



Dublin City University

Application for Green Campus Award



An Taisce
The National Trust for Ireland

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1. Introduction

Dublin City University has always been conscious of its environment, the University established in 1991 is located 5.5km north of Dublin City Centre in a largely residential area with Albert College Park just to the south of the campus. The original campus design worked to minimise the impact on the local area, and within the campus there has always been ongoing work to provide the best facilities to both staff and students on site. Since 2004 DCU has been a member of the e3 initiative (<http://www.e3.ie/>) working with other third level institutions in Dublin to reduce energy consumption. A timeline indicating related activities can be seen in Appendix 1.

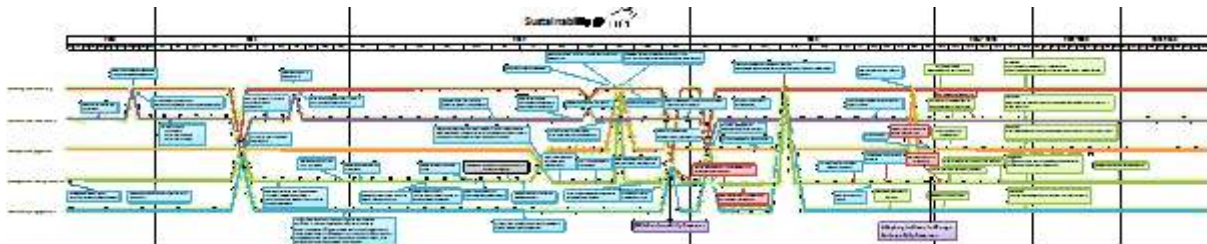


Figure 1.1 : Timeline details can be seen in Appendix 1

DCU established a **Sustainability Initiative in 2012** to develop and build an understanding of Sustainability that demonstrates the need to balance economic, environment and social factors in campus activities to create a sustainable future for all. Our objective is to develop, demonstrate and embed an ethos of sustainable development via cross-campus projects focusing on our primary activities: Teaching and Learning, Research, Development and Innovation, the operation and management of a Sustainable Campus and in our external engagements with other academic institutions, Industrial suppliers and partners and with our local community.

In the Strategic Plan 2012 – 2017, DCU has committed to the development and implementation of a comprehensive Sustainability Strategy. A core element of this sustainability strategy will focus on Transportation and, in particular, initiatives to reduce carbon emissions generated by our staff, students and visitors commuting to our campus.

Why Sustainable Development at DCU?

‘Sustainability DCU’ develops and deliver DCU’s legacy to our future generations through:

- the embedding of an understanding of Sustainable Development into our curricula, thereby disseminating this understanding globally via our graduates;
- the identification, coordination and fostering of research activities that are making an impact on the sustainability of our current and future environment – natural, social, cultural and economic;
- the forging of greater industrial linkages through innovative solutions to their pressing needs and the identification of potential test-bedding facilities on campus;
- the utilisation of and engagement with strategic partnerships including Arizona State University, the Green Way, the European Consortium of Innovative Universities and the 3U partnership;

- the fostering of our linkage and support of our local and global community through communication and mentoring;
- the creation of a living lab campus that demonstrates new innovative processes, systems and technologies and leads by example.

In addition, the embedding of Sustainability as an underpinning ethos will lead to efficiencies and savings not only in our operational management but across teaching, learning and research and innovation activities.

A major tool in the implementation of this strategy is the participation in the An Taisce Green Campus Programme. Not only will this programme provide a structure approach to engaging staff and students alike it will also (hopefully) provide the reward in the form of a Green Flag for the efforts of the staff and students.

Overview of DCU main campus

Dublin City University occupies a 85 acre site in Glasnevin, Dublin 9 situated 5km from Dublin City Centre.



Figure 1.2 : DCU campus map.

The main campus consists of two lots, a 50 acre main campus (Figure 1.2) and a 35 acre sports campus across the Ballymun road. The University also has a community facility in Ballymun (DCU in the Community), a Business Management School in Citywest (Ryan Academy) and just recently an Innovation Campus in Glasnevin. In this initial phase of the An Taisce Green Campus programme

we will focus our efforts on the main DCU Campus but we plan to deploy lessons learnt on our Innovation Campus as well as working closely with our partner colleges. In particular we will work closely with St Patrick's College Drumcondra, Mater Dei Institute of Education and the Church of Ireland College of Education as these institutions will be legally incorporated into DCU along with the St. Patrick's Drumcondra Campus over the coming years.

The DCU main campus has over 40 buildings with a total floor area of approx. 170,000 m². The total floor area has grown significantly over the past 20 years as building have been constructed and extended growing from 35,000m² in 1991 to its current, those provisional 170,000 m² as building construction continues on campus with the new NanoBio building due to come online in September 2014. To date over 43,000 students have graduated from DCU and are now playing significant roles in enterprise and business globally.

In 2013, DCU delivered more than 120 programmes to over 10,000 students across its four faculties – Humanities and Social Sciences, Science and Health, Engineering and Computing and Business. DCU's excellence is recognised internationally and it is ranked among the top 50 Universities worldwide (QS 'Top 50 under 50' 2012). In the last eight years, DCU has twice been named Sunday Times 'University of the Year'.

Qual Type Descp	Offering Type	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
non award	Full Time	383	360	339	385	528	587
	Part Time	75	78	73	213	115	101
PG Taught	Full Time	774	1,111	903	688	725	834
	Part Time	1,251	1,288	1,163	1,139	1,030	951
	Distance	154	159	110	106	105	135
Qualifiers/ Foundation	Full Time	59	49	52	72	48	32
	Part Time	348	370	349	158	130	205
	Distance	14	9		1	2	5
UG Cert/ Dip	Full Time	94	48	38	38	54	32
	Part Time	67	54	108	184	279	202
	Distance						131
UG Degree	Full Time	5,944	6,250	6,421	6,758	7,190	7,615
	Part Time	73	44	84	76	54	26
	Distance	784	785	671	747	812	697
Masters Research	Full Time	93	73	62	52	51	46
	Part Time	28	26	35	24	23	18
PhD	Full Time	509	543	557	530	493	461
	Part Time	135	130	149	161	182	169
Subtotal Part Time		1,977	1,990	1,961	1,955	1,813	1,672
Subtotal Full Time		7,856	8,434	8,372	8,523	9,089	9,607
Subtotal Distance		952	953	781	854	919	968
Grand Total		10,785	11,377	11,114	11,332	11,821	12,247

Table 1.2: Total Students 2008/09 - 2013/14

	Academic	Non Academic	Research
Full time	406.5	396.1	369.57
Part time	46	4	13.23
	452.5	400.1	382.8

Table 1.1: Total Staff 2012/2013

Clubs and Societies

2013/2014 saw the establishment of two new societies as a direct outcome of the Green Campus activities from previous years. The Grow You Own and the Environmental Societies were formed both gaining the requisite signatures to be registered with DCU SU. In addition the DCU Horticulture society has been in place for a couple of year and throughout the year has worked with both the Grow Your Own and Environmental Societies in joint events such as Green Days etc.

Overview of the activities on-going in DCU across:

Operations and Management

DCU has been striving to gain efficiencies, and reduce operational costs and the use of natural resources. We have adopted sustainable practices in areas of energy consumption, water usage, biodiversity enhancement and waste generation. More recently areas of green procurement and campus associated transport have been receiving attention in the promotion of sustainable practices.



Figure 1.3: DCU Campus Operations

DCU is a registered participant of the national Green Campus programme, run by An Taisce and The Foundation for Environmental Education (FEE). FEE is a non-government, non-profit organisation

that operates globally promoting sustainable development through environmental education. An Taisce is the national operator of all FEE programmes in Ireland. In its initial phase DCU is targeting Energy, Waste and Biodiversity. Baseline reports and action plans have been developed for and implemented for the academic year 2012/2013 and are a work in progress for 2013/2014. This programme engages across the DCU student and staff population and involved strong interaction with local Community through the development of on campus community gardens & allotments and expert seminar series.

Research and Innovation

In undertaking a mapping project of sustainability related activities across all faculties and core support units within DCU, it has become apparent that there exists a strong presence of sustainability focused activity as normative procedures [Ref : GIOS, ASU].

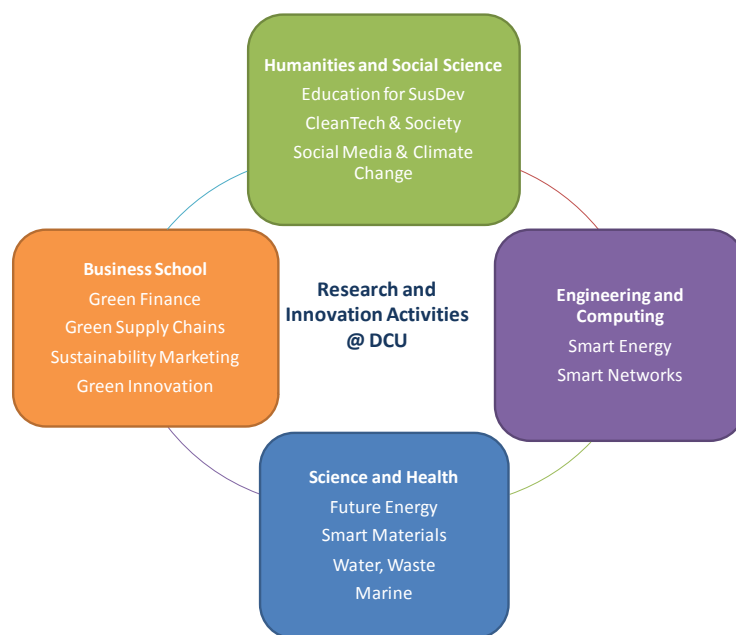


Figure 1.4 Research & Innovation Map

Teaching and Learning

While there are many undergraduate and postgraduate modules and programmes that already contribute directly to the teaching of sustainability principles as detailed later in this report, it is an aim of DCU to deliver an understanding of sustainable development to all students through module design, regardless of programme choice. An outline of the core DCU programmes which at present relate directly to the teaching of principles of sustainability at present is illustrated below:

