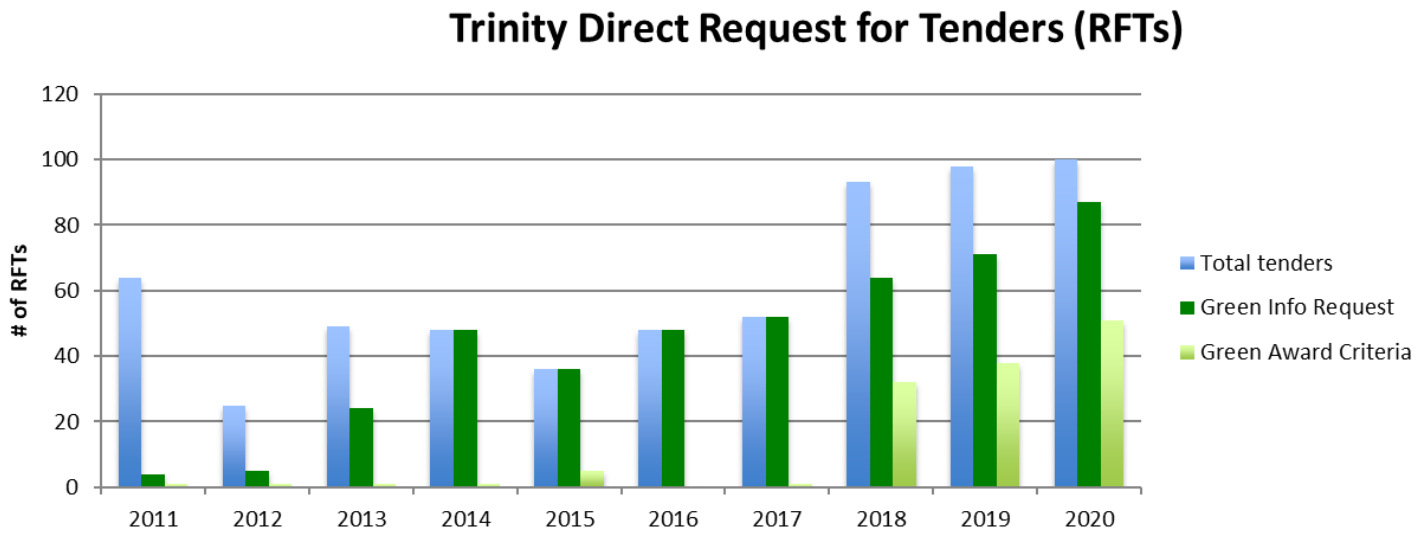
- ✓ Sustainable Procurement Policy was approved by board in Nov 2019
- ✓ The Printing House Square being constructed to and the E3 Learning Foundry at early design stage are to BREEAM Excellent standard
- ✓ Trinity continues to promote sustainability throughout its supply chain. This includes day-to-day 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.

✓ 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	➔ Close to 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	☺ Achieved in 2018
	8.5. Increase and Support Entrepreneurship in Area of Sustainability by 2020.	↑ On Track

Our Progress:

- ✓ Of 3,500 freshers, 3,000 postgraduates and 700 visiting and Erasmus students enrolled in 2020, about 88% were inducted to green campus
- ✓ Research IT now have a rich source of data that touch on the UN's 17 Sustainable Development Goals (SDGs) and on Civicly Engaged works and projects
- ✓ Sustainability Fund in 2020 accepted 14 applications and funded 8 in 2020 (€5,225 spent out of €9,055 allocation at time of writing 13/4/2021)
- ✓ 8 out of 33 launchbox alumni to date have set up businesses on sustainability topics since 2011/12 and this is growing
- ✓ Growing number of Climate KIC Startup Accelerator participants

Challenges:

- △ Induction during Covid-19 had to move online, but had the benefit that students could watch in their own time
- △ Courses and modules with sustainability content prove difficult to track as content rests with individual schools, and no sustainability oversight
- △ There are still over 3,000 existing staff that have not received the sustainability awareness presentation