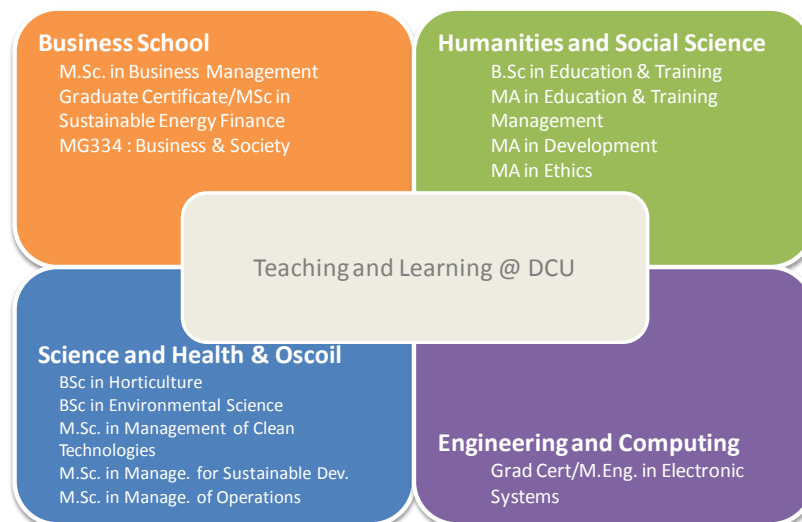


Figure 1.5 Teaching and Learning Map

Community Engagement

Community Outreach: Encompassing such issues as equal access to social resources, corporate Governance, community, diversity, culture and quality of life, social sustainability is just one aspect of sustainability but one that is often the weakest in terms of representation.

DCU has long recognised the merits and responsibilities of engaging with the wider community and contributing to the social and economic contexts of the community in which we are based. The development of a specific 'Civic Engagement' mission and the establishment of the 'DCU in the Community' outreach centre in Ballymun is a solid expression of the commitment which DCU has made to community outreach projects.

Wider outreach has also been promoted through initiatives such as the 'Dublin 5th Province project' coordinated by DCU and the Irish African Partnership for Research Capacity Building. The launch of Sustainability @ DCU in early 2012 has also opened doorways to engagement through shared learning (Sustainext), accessibility of DCU resources to the public (allotments project), new partnerships (GIOS) and research opportunities (student exchange ASU).

Through DCU's active Civic Engagement Forum, the University has also been promoting a mutually beneficial relationship between the institute and the community with the aim of delivering a range of activities through which staff and students engage with the needs of communities and seek to develop their own social understanding through active citizenship. DCU is committed to playing a positive role in the socio-economic and cultural regeneration of the city, region and nation.

Community In-reach: The DCU concept of community engagement also works inwardly whereby 'needs lead' research and innovation is given high regard. The DCU Science Shop is a project which allows for a community knowledge exchange to an ultimate end of DCU research and technology having an applied and contributory role to locally identified needs of society. DCU is also strongly engaging its local community in the development of its on campus Community Garden.

Enterprise Engagement

Dublin City University as the University of Enterprise has a very strong engagement programme with both economic and social entrepreneurs. It is a founding member of The Green Way, Dublin's Cleantech Cluster and has recently (Jan 2013) launched a new Innovation Campus targeting the fostering and development of Ireland's green economy and cleantech sector globally.



Figure 1.6: <http://www.thegreenway.ie/>

The Green Way, based at DCU's Innovation Campus, serves as a catalyst for a diverse group of stakeholders seeking to advance a common green economic agenda, and co-ordinate, support and promote business opportunities for industry both domestically and internationally.

2. Green-Campus Committee

In this chapter we will review our Green Committee establishment and operations. In January 2012, DCU formally began its campaign towards 'Green Flag' accreditation with An Taisce. A Green Committee was set up comprising of 15 staff and students. The committee was formed following an email call to all staff and students. All those who expressed an interest in engaging with the Green committee were accepted. Table 3 below lists the membership of the founding Green Committee along with where they came from within the University. We were fortunate to have a good mix between staff and under and post graduate students. Samantha Fahy as the DCU Sustainability Manager called the first meeting of the Committee.

Name	Staff/Student	Department
Samantha Fahy	Staff/Student	Sustainability DCU (Chair)
Anne Morrissey	Staff	Oscail
Brenda McNally	Research Student	Communications
Chao-Ping (Pat) Hong	Research Student	Communications
Eoin Campbell	Staff	Communication
Hilary Murphy	Staff	NorDubCo/Sustainability DCU
Joanna Ozarowska	Staff	DCU in the Community
Niamh O'Dowd	Staff	OVPR
Olga Ormond	Staff	RINCE/EE
Richy Kelly	Staff	Buildings
Anna Gajda	Student	Oscail
Gavin Brown	Postgrad	Oscail
Cecilia Fenech	PhD	Oscail
Paul Doherty	Student	DCU SU President
Alan Mangan	Staff/Student	Estates Office
Kathleen Whelan	Staff	Waste Manager, Estates Office
Emer O' Hara	Staff/Student	Faculty Secretary, Faculty of Science & Health
Daragh O Duffy	Student	E-commerce
Vanessa Byrne	Student	2nd year Horticultural student
Conor Brennan	Student	1st year Horticultural student
Myriam Castanie	Postgrad	MIR1
Ita McGuigan	Staff	
Mark Argue	Staff	Estates Office
Declan McCool	Student	Green Society
Saorla Kavanagh	Staff	Estates Office
Claire McKenna	Staff	BDI
Irina Tal	Postgrad	Engineering/RINCE
Chelsea Willis	Visiting Student	Sem II joined
Mark Young	Student	HOR1

Table 3 : DCU Green Committee 2012/2013

At its initial meeting the committee agreed to focus on three target areas: Energy, Waste and Biodiversity. An online dropbox facility was created for the Green Committee as a shared resource for report, documentation, agenda, presentations and minutes. All members are able to upload their own inputs and reports as well as download materials such as meeting minutes. This dropbox will continue to be a resource for all future DCU Green Committees.

At the start of the new academic year 2013/2014 there was again a call for membership of the Green Committee and we were delighted with the response. Over 60 staff and students from across the University indicated that they wished to be involved. It was also agreed with the Students Union that they would appoint a Sustainability Officer and that they would chair the Green Committee. In early November 2013 Mariane Galpo was elected at the Sustainability Officer and on 7th November 2013 the new Green Committee met for the first time with standing room only! It was agreed that the committee would split into 6 working groups each focusing on a theme – Energy, Water, Waste, Biodiversity, Transport and Communications. There was a leader nominated for each theme. In 2013/2014 Green Campus Committee meetings are organised as follows:

Team leaders meet once a month to discuss the progress of each working group.

Team leaders meet with working groups once a month to discuss ideas and assign tasks.

The minutes are recorded for each meeting and emailed to members afterwards. (Appendix 2 contains meeting minutes from the start of the Green Committee).

Name	Surname	Staff/Student	Department/Unit/Course
Cecilia	Fenech	Alumni	Cranfield Uni
Pat	Hong	PhD Student	Communion
Veronica	Crosbie	Staff	Lecturer SALIS
Sheila	Boughton	Staff	NCPST
Richy	Kelly	Staff	Estates
Caroline	Power	Staff	INTRA Co-ordinator DCU
Joanne	Ozarowsha	Staff	DCU in the Community
Ronan	Furlong	Staff	Innovation Campus
Saorla	Kelly Kavanagh	Staff	Sustainability Officer
Mags	Lehane	Staff	Library
James	Carton	Staff	The Hydrogen Research Group DCU
Blanaid	While	Staff	Lecturer in Env Sci
Olga	Ormond	Staff	RINCE/EE
Richy	Kelly	Staff	Buildings
Mahon	MacNamara	Staff	ISS
Roderic	O Gorman	Staff	Law and Government
Kathleen	Whelan	Staff	Waste Manager, Estates Office
Alan	Mangan	Staff	Estates Office
Mark	Argue	Staff	Estates Office
Lorna	Finnegan	staff	Students Union
Samantha	Fahy	Staff	Sustainability Manager
Anne	Morrissey	Staff	Oscail
Mark	Glynn	Staff	LIU

Name	Surname	Staff/Student	Department/Unit/Course
Saibh	Aris	Student	DCU
Conor	Brennan	Student	DCU
Bona	Patlong	Student	DCU
Maria	Murillo	Student	DCU
Aileen	Ketterick	Student	MiNT 4
Anne	O'Connell	Student	DCU
Emmet	Galvin	Student	DCU
Ciara Anne	Fleming	Student	DCU
Nicola	McConnell	Student	DCU
Caroline	Reid	Student	DCU
Rtoohi	Usmani	Student	DCU
Romain	Dagnan	Student	DCU
Le Min	Chan	Student	DCU
Ying	Fan	Student	DCU
Liam	Phelan	Student	DCU
Dave	Whittle	Student	Computing
Janet	Nolan	Student	DCU
Jason	Sheridan	Student	DCU
Greta	Isac	Student	DCU
Kate	Coscoran	Student	DCU
Brian	Lee	Student	DCU
Shannen	Tuohy	Student	DCU
Ciara	O Flynn	Student	DCU
Krishna	Patel	Student	DCU
Aisha	O Connor	Student	DCU
Eimear	Donoghue	Student	CCS44
Donna	Doyle	Student	BSH2 Health and Society
Heather	Rainey	Student	Communications CS1
Abdul	Ali Hassan	Student	Engineering (5th year)
Kiara	Mulrey	Student	Env Sci & Health (1st yr)
Molly	Callan Cassidy	Student	Env Sci & Health (1st yr)
Dylan	Grimes Larkin	Student	Env Sci & Health (1st yr)
Thomas	Doody	Student	BHS2 (Health and Society)
Kevin	Tierney	Student	BHS2 (Health and Society)
Mariane	Galpo	Student	Engineering (C AM2)
Ciara	McHugh	Student	
Brendan	Heery	PhD Student	Chemistry
Aifric	O'Malley	Staff	Ryan Academy
Basra	Sharif	student	DCU