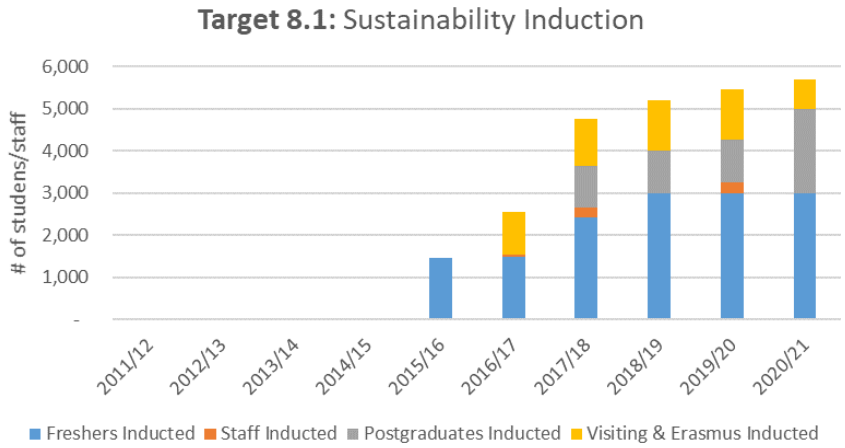
Annual Highlights:

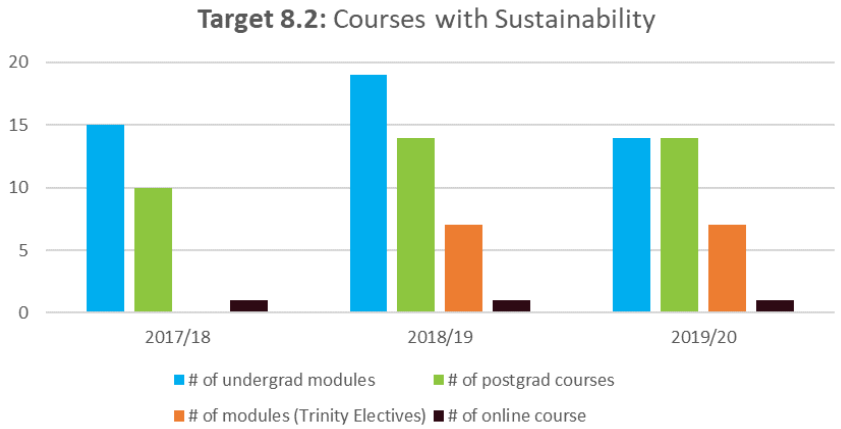
- ✓ Resident Sustainability Champions programme (pioneered in 2019 – 2020 AY and in its second year now) recruited 45 champions from Residences on campus (one from each house), and trained them in 5 topics: energy, water, waste, biodiversity and climate change. They in turn were provided with resources and acted as champions in their houses, to actively educate other residents on these topics.
- ✓ Food composting was piloted by the RSCs in 2020 in residences.
- ✓ Student sustainability Intern hired in 2020 for the summer months to support Sustainability Advisor.
- ✓ Sustainability training will be advertised to staff as part of the L&OD calendar
- ✓ The Provost's Innovation Challenge 2019 @ Tangent focused on Single Use Plastics: this challenge is a social innovation programme that provides supports, creative outlets, mentorship, and the chance to have a real impact on a global problem. The Provost's Challenge topic was voted by the college community, with Rezero, a deposit-return scheme for restaurants and eateries, winning the day. Rezero also went on to take part on LaunchBox