Table 4 : Green Committee 2013/2014

Management Engagement

There has been significant support from management within the University. The President, Professor Brian Mac Craith is a very strong advocate and has wherever possible has shown his

support for the initiative. The appointment of a Sustainability Officer (part time for 2012, full time from July 2013) at DCU is evidence of the commitment DCU is making to developing and embedding an ethos of sustainability from the ground up at DCU. In addition there has been significant support from the DCU Estates Office with several of their team sitting on the Green Committee to guide and support the committee efforts. From the education and research perspective the programme chairs of both Environmental Science and Horticulture (Drs Blainaid While and Michael Parkinson) have give significant support. Two Environmental Science interns worked on the sustainability initiative over the summer of 2013 supported by Dr. Blainaid White and Dr. Anne Morrissey and as well as linking some of the Horticulture course work to the Community Garden, Dr. Parkinson also very kindly provided some funding for tools in the CG. The chief executive of DCU's Innovation Campus, Ronan Furlong has agreed to a tool sharing programme whereby the machinery and tools from the Innovation Campus can be used in the CG.

While support from management within the University has been good to-date more work needs to be done. In particular additional support is required on getting buy-in on the establishment and delivery of targets.

Record of Meetings

Over the course of the last 18 to 24 months there have been several meetings, many of which were ad hoc and no formal minutes taken. Below is a list of the formal Green Committee meetings for which there are minutes or record of discussion included in Appendix 2. In 2012 it was agreed that we would seek to have a Green Committee meeting on the first Monday of every month at lunch time. This worked reasonably well but there were some issues with meeting rooms and eventually it was settled that we would meet in the Students Union. Attendance varied from a full committee to 3 people.

Meeting number	Date	Meeting number	Date
1	31/01/2012	7	18/02/2013
2	07/03/2012	8	04/03/2013
3	02/04/2012	9	17/04/2013
4	08/05/2012	10	19/06/2013
5	31/10/2012	11	07/11/2013
6	04/02/2013	12	06/12/2013

Table 5 : List of meeting dates

Other Important Dates/Meetings

03/12/2012 Sustainability Seminar & Poster Session

26/03/2013 Launch of DCU Community Garden

13/12/2013 Adapting for Climate Change Seminar

Continuity of Committee

We were very pleased with the level of response to our call for Green Committee members for 2013/2014, an increase from 15 to over 60 reflects the impact and growth in awareness that just one year has had on the DCU community. We do however not wish to become complacent and several measures have been put in place to ensure continuity.

1. Appointment of a DCU Student Union Green/Sustainability Officer. Each year a student representative is elected and it is his / her role to co-ordinate and chair DCU's Green Campus Committee. This is to ensure that the Green Initiative continues year after year.
2. The DCU Student Union Green/Sustainability Officer will work closely with the DCU Sustainability Initiative and the manager of that Initiative to ensure cohesion across sustainability related activities at DCU – we have limited resources and so it therefore makes eminent sense to not duplicate efforts.
3. The Green Committee has specifically identified 'Communications' as a theme as they believe that a major part of embedding sustainability practices and ensuring the continuity of the Green Flag initiative at DCU is dependent on an awareness and understanding of our staff and student bodies as well as engaging our local communities.

External Engagement

The DCU Green Committee would very much like to acknowledge the support of the following groups

Organisation	Support
St. Aidan's CBS,	Working with DCU on Biodiversity Flag/working in Community Garden
Dublin City Council,	LA21 Support for Community Garden
Dublin Zoo,	Manure for Community Garden
The McKeon Group,	Sponsorship of CG
The Rediscovery Centre Ballymun,	Community engagement
The Resource Group,	Trees on Campus
Teagasc School of Amenity Horticulture,	Work on the Community Garden
Thorntons Recycling,	Support of Waste Campaign
Trispace Ltd.	Support of Waste Campaign
Woodies DIY,	Support of Community Garden via donations
DCU Quality Improvement Programme	financial support of Community Garden
Larkin Engineering	Sponsorship of Recycling Bins
Glasdon Bins	Sponsorship of Recycling Bins
EuroBins	Sponsorship of Recycling Bins

3. Environmental Reviews - Introduction

It was agreed at the initial Green Committee meeting that rather than trying to tackle all the themes at once we should focus on Waste, Energy and Biodiversity. In hindsight this was also probably a bit ambitious particularly as we had only just joined the An Taisce Programme but we felt we would make some impact given the significant support that was available from our Estates Office, several members of which sat on the Green Committee, and the enthusiasm of our student members. It should be noted that DCU's Estates Office has been very active in driving efficiencies in both Energy and Waste even before the establishment of the Green Committee. DCU is therefore on track to meet its commitment to a 33% reduction in Energy Consumption by 2020¹ lead by Richard (Richy) Kelly. Similarly Kathleen Whelan, the DCU Waste Manager had rolled out several initiatives to reduce the level of waste being sent to landfill including the introduction of WEEE recycling.

In order to provide us with a baseline significant work was put into the review of our campus, this effort was lead by Hilary Murphy with input and help of many of the Green Committee members. Appendix 3 contains the full DCU Green Campus Review (2012) for Waste, Energy and Biodiversity, in the sections below we have summaries this information.

3a. Waste

Waste was identified as a target area for the DCU Green Committee from the very start. With an ambition to reduce overall waste directed to landfill the initial step was to assess what our current levels of waste were and how much we were recycling. A small group working with the Estates Office gathered and collated large amounts of data available from the DCU waste company. Figure 3a.1 below shows the total waste in tonnes produced by DCU for the proceeding three years (2009 – 2011) broken down across waste stream.

It should be noted that all hazardous substances entering the University are monitored very stringently to ensure their use and disposal adhere to current regulation and internal DCU health and safety procedures. The DCU Health and Safety office regularly reviews safety procedures and works with those units and schools that work with such substances to ensure their continued safe use and disposal. Hazardous Substance Assessment Forms (HSAF) must be completed by users and signed off by line manager before substances can be purchased, this form also required the user to identify the disposal mechanism – which must follow regulation.

¹ See DCU's Estates Office Strategic Plan : Towards Sustainability, A blueprint for reducing energy consumption & promoting sustainability in DCU 2011 - 2020

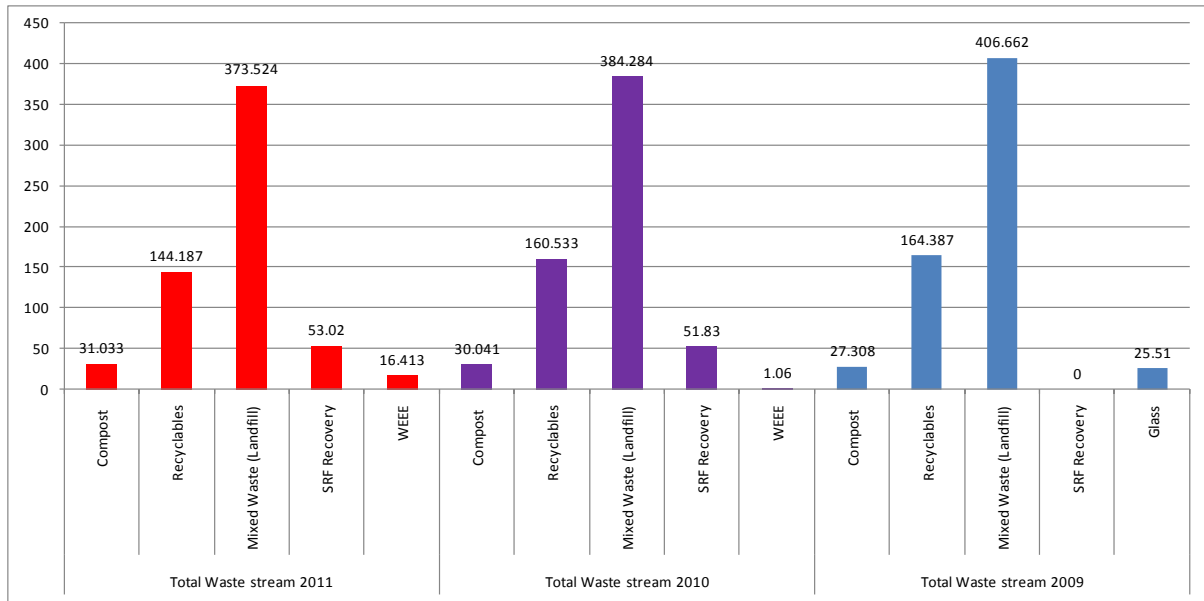


Fig. 3a.1: Total Waste Breakdown 2009 – 2011

Table 3a.1 below gives a breakdown of the waste streams for 2011 along with the number of collections. The total waste generated per person on campus in 2011 is approx 0.05 tonnes (assuming a total campus population of 12,567 staff and students, visitors not accounted for).

Waste stream 2011	Total Waste (Tonnes)	%	Collections	Tonnes per FT Student (2011/2012) (Kg)
Compost	31.033	5%	221	3.64
Recyclables	144.187	24%	78	16.92
Mixed Waste (Landfill)	373.524	63%	123	43.83
SRF Recovery	40.56	7%	33	4.76
Total 2011	589.304	100%	466	69.14

Table 3a.1 Waste Recycling 2011

In table 3a.1 we can see a breakdown of the waste for our baseline year 2011. We have calculated the level of waste per full time student (based on register numbers for that year). We will use this as a comparative number in the analysis of projects undertaken. Figure 3a.2 below indicated that 63% of our waste is directed to landfill, with 37% split across various forms of recycling.