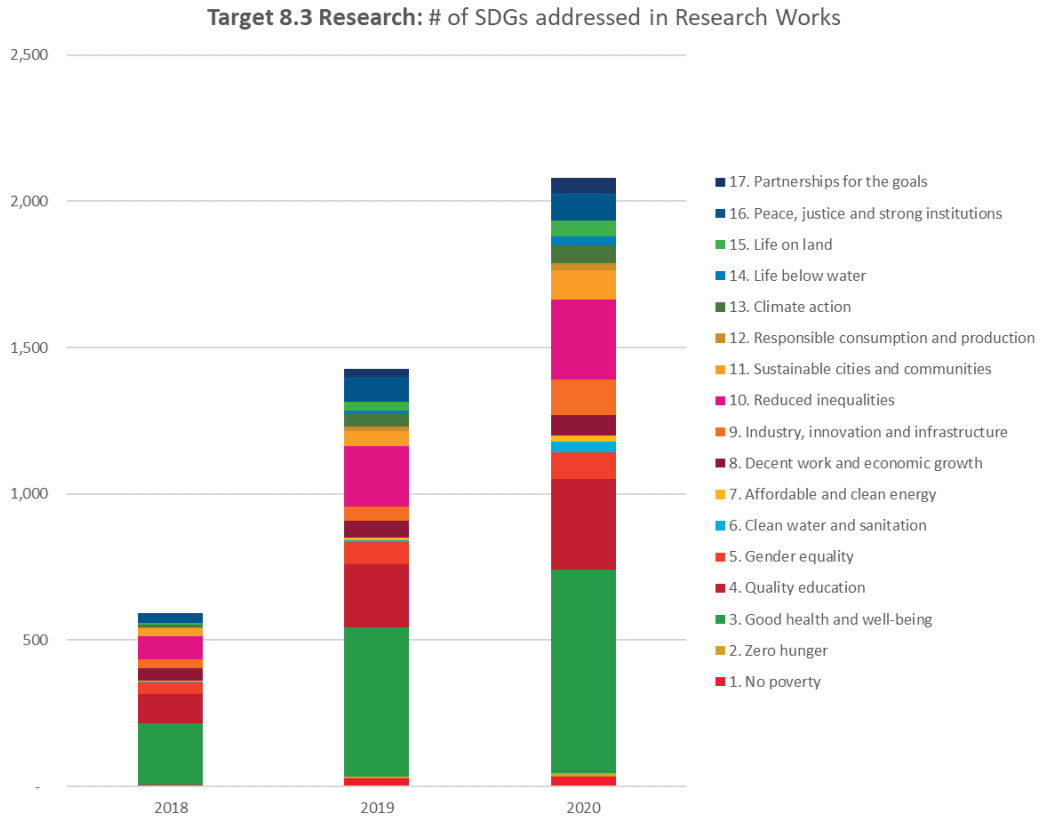
- ✓ LaunchBox 2020: Tangent's Student Accelerator saw 6 sustainability startups supported – including Ethicart, Rezero & CFlood.
- ✓ Tangent TV featuring 109 videos (as of April 2021) many of which are on sustainability related topics
- ✓ Running a programme, CIRCULÉIRE, for 5 circular economy companies in conjunction with Irish Manufacturing Research (IMR)

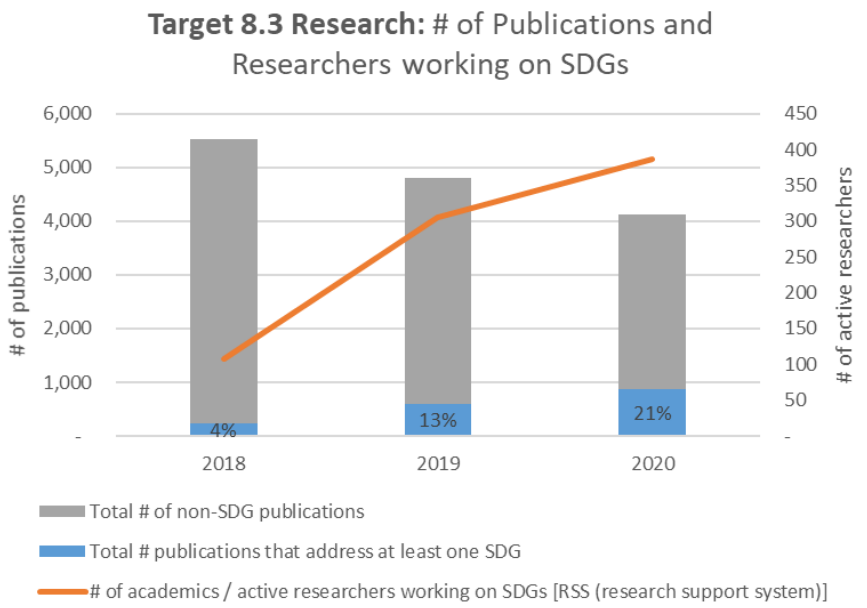
Get Involved & Learn More:

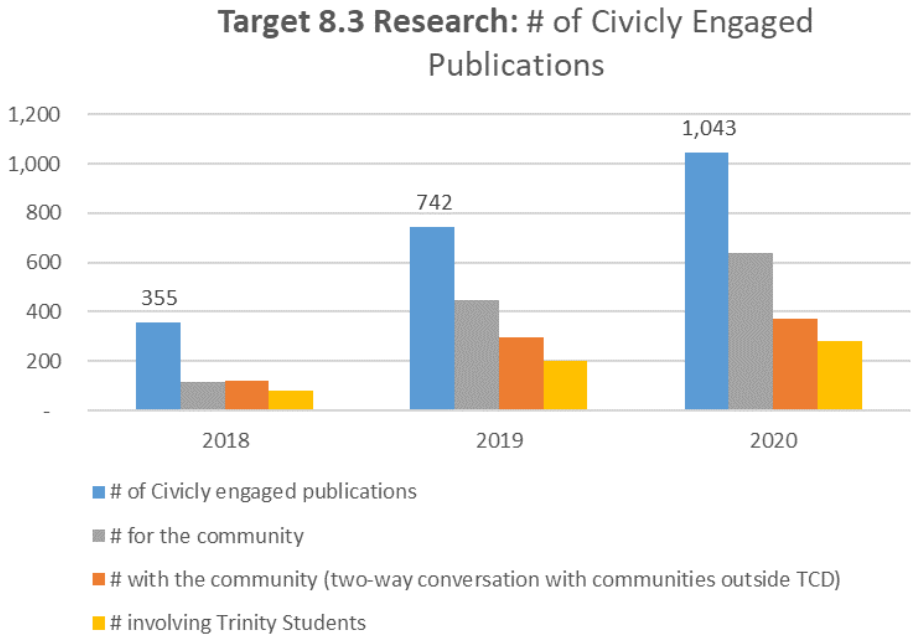
- Visit the sustainability greenpages website to induct yourself into the green campus programme (https://www.tcd.ie/provost/sustainability/).
- Get involved with the Green Campus Committee (https://www.tcd.ie/provost/sustainability/greencampuscommittee/)
- If you have a suggestion for increasing the 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 sustainably, 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.