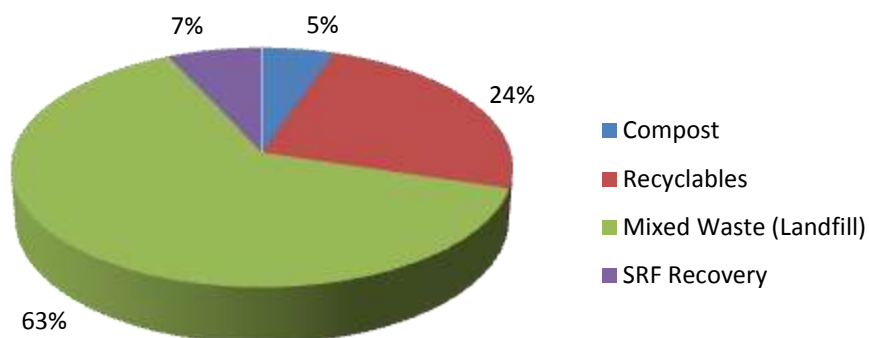


Fig 3a.2: 37% OVERALL RECYCLING RATE FOR 2011

*Note - all dry non-perishable skip waste is processed through our mechanical and manual process at Thornton's Recycling Centre. Here all materials which can be recovered and recycled are removed. The resultant residual fraction is diverted from landfill by shredding the material into a Solid Recovered Fuel (SRF)/ Refuse Derived Fuel (RDF) which is used as a fuel in cement manufacturing.

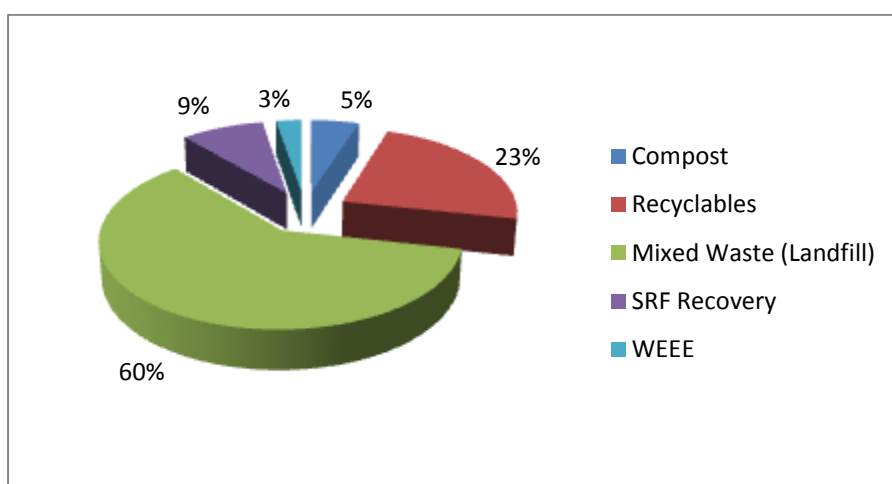
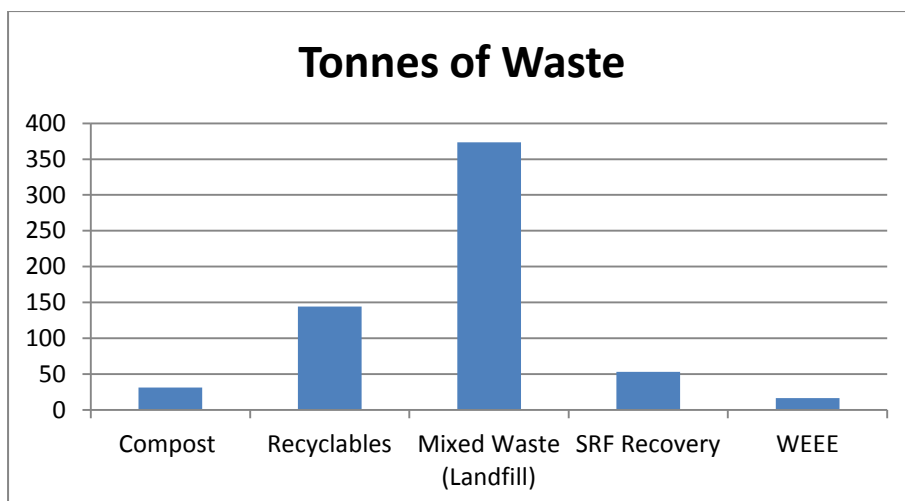
BASELINE DATA

Waste Details by Year :

2011

Table 2: Waste Recycling 2011

Waste stream 2011	Tonnes of Waste	%	Collections
Compost	31.033	5%	221
Recyclables	144.187	23%	78
Mixed Waste (Landfill)	373.524	60%	123
SRF Recovery	53.02	9%	33
WEEE	16.413	3%	11
Total 2011	618.177	100%	466



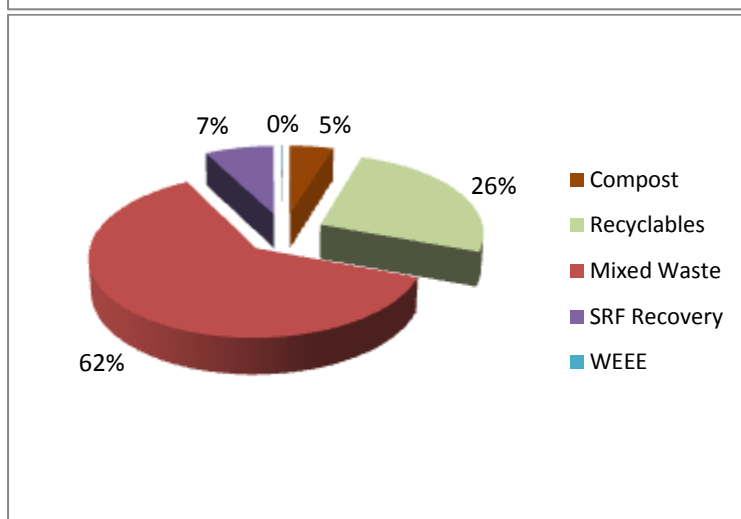
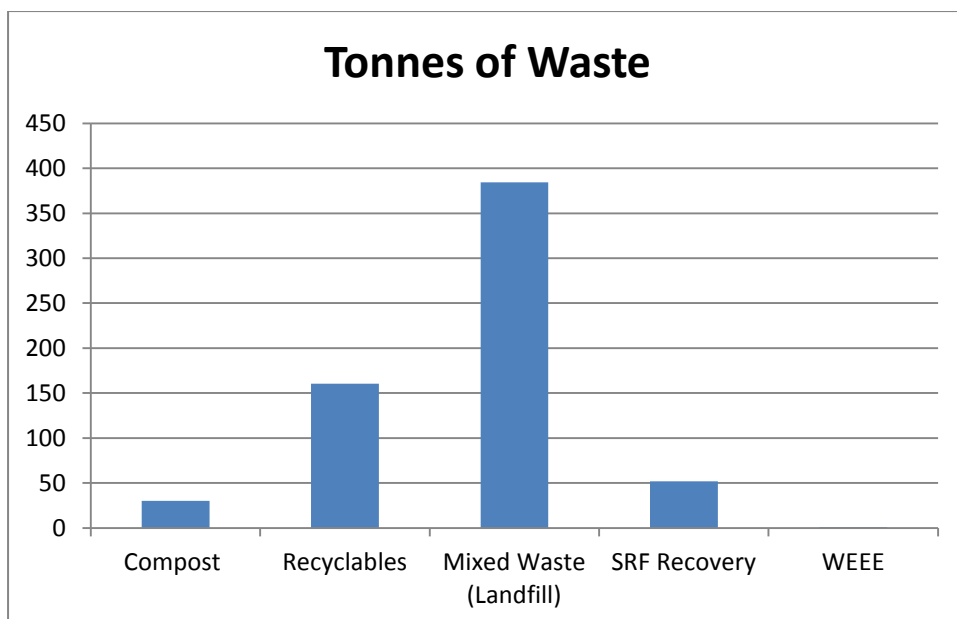
40% OVERALL RECYCLING RATE FOR 2011

*Note - all dry non-perishable skip waste is processed through our mechanical and manual process at Thorntons Recycling Centre. Here all materials which can be recovered and recycled are removed. The resultant residual fraction is diverted from landfill by shredding the material into a Solid Recovered Fuel (SRF)/ Refuse Derived Fuel (RDF) which is used as a fuel in cement manufacturing.