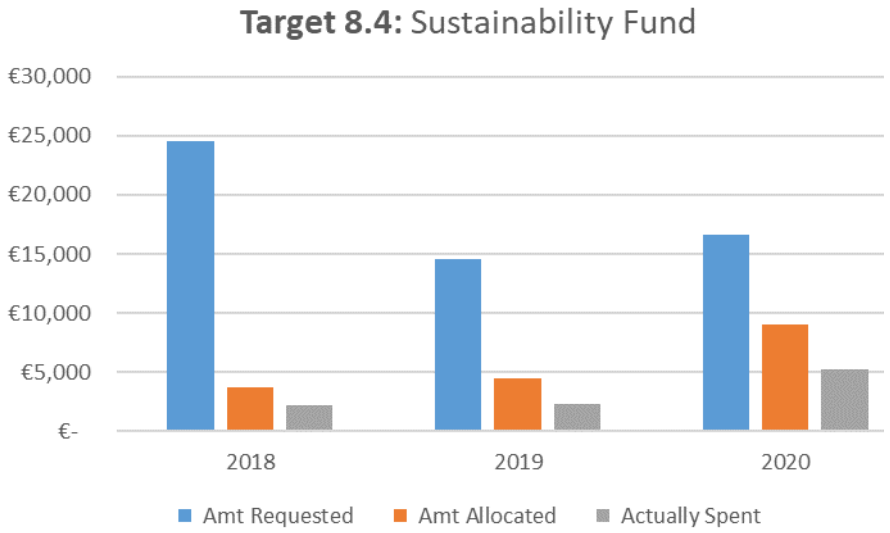


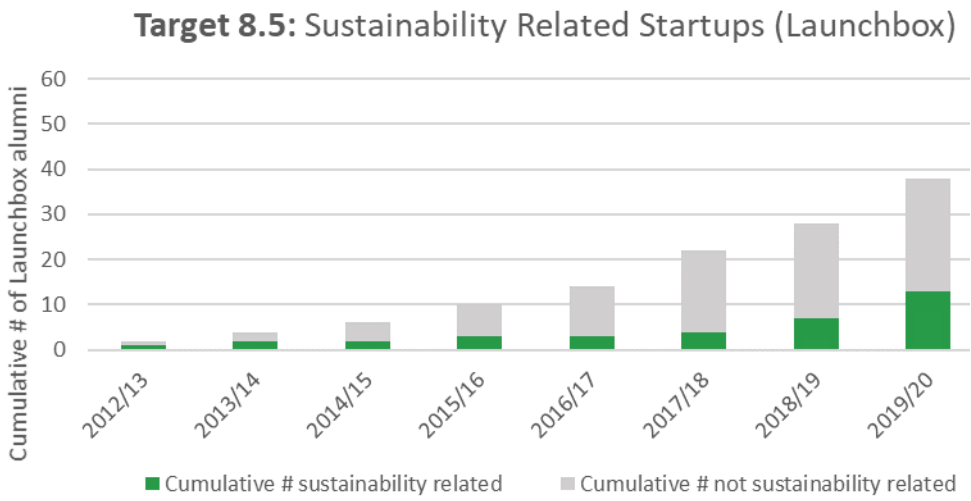


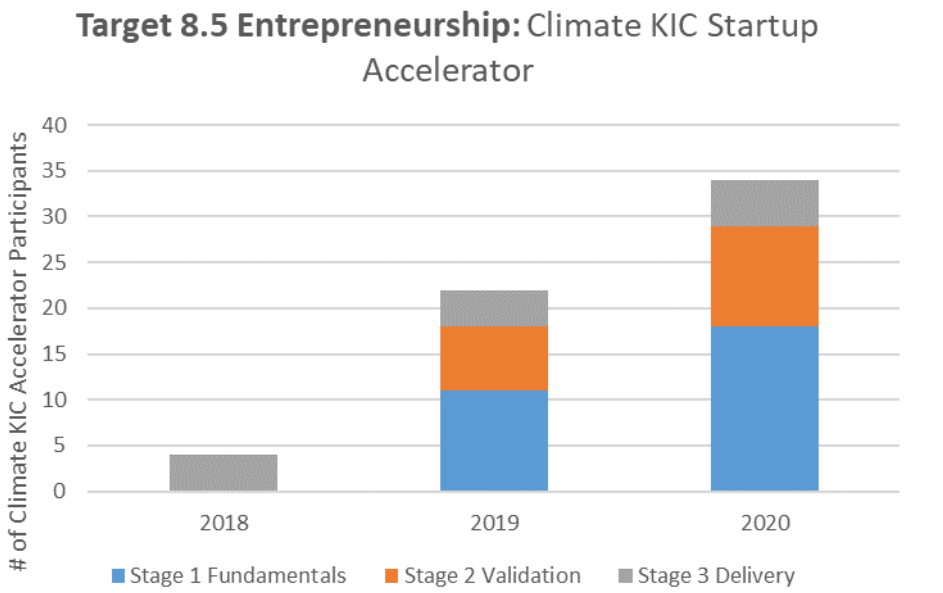



Target 8.3 Research: # of Publications and Researchers working on SDGs
6,000
5,000
4,000
3,000
2,000
1,000
-
# of publications
450
400
350
300
250
200
150
100
50
-
# of active researchers
4%
13%
21%
2018
2019
2020
Total # of non-SDG publications
Total # publications that address at least one SDG
# of academics / active researchers working on SDGs [RSS (research support system)]


Target 8.3 Research: # of Civicly Engaged Publications
1,200
1,000
800
600
400
200
-
355
742
1,043
2018
2019
2020
# of Civicly engaged publications
for the community
with the community (two-way conversation with communities outside TCD)
involving Trinity Students


Target 8.4: Sustainability Fund
€30,000
€25,000
€20,000
€15,000
€10,000
€5,000
€-
2018
2019
2020
Amt Requested
Amt Allocated
Actually Spent