2010

Table 3: Waste Recycling 2010

Waste stream 2010	Tonnes of Waste	%	Collections
Compost	30.041	5%	205
Recyclables	160.533	26%	62
Mixed Waste (Landfill)	384.284	61%	84
SRF Recovery	51.83	8%	46
WEEE	1.06	0%	1
Total 2010	627.748	100%	398



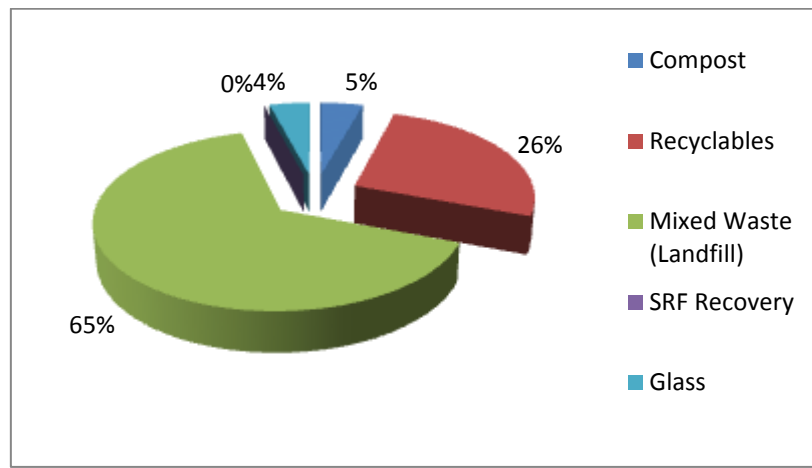
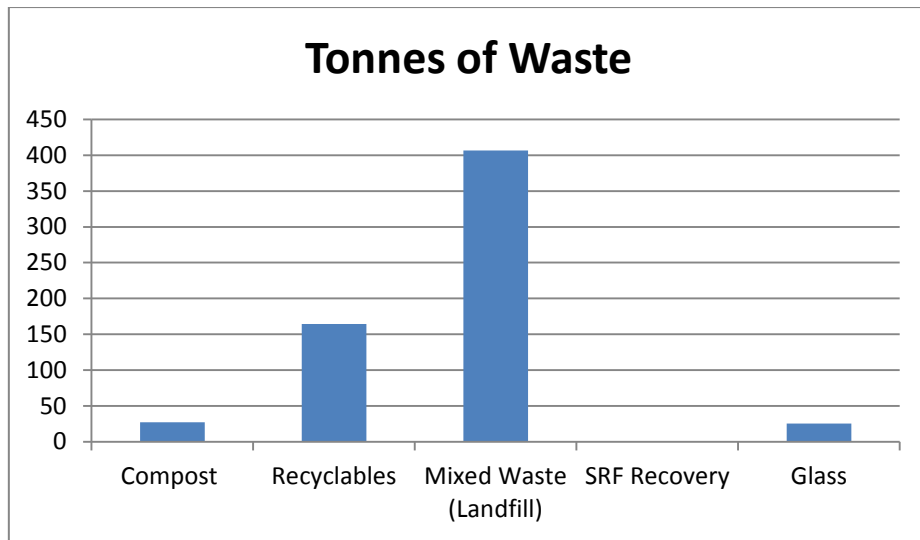
38% OVERALL RECYCLING RATE FOR 2010

*Note - all dry non-putrescible skip waste is processed through our mechanical and manual process at Thorntons Recycling Centre. Here all materials which can be recovered and recycled are removed. The resultant residual fraction is diverted from landfill by shredding the material into a Solid Recovered Fuel (SRF)/ Refuse Derived Fuel (RDF) which is used as a fuel in cement manufacturing.

2009

Table 4: Waste Recycling 2009

Waste stream 2009	Tonnes of Waste	%	Collections
Compost	27.308	4%	159
Recyclables	164.387	26%	46
Mixed Waste (Landfill)	406.662	65%	109
SRF Recovery	0	0%	0
Glass	25.51	4%	na
Total 2009	623.867	100%	314



28% OVERALL RECYCLING RATE FOR 2009

Potential projects as suggested by Green Committee include:

- Provide outdoor segregated waste bins across campus. Develop a research project around defining the best waste bin type for ensuring proper segregation of waste, ease of collection and practical solutions for waste collection personnel. Samples of different bins could be used in strategic locations across campus with a student led project monitoring the success of each.
- Ensuring all indoor spaces - offices, classrooms, communal areas etc, cater for all recycling (not just paper) and general waste. To make this change in a way where it is clear and well communicated that dry recycle bins are not just for office paper waste and plastic, aluminium etc can also be collected at these points.
- Supply composting facilities for DCU student residences. Educate and create awareness amongst DCU students of the benefits of composting if they wish to segregate their own organic waste in DCU resident accommodation. A suitable location for composters could be identified on campus where willing students could actively bring their segregated waste and see the process and benefits of composting in action. The resulting compost could be made available for use on DCU campus.
- Adapt DCU waste tendering. To include remit of campus cooking oil waste to be made available for local uses, particularly those within the social enterprise sphere.
- Provision of reusable coffee cups on campus. Promoting the use and selling of the re-usable cups in strategic locations on campus in tandem with a reduced price coffee incentive for those who do not use disposable cups.
- Target worst offender waste streams. Identifying and targeting high waste black spots such as paper waste through creating DCU policy, exploring creative alternatives (digital media solutions), awareness campaigns, awards schemes etc.
- Monitoring and communication plan. Closely monitor DCU's waste generation and segregation statistics against student and staff population to identify the successes and failures of incentivised projects. Communication of progress on a monthly/ quarterly basis would likely increase awareness and willingness to adopt change within the DCU community.
- Generate awareness through communications, learning events and available information on waste generation, prevention and recycling.
- Student led 'Hub Building Project' to cut down on waste generation and increase recycling together with other Green Campus projects.

Proposed Targets & Objectives:

- Reduce total tonnage of waste produced from 2011 figures (per head of student) year on year.
- Increase % diverted from landfill on 2011 Figures to 50%+ (in line with National targets) and beyond year on year.

Target	Diverted
2012 Target	40% *
2013 Target	43%
2014 Target	46%

2015 Target	49% +
2016 Target	50%+

* Based on EPA Household Waste Figs for 2011: Household waste recovery rates increased from 26% to 29.5% in 2011 (increase of 3.5%). While satisfactory, there remains considerable distance to reduce the land-filling of household waste to the national target of 50% by 2013.

In 2011 recovery of municipal waste increased from 37.5% to 39% (increase of 1.5%).

EPA 2011 Household waste generation fell by 3% in spite of an increase in population; Municipal waste generation fell by 8.4 per cent.

3b. Energy

Dublin City University together with Dublin Institute of Technology, Trinity College Dublin and University College Dublin have worked together since 2004 to reduce their energy consumption under the e3 energy management initiative (<http://www.e3.ie>).

Through a series of measures targeting buildings on campus and particularly the effective management of a sophisticated building energy management system that has enable the measurement and hence control of energy requirements at DCU, there has been a significant increase in energy efficiency leading to saving in excess of €1.2M between 2004 and 2010 (Table 3b.1). These measures included insulation and lagging projects, boiler upgrades and improved hvac & lighting controls, several of these projects were support under the SEAI Better Energy Works Programme.

Year	Annual savings	Total	Cumulative savings
2004	22,893		22,893
2005	63,528		86,421
2006	195,902		282,323
2007	257,147		539,470
2008	348,849		888,319
2009	278,426		1,166,745
2010	71,784		1,238,529

Table 3b.1: Energy Savings

With much of the low hanging fruit harvested, DCU and in particular our Estates Office continues to work toward our target of 33% reduction in energy consumption by 2020 with a specific focus on enhancing our campus wide Energy Metering Monitoring & Targeting System. Involving and engaging all campus users is a major focus activity and one in which our Green Committee can have a significant impact.

The Building management system at DCU enables our Estates Office to breakdown energy consumption across all building and units (see details in Appendix 3). With this data we can look at several potential projects that the Green Committee can engage in.

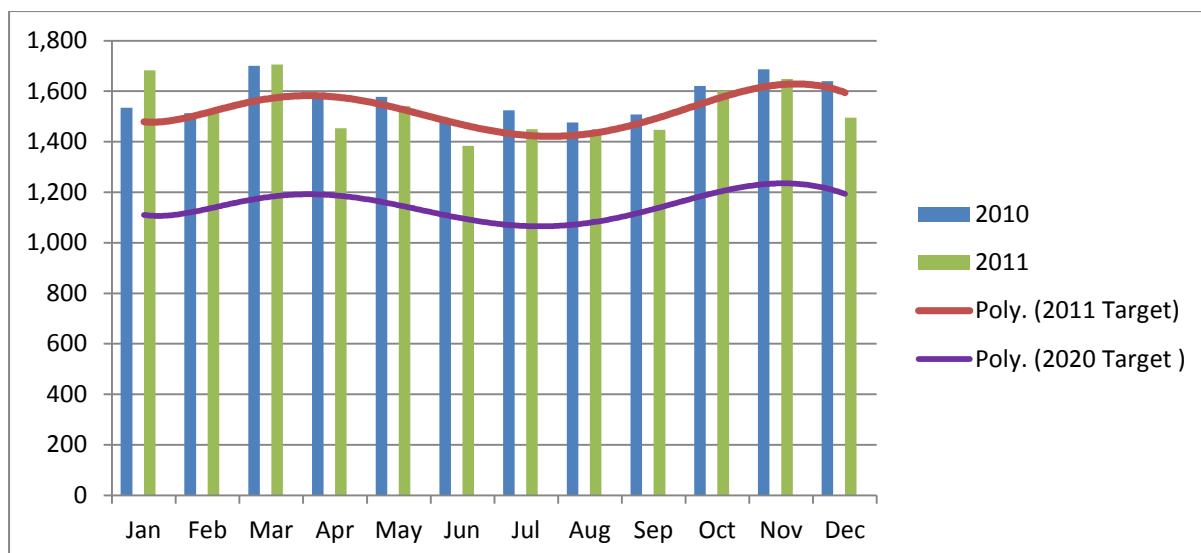


Fig 3b.1: Energy consumption in DCU for 2010 and 2011.