UPS Sustainability sprint that took place in Nov-Dec 2020: 14 startups made up of 31 founders

Research IT interface for entering research works and projects against UN SDGs

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:

- ✓ Although the number of green events are down because of Covid-19, they are still three-fold greater than 2016, with 165 events in 2020 (in part due to improvements in tracking event numbers)
- ✓ No requests for access to information on the environment
- ✓ We are beginning to track social media engagement on the Facebook and Instagram Sustainability Network pages
- ✓ Website activity is consistent with 2019 (new web pages set up in 2018 resulted in a spike of activity interest)
- ✓ This is our sixth Annual Sustainability Report

Challenges:

- △ Covid-19 and screen fatigue has made it very difficult to engage audiences online
- △ Web data has been reported under two separate systems and is not consistent (AWSTATS to 2017, and with Google Analytics thereafter)

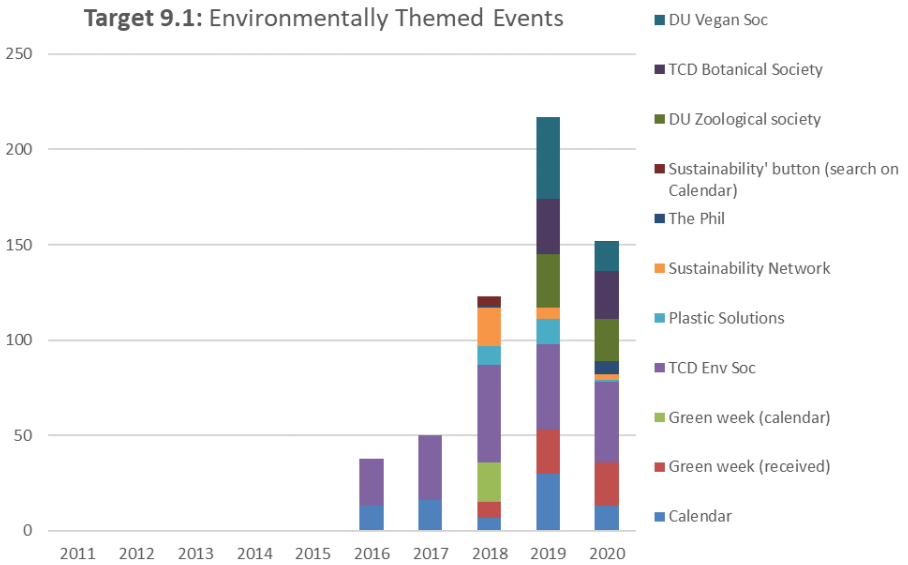
Annual Highlights:

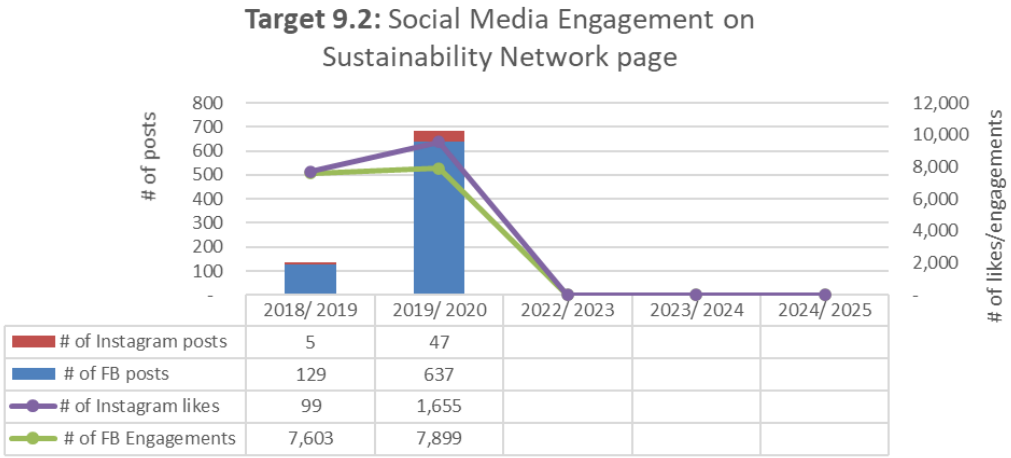
- ✓ **OneStepCloser** social engagement platform ran 4 campaigns with 16,666 votes (see overleaf)
  - Wildflower to Front Lawns received largest vote. 3,000 initially and then 13,850 when opened up to public
  - Picked up by media channels such as Top 50 in BBC, Huffington Post, etc
- ✓ Average sustainability posts on social media per week is 21 per month - 4 Instagram and 17 FB posts; # of stories on Instagram for 2020 is 288
- ✓ Green pages: top 3 pages viewed in 2020 were:
  - /provost/sustainability/
  - /provost/sustainability/initiatives/
  - /provost/sustainability/researcheducation/