Proposed Projects and Action Plans

- Automatic sleep/shut down function on DCU network computers after several hours of inactivity.
- Develop a policy and accompanying strategy for sharing of energy intensive DCU resources among campus research centres.
- Provision of electric charge points for electric vehicles on campus in prime/ highly visible locations.
- To incorporate the highest energy efficiency standards in all new builds on campus and to provide for sustainable energy production through solar, geothermal and wind technologies where viable.
- Develop a strategy to facilitate and support test-bedding of new energy related technologies on campus. This will include technologies both developed within DCU research institutions and wider industrial partners.
- On campus carbon offsetting projects. Such as tree planting, green roofs, vertical gardens and carbon sink creation.
- Identify and target high energy DCU buildings. Identifying and targeting high energy black spots such as Sports Club, NICB, Computer Applications, Research and Development and Science Buildings.
- Monitoring and communication plan. Closely monitor DCU's energy consumption against student and staff population to identify the successes and failures of incentivised projects. Communication of progress on a monthly/ quarterly basis would likely increase awareness and willingness to adopt change within the DCU community.
- Generate awareness through communications, learning events and available information on energy consumption, carbon, climate change and energy efficiency.
- Student led 'Hub Building Project' to cut down on energy usage and increase efficiency together with other Green Campus projects.
- Monthly candle lit evenings in DCU Nu-bar.

Potential Targets

- Reduce energy consumption on campus by 33% by 2030 (Estates).
- Increase consumption of renewable energies on campus.
- Mitigate against the negative impacts of energy consumption on site where possible.

3c. Biodiversity

BASELINE DATA

With the help of several Green Committee members and some web searching we carried out a Habitat Classification/Habitats on Campus review (full details in Appendix 3). DCU has nine habitat classifications across six distinct habitat categories on campus as identified below together with their descriptions (Fossit, 2000).

Habitat	Habitat Category	Habitat Code
Grassland and Marsh	GA Improved Grassland	GA1 Improved agricultural grassland
		GA2 Amenity grassland (improved)
	GS Semi Natural Grassland	GS 2 Dry meadow and grassy verges
Woodland and Scrub	WD Highly Modified/Non-Native Woodland	WD5 Scattered trees and parkland
	WL Linear Woodland Scrub	WL1 Hedgerows
		WL2 Tree-lines
Cultivated and Built Land	BL Built Land	BL2 Earth banks
		BL3 Buildings and artificial surfaces
	BC Cultivated Land	BC4 Flower beds and borders

Table 3c.1: DCU Campus Habitat categories

This work built on work already completed by Dr. Anne Morrissey (member of Green Committee) and her team. The report looks at both the campus habitats (fig 3c.1) and biodiversity networks on campus and adjacent bio-diverse sites (fig 3c.2). A team for the Green Committee lead by Hilary Murphy reviewed the information available on the web on habitat classifications and with some direction also from An Taisce they physically surveyed the entire campus and reported the information back by mapping the habitat types onto a map of the campus.

DCU Habitat Descriptions

HABITAT CATEGORY - GA IMPROVED GRASSLAND

Improved agricultural grassland GA1

This category is used for intensively managed or highly modified agricultural grassland that has been reseeded and/or regularly fertilised, and is now heavily grazed and/or used for silage making. It includes regularly-reseeded monoculture grasslands and rye-grass leys that are planted as part of an

arable rotation. These differ significantly from areas of permanent grassland. Improved agricultural grassland is typically species-poor. Sward quality varies depending on soil type, fertility, drainage and management. Rye-grasses (*Lolium* spp.) are usually abundant and may entirely dominate the sward, often in association with White Clover (*Trifolium repens*). Many improved varieties or cultivars of these plants are now widely sown. Other grasses that may be prominent include meadow-grasses (*Poa* spp.), Timothy (*Phleum pratense*), Crested Dog's-tail (*Cynosurus cristatus*) and Yorkshire-fog (*Holcus lanatus*). Among the more frequently occurring 'agricultural' herbs are Dandelion (*Taraxacum* spp.), Creeping Buttercup (*Ranunculus repens*), plantains (*Plantago* spp.), Nettle (*Urtica dioica*), thistles (*Cirsium arvense*, *C. vulgare*) and docks (*Rumex* spp.). Some reseeded but poorly-drained fields may support abundant rushes.

Amenity grassland (improved) GA2

This type of grassland is improved, or species-poor, and is managed for purposes other than grass production. It includes amenity, recreational or landscaped grasslands, but excludes farmland. Most areas of amenity grassland have been reseeded and are regularly mown to maintain very short swards. Fertilisers and herbicides are often applied but there is rarely any grazing by livestock. The sward may comprise a variety of grasses, including some that also occur in **improved agricultural grassland - GA1**, but rye-grasses (*Lolium* spp.) are rarely abundant. Broadleaved herbs such as Daisy (*Bellis perennis*), Dandelion (*Taraxacum* spp.), clovers (*Trifolium* spp.) and plantains (*Plantago* spp.) are common. Amenity grassland is typically associated with lawns and other managed grassland areas in gardens, parks, grounds of various buildings or institutions, golf course fairways, grassy sports fields and race courses. Ornamental **flower beds and borders - BC4** should be excluded and, if trees are a prominent feature, the category **scattered trees and parkland - WD5** should be considered.

Note that amenity areas that support unimproved or semi-natural grassland should be considered elsewhere in the grassland section. If a playing field occurs on **machair - CD6**, for example, it should be considered as amenity grassland only if it has been heavily modified or reseeded.

HABITAT CATEGORY - GS SEMI-NATURAL GRASSLAND

Dry meadows and grassy verges GS2

Dry meadows that are rarely fertilised or grazed, and are mown only once or twice a year for hay are now rare in Ireland. Most have been improved for agriculture and this type of grassland is now best represented on grassy roadside verges, on the margins of tilled fields, on railway embankments, in churchyards and cemeteries, and in some neglected fields or gardens. These areas are occasionally mown (or treated with herbicides in the case of some railway embankments), and there is little or no grazing or fertiliser application. This pattern of management produces grasslands with a high proportion of tall, coarse and tussocky grasses such as False Oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis glomerata*). Other grasses may include Yorkshire-fog (*Holcus lanatus*), Smooth Meadow-grass (*Poa pratensis*), Barren Brome (*Anisantha sterilis*) and Meadow Foxtail (*Alopecurus pratensis*). The broadleaved herb component is characterised by a range of species that either grow tall, such as Cow Parsley (*Anthriscus sylvestris*), Hogweed (*Heracleum sphondylium*), Goat's-beard

(*Tragopogon pratensis*), Nettle (*Urtica dioica*) and Common Knapweed (*Centaurea nigra*), or climb the stems of others, as in the case of Bush Vetch (*Vicia sepium*) and Meadow Vetchling (*Lathyrus pratensis*). Grassy verges may support other smaller broadleaved herbs such as Pignut (*Conopodium majus*), Creeping Cinquefoil (*Potentilla reptans*) and clovers (*Trifolium* spp.). *Links with Annex I:* Corresponds to the annexed habitat, 'lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) (6510)'

HABITAT CATEGORY WD HIGHLY MODIFIED/NON-NATIVE WOODLAND

Scattered trees and parkland WD5

This category can be used in situations where scattered trees, standing alone or in small clusters, cover less than 30% of the total area under consideration but are a prominent structural or visual feature of the habitat. This usually occurs in areas of cultivated grassland, particularly amenity areas. In the case of parkland or parks which originate from former planting and landscaping, the proportion of non-native trees is typically high. This category can also be used for scattered fruit trees in orchards but commercial orchards with heavily pruned trees should be considered under **horticultural land - BC2**.

HABITAT CATEGORY - WL LINEAR WOODLAND SCRUB

Hedgerows WL1

Linear strips of shrubs, often with occasional trees, that typically form field or property boundaries. Most hedgerows originate from planting and many occur on raised banks of earth that are derived from the excavation of associated drainage ditches. Dimensions of hedgerows vary considerably, depending largely on management and composition, and are taken here as being mainly less than 5 m high and 4 m wide. When wider or taller than this, or dominated by trees, the habitat should be considered as a narrow strip of scrub or woodland, or as a **treeline - WL2**. Some hedgerows may be overgrown or fragmented if management has been neglected, but they should still be considered in this category unless they have changed beyond recognition. Linear strips of low scrub are included in this category if they occur as field boundaries.

Species composition varies with factors such as age, management, geology, soils and exposure. Hedgerows commonly support a high proportion of spinose plants such as Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Gorse (*Ulex europaeus*), Holly (*Ilex aquifolium*), Dog-rose (*Rosa canina*) or Bramble (*Rubus fruticosus* agg.), in addition to many other native and non-native trees and shrubs including, for example, Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Beech (*Fagus sylvatica*), Elder (*Sambucus nigra*), elms (*Ulmus* spp.) and willows (*Salix* spp.). Some of these may occur as scattered tall trees. Fuchsia (*Fuchsia magellanica*), an introduced shrub, is a common component of hedgerows in parts of the south and west of Ireland. Hedgerows frequently support climbing plants such as Ivy (*Hedera helix*), Honeysuckle (*Lonicera periclymenum*), Hedge Bindweed (*Calystegia sepium*), Cleavers (*Galium aparine*) and Bush Vetch (*Vicia sepium*). Tall grasses, including False Brome (*Brachypodium sylvaticum*) and Hairy-brome (*Bromopsis ramosa*), ferns, and woodland herbs are characteristic.

Drainage ditches are often closely associated with hedgerows and should be recorded separately if they contain standing water or support aquatic plants (see **drainage ditches - FW4**). Dry ditches are

not distinguished as separate habitats. Linear boundaries of low scrub, Gorse (*Ulex europaeus*) and Bramble (*Rubus fruticosus* agg.) in particular, should be included here, but note that **earth banks - BL2** and **stone walls and other stonework - BL1** are treated as separate categories.

Treelines WL2

A treeline is a narrow row or single line of trees that is greater than 5 m in height and typically occurs along field or property boundaries. This category includes tree-lined roads or avenues, narrow shelter belts with no more than a single line of trees, and overgrown hedgerows that are dominated by trees. Most treelines are planted and trees are often regularly spaced. They commonly comprise a high proportion of non-native species such as Beech (*Fagus sylvatica*), Horse Chestnut (*Aesculus hippocastanum*), Sycamore (*Acer pseudoplatanus*), limes (*Tilia* spp.), some poplars (*Populus* spp.) and conifers. Trees may occur on level ground or on banks of earth. The presence or absence of hedgerow or scrub at the base should be noted. If treelines are greater than 4 m wide at the base they should be considered as narrow stretches of woodland.

HABITAT CATEGORY - BL BUILT LAND

Buildings and artificial surfaces BL3

This broad category incorporates areas of built land that do not fit elsewhere in the classification. It includes all buildings (domestic, agricultural, industrial and community) other than derelict stone buildings and ruins (see **stone walls and other stonework - BL1**). It also includes areas of land that are covered with artificial surfaces of tarmac, cement, paving stones, bricks, blocks or astroturf (e.g. roads, car parks, pavements, runways, yards, and some tracks, paths, driveways and sports grounds). Unpaved areas are excluded (see **spoil and bare ground - ED2**). Any other built structures that are not made of natural stone, including walls made of bricks, cement blocks and mass concrete, should be considered here. Note that greenhouses and polythene tunnels are excluded (see **horticultural land - BC2**), as are refuse dumps (see **refuse and other waste - ED5**). Plant cover should not exceed 50%.

HABITAT CATEGORY - BC CULTIVATED LAND

Flower beds and borders BC4

This category is used for ornamental flower beds and borders where herbaceous plants or dwarf shrubs, rather than shrubs, dominate. Such features occur in gardens and parks, on roadsides and roundabouts, and in the grounds of various buildings and institutions. The majority originate from planting, usually for the purpose of decoration or landscaping, and most are regularly maintained and managed. They typically feature a high proportion of non-native species or varieties of plants. Scattered trees or shrubs, standing alone or in small groups, are included where cover does not exceed 25% of the area in question. If shrubs dominate, the habitat should be considered under **scrub - WS1** or **ornamental/non-native shrub - WS3**. Note that lawns or areas of **amenity grassland (improved) - GA2** are excluded. Weeds may be common, particularly some of the smaller species such as Shepherd's-purse (*Capsella bursa-pastoris*), Groundsel (*Senecio vulgaris*) and Red Dead-nettle (*Lamium purpureum*).

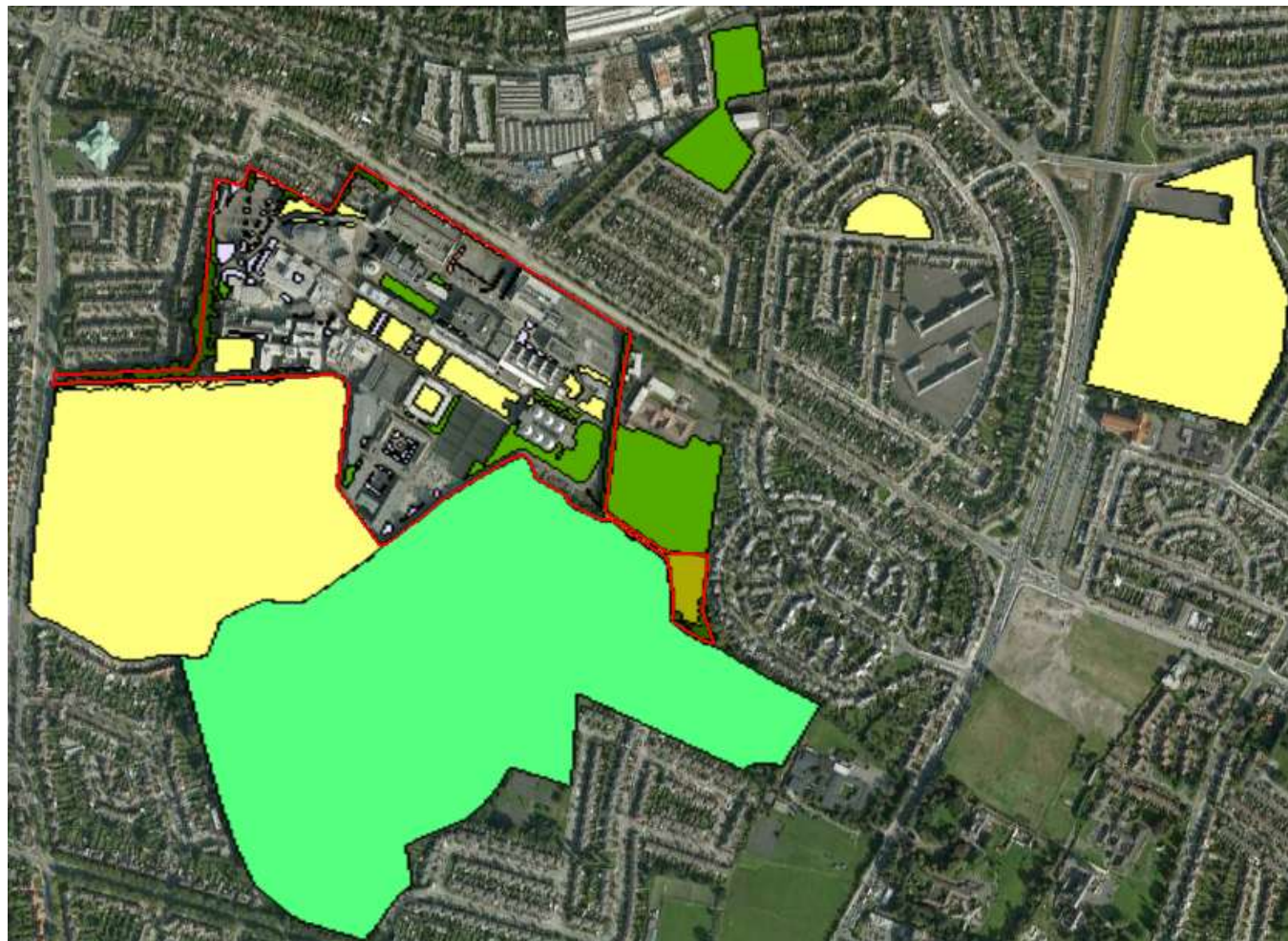
DCU Habitat Map – Whole Campus



DCU Habitat Map – Main Campus



DCU Habitat Map – Biodiversity Network/Adjacent Bio-diverse Sites



Proposed Projects and Action Plans

- DCU Community Garden and Veggie Plot Project. The transformation of a section of disused land into a community garden and vegetable plot available for use and enjoyment by DCU students, staff and the wider community of residents, schools, youth groups, enterprises and educational institutes. Associated projects include:
 - Urban agriculture, community growing and grow your own workshops, seminars, educational programmes and demonstrations.
 - Student composting facilities.
 - Bee keeping on campus.
- Map and catalogue biodiversity on campus in a biodiversity directory.
- Identify areas of potential for linking habitats and biodiversity both across campus and with the wider biodiversity network.
- Develop a biodiversity policy to:
 - Maintain grounds keeping maintenance as low and with respect to enhancing biodiversity through less manicured lawns where viable, tree bases, grassy verges, hedgerows, tree canopies and flower beds.
 - Limit the use of chemical weed killers to as little as possible.
 - Promote the planting of native species on campus.

Proposed Targets

- Ensure the protection and enhancement of existing biodiversity on campus is entrenched within all future campus developments.
- Use campus biodiversity as a resource for learning, research and enhancing campus life.
- Increase soft landscaping across campus from 2012 coverage to promote biodiversity growth, reduce rain water run-off, optimise carbon off-setting potential and link adjacent habitats with each other to contribute to the wider biodiversity network of the region.

4. Action Plans

In section 3 above there are proposed projects and action plans proposed at several Green Committee meetings. In an attempt to focus on specific tangible projects it was agreed by the Green Committee to identify and target a subsection of these proposed projects.

Waste Action Plan			
Goal 1 : Segregated bins in Student Hub aiming to increase % diverted from Landfill			
Action	Person/Group Responsible	Time Frame	Status
Agree waste level reduction	Green Committee	Feb 2013	Completed
Install internal recycling bin	Mark Young, Kathleen Whelan	Mar 2013	Completed
Promote use of bin	Mark Young, Paul Doherty, Patrick Keane	Mar – May 2013	Completed
Assess impact	Mark Young, Paul Doherty, Patrick Keane	May 2013	Completed
Goal 2 : Reduce total tonnage of waste produced (per head of student) via Awareness campaigns, Seminars, Green Screens			
Action	Person/Group Responsible	Time Frame	Status
Assess the level of waste produced per student in baseline year	Sam Fahy	Dec 2012	Completed
Focus on printing and paper consumption	Anne Morrissey, Myrian Castanie, Cecilia Fenech	Dec 2012	Ongoing
Awareness campaign on reducing printing	Green Committee FB	Oct 2013	Ongoing
Awareness campaign on sustainable printing practices	Green Committee	Oct 2013	Ongoing
Awareness campaign on Green Screens	Richy Kelly/Sam Fahy	Oct 2013	Ongoing
SU policy on printing	Lorna Finegan	Oct 2013	Ongoing
DCU policy on printing	Sam Fahy	Dec 2012	Ongoing
MG334 Student assessment of printed assignments	MG334/Sam FAhy	Apr 2014	Ongoing