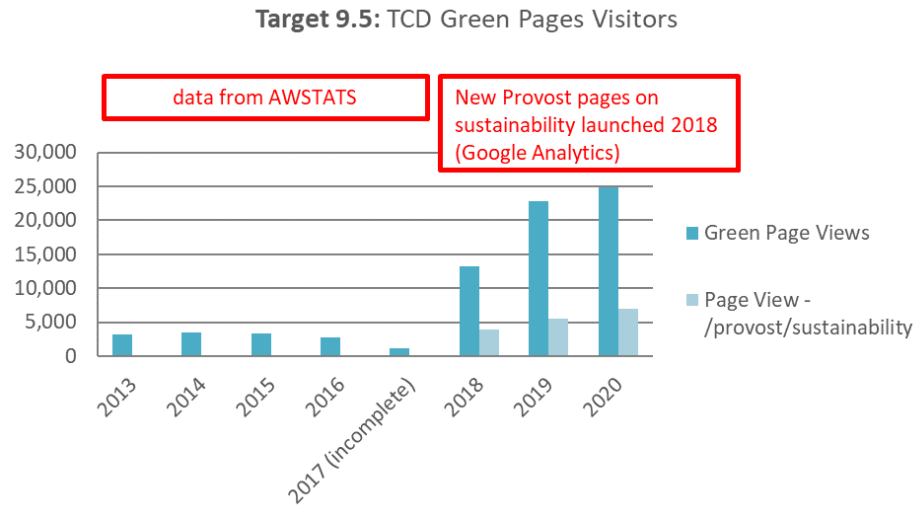
Get Involved & Learn More:

- 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







One Step Closer awareness campaigns conducted to date

Sustainable Trinity

In 2019/2020 we ran 4 campaigns and had 16,666 votes in total

Each vote = A bulb

Vote to boost Campus biodiversity. Led to 2,170 pollinator friendly bulbs being planted.

Wildflower Meadow outside of Front Gate

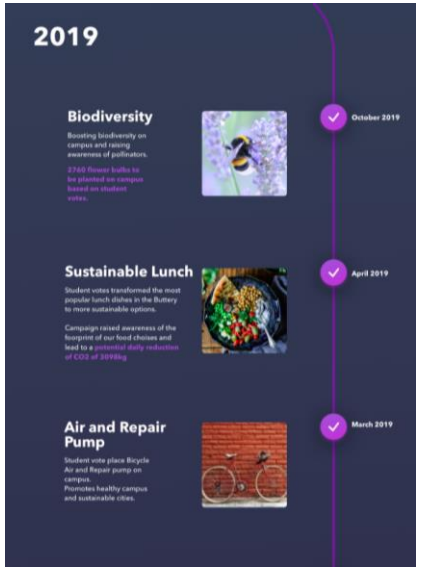
Converting traditional lawn into wildflower meadow to boost plant and insect biodiversity in the city centre.

Decide the Debate

Vote to decide which sustainability debate topic and speakers to be invited. Topics: Fast Fashion, Irish Cattle Farming, Individual vs. Collective Responsibility

Provost Innovation Challenge 2020

Decide the sustainability focus that Trinity innovation and entrepreneurship will tackle this year.



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, 7 of our 37 targets are unclear or 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.
2021	▪ First college Climate Action Plan drafted

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, Maurice Sweeney, Christoph Schmidt-Supprian, Ben Hartnett, Gordon Hughes, John Parnell, Prof John Parnell, Tony Dalton, Prof Jane Stout, Moira O'Brien, Ciara Murphy, Eimear Rouine, Michele Ryan, Rima Fitzpatrick, Kevin Kiely, Gavan Drohan, Maura Horan, Joanna Mulkeen, Katie Byrne, 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: Kieron McGovern, John Parnell, Gavan Drohan, Joanna Mulkeen

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**

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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**	**Performance 2019/20 2020**
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 m3 (29.63 m3 per person per year) (2006-08 Average)	43.6% Reduction. 256,293 m3 (13.38 m3 per person per year)	42.0% Reduction. 263,561 m3 (13.64 m3 per person per year)	42.3% Reduction. 262,339 m3 (13.31 m3 per person per year)	44.5% Reduction vs 2006-08 baseline 252,133 m3 (12.54 m3 per person per year)	61.9% Reduction vs 2006-08 baseline 172,990 m3 (8.35 m3 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.	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 (26.1% saving versus baseline)	298.6 kWh / Research Equivalent Floor Area (28.0% saving versus baseline)	281.0 kWh / Research Equivalent Floor Area (32.2% saving versus baseline)	249.7 kWh / Research Equivalent Floor Area (39.8% 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	16.5% energy from renewables	15.2% 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)	14,655 Reams (69% 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)	940 tonnes (48% decrease vs previous year because of Covid-19)
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)	32,678 kg (37.6% decrease 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.	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.	5,505 page views for /provost/sustainability vs 2,394 in 2018	7,040 page views for /provost/sustainability vs 2,394 in 2018; 47 instagram posts with 1,655 likes; 637 FaceBook posts with 7,899 engagements
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, scheulded 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, scheulded for completion Aug'20) residences. E3 centre in design stage.	Heat pumps to decarbonise historic structures and provide renewable heating (Rubrics and Chief Stewards House going to tender).
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.	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**	**Performance 2020**
Institution-wide carbon targets and related achievements								
Carbon Emissions (tCO2e) (Energy-related only excluding flights & business travel)	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) 1.69 tCO2e / full time equivalent	26,452 tCO2e	24,121 tCO2e	23,430 tCO2e	21,243 tCO2e	18,144 tCO2e
	Long Term: reduce carbon emissions by 80% by 2050.			(2.2% increase vs 2006-08) 1.38 tCO2e / full time equivalent	(6.8% decrease vs 2006-08) 1.25 tCO2e / full time equivalent	(9.5% decrease vs 2006-08) 1.19 tCO2e / full time equivalent	(17.9% decrease vs 2006-08) 1.06 tCO2e / full time equivalent	(29.9% decrease vs 2006-08) 0.88 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	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.	Survey reviewing transport modes staff and students would like post Covid-19. Students want to talk, staff to cycle. Lower interest in public transport presumably from Covid-19 concerns wrt transmission.
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).	OneStepCloser, a social engagement platform used to engage students and staff: 4 campaigns with 16,666 votes in total. Wildflower to Front Lawns received largest vote. 3,000 initially and then 13,850 when opened up to public; Picked up by media channels such as Top 50 in BBC, Huffington Post, etc
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	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, scheulded for completion Aug'20) residences. E3 centre in design stage with Well Standards and BREEAM excellent.	No additional projects.
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	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**	**Performance 2020**
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	Website currently lists: - 14 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 6,500 students enrolled (freshers, postgraduates, visiting & Erasmus students)	Continue to induct new staff inducted on sustainability + approx 88% of 6,500 students enrolled (freshers, postgraduates, visiting & Erasmus students)
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 postrgad courses up from 10 in 2017/18	Same as previous year + 1 new course on Climate Entrepreneurship (postgrad cert)
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	1,600m2 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	165 Green events in 2020

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	Hazardous biological and chemical waste down 37.6% 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 maintian green flag status, host green week and discuss sustainability initiatives and engagement strategies	GCC continue to maintian green flag status, host green week and discuss sustainability initiatives and engagement strategies	GCC continue to maintian 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	This Annual Sustainability report has been completed for 6th 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	Provost's Advisory Committee on Sustainability (PACS) continues to meet, 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/