Goal 3 : Potable Water Points & Campaign to reduce plastic bottle waste			
Action	Person/Group Responsible	Time Frame	Status
Investigate potable water points on campus	Paul Doherty, Sam Fahy	Dec 2012	Completed
Map potable water points on campus (Draft 1)	Water Team : Abdul Ali Hassan (Leader), Saorla Kelly Kavanagh, Brendan Heery, Sam Fahy	Nov 2013	Completed
Post map on FB and seek corrections/additions	Water Team	Feb 2014	Completed
Map potable water points on campus incl feedback (Draft 2)	Water Team	Sept 2014	To do
Get student feedback on reusable bottle for sale in SU (Post on DCU_SU FB)	Lorna Finnegan + SU	Jan 2014	Completed
Open discussion with DCU Units who may be interested in support a reusable water bottle for first year student packs	Sam Fahy, Saorla Kelly Kavanagh, Lorna Finnegan	Jan 2014	On going
Identify DCU Units	Sam Fahy	March 2014	Completed
Gather Info on potential bottles	Sam Fahy, Saorla Kelly Kavanagh, Lorna Finnegan	Jan – Apr 2014	Completed
Presentation to DCU Units	Sam Fahy	Apr 2014	Ongoing
Selection of water bottle + design	DCU Water Bottle group	May 2014	Ongoing
Purchase of water bottle	Sam Fahy	May 2014	Ongoing
Water bottle in first year packs	SU + SSD	Sept 2014	Ongoing
Goal 4 : Reusable Coffee cups			
Action	Person/Group Responsible	Time Frame	Status
All members of Green Committee provides with their own KeepCup	Sam Fahy	March 2012	Completed (This was only possible for first year due to budget constraints)

Open discussion with Catering on Campus	Sam Fahy/Trispace	Sept 2012	Completed
Distribute reusable coffee cups to Green Committee	Sam Fahy	Dec 2012	Completed
Identify trial cup for sale on campus	TriSpace	Dec 2013	Completed
Trial reusable cups with 20% discount for BYOC	TriSpace	Dec 2013	Ongoing
Promote reusable coffee cups	Green Committee	Dec 2013	Ongoing
Awareness campaign on coffee cups	Eimear Donoghue, Mariane Galpo, Saorla Kelly Kavanagh, Pat Hong, Lorna Finnegan, Dave Whittle, Ying Fan, Le Min Chan, Heather Rainey NAMES HERE	Dec 2013	Ongoing
Information Sessions at Coffee docks during Green Days	Eimear Donoghue, Mariane Galpo, Saorla Kelly Kavanagh, Pat Hong, Lorna Finnegan, Dave Whittle, Ying Fan, Le Min Chan, Heather Rainey	Dec 2013	Ongoing
Goal 5 : External Segregated bins (Source and install trial external segregated bins)			
Action	Person/Group Responsible	Time Frame	Status
Identify potential external bin suppliers	Paul Doherty, Sam Fahy	Summer 2013	Completed
Seek donations for trial project on site from three suitable firms (local if possible)	Paul Doherty, Sam Fahy	Summer 2013	Completed
Get trial bins on site and placed in appropriate locations	Estates, Paul Doherty, Sam Fahy	Sept 2013	Completed
Post 4 th year project (Environmental Science and Health Programme) descriptor for analysis of bins on	Anne Morrissey, Sam Fahy	Sept 2013	Completed
Literature Review	Aoife Fallon, Anne Morrissey, Sam Fahy	Oct 2013-Jan 2014	Completed
Circulate literature review to participating	Sam Fahy	Jan 2014	Completed

companies			
Survey all staff & Students on Bins	Aoife Fallon, Anne Morrissey, Sam Fahy	Apr 2014	Completed
Analysis survey results	Aoife Fallon, Anne Morrissey, Sam Fahy	Apr 2014	Ongoing
Analysis contents of bins	Aoife Fallon, Estates Office	Apr 2014	Ongoing
Report on efficacy of segregated bins	Aoife Fallon	May 2014	Ongoing
Goal 6 : Community WEEE Recycling			
Action	Person/Group Responsible	Time Frame	Status
Agree process with Estates/WEEE	Eimear Donoghue/Kathleen Whelan	February 2014	Completed
Awareness campaign for competition	Eimear Donoghue, Mariane Galpo, Saorla Kelly Kavanagh	March 2014	Completed
Seek Sponsorship	Eimear Donoghue	March 2014	Completed
Supervise and record donations	Green Team	March 2014	Completed
Repeat for future Green Days	Green Team	March 2014	Ongoing

Energy Action Plans			
Goal1 : Reduce energy consumption and increase awareness within the Student Centre - Hub			
Action	Person/Group Responsible	Time Frame	Status
Baseline data available for 2010/2011/2012	Richy Kelly, Estates Office	Sept 2012	Completed
Campaigns–run sequentially (one after the other) to allow effective monitoring:	Paul Doherty, Myrian Castanie, Alan Mangan, Mark Young	Feb/Mar/Apr 2013	Completed
Turn off computer (+ other non essential power consumers)	Paul Doherty , Mark Young DCU SU	Feb/Mar/Apr 2013	Completed
Turn off lights	Paul Doherty , Mark Young DCU SU	Feb/Mar/Apr 2013	Completed
Turn off wifi	Paul Doherty , Mark Young DCU SU	Feb/Mar/Apr 2013	Completed
Turn off vending machines	Paul Doherty , Mark Young DCU SU	Feb/Mar/Apr 2013	Completed
Awareness campaign on ‘turn	Paul Doherty , Mark	Feb/Mar/Apr 2013	Completed

heat off before opening windows	Young DCU SU		
Awareness campaign on 'turn heat off before opening windows	Energy Group	Feb/Mar/Apr 2014	Ongoing
Awareness campaign on 'turn heat off before opening windows	Energy Group	Oct/Nov/Dec 2014	Ongoing
Goal 2 : Campus Wide Shut Down to increase awareness			
Action	Person/Group Responsible	Time Frame	Status
Combined Gaelic/Green Week Event	Paul Doherty, Mark Young, Sam Fahy, Richy Kelly	Week 8 2012	Completed
Christmas Shutdown 2012	Estates/Sustainability	Dec 2013	Completed
Christmas Shutdown 2013	Estates/Sustainability	Dec 2013	Completed
Earth Hour 2014	Sustainability DCU	March 2014	Completed
Goal 3 : Computer Power down across campus campaign			
Action	Person/Group Responsible	Time Frame	Status
Identify costs associated with switch off screen / computer	Green Committee/Sam Fahy	March 2012	Completed
Awareness campaign re power down	Green Committee/Sam Fahy	Oct 2012	Ongoing
Identify potential autoshut down mechanisms	ISS	Nov 2012	Completed
Investments in technology	ISS/DCU	Jan 2013	Ongoing
Goal 4 : Use the stairs campaign			
Action	Person/Group Responsible	Time Frame	Status
Energy savings & increased fitness from using stairs rather than lift.	Alan Mangan, Sam Fahy	Jan 2013	Ongoing
Identify how much energy required to walk flight of stairs	Alan Mangan, Sam Fahy	Jan 2013	Ongoing
Equate energy consumed/savings to health benefits/environmental savings/financial savings	Alan Mangan, Sam Fahy	Jan 2013	Ongoing
Draft poster to represent information and encourage stairs	Alan Mangan, Sam Fahy	Jan 2013	Ongoing
Put up poster at each lift shaft	Alan Mangan, Sam Fahy	Jan 2013	Ongoing

Biodiversity Action Plan

Goal 1 : Community Garden and Vegetable Plot

Action	Person/Group Responsible	Time Frame	Status
Launch of Community Garden by DCU President Prof Brian MacCraith	Sam Fahy, Hilary Murphy, Eoin Campbell /Green Committee	March 2012	Completed
LA21 Application for access	Sam Fahy	Spring 2012	Completed (successful)
Clearing & making Site safe	Sam Fahy/Hilary Murphy	June 2012	Completed
Establish Community Garden Development Committee (CGDC)	Sam Fahy	March 2013	Completed
Establish development plan	Sam Fahy/CGDC	Spring/Summer 2013	Completed
LA 21 application for disability access raised bed	Sam Fahy/Saorla Kelly Kavanagh	Nov 2013	Completed (successful)
Development of Community garden safety statement	Sam Fahy/Eileen Tully (DCU Safety Officer)	Mar 2014	Completed
Sources materials for raided bed	Bio Group	Mar 2014	Ongoing
Refurbishment of polytunnel	Sam Fahy/BWP	Mar 2014	Ongoing

Goal 2 : Community engagement

Action	Person/Group Responsible	Time Frame	Status
Engage with GAP & other local community groups	Joanne Ozarowska, Myrian Castanie, Sam Fahy, Hilary Murphy	Mar 2012	Completed/Ongoing
Supervised engagement with St. Aidans Secondary School	Sam Fahy/Saorla Kelly Kavanagh/Patrick Traynor (St. Aidans)	Oct 2013	Ongoing
Engagement with Ballymun Whitehall Tus horticulture programme	Sam Fahy/Saorla Kelly Kavanagh/BW Partnership	Feb 2014	Ongoing
Support 'Age Friendly University' Initiative – promote to Senior citizen buying paper in SPAR/Interfaith!	Sam Fahy/Green Committee	Mar 2012	Completed/Ongoing

Goal 3 : Integrated with core activities			
Action	Person/Group Responsible	Time Frame	Status
Teagasc students pruning practice (2012/2013 class)	Saorla Kelly Kavanagh/Teagasc/Deg in Hort at DCU	Spring 2012	Completed
Horticulture Student projects	Saorla Kelly Kavanagh/Micheal Parkinson	Oct 2013	Ongoing
Teagasc students pruning practice (2013/2014 class)	Saorla Kelly Kavanagh/Teagasc/Deg in Hort at DCU	Spring 2012	Ongoing
Submission of SEAI Better energy communities application	Sam Fahy/Estates/Green Way	Apr 2014	Ongoing
Goal 4 : 'A plant for U at DCU'			
Action	Person/Group Responsible	Time Frame	Status
Project on rockery beside spar shop	Saorla Kelly Kavanagh	May 2013	Completed
DCU Suppliers donated trees for planting at DCU	Saorla Kelly Kavanagh	May 2013	Completed
Goal 5 : Programme to increase Native Irish trees on campus			
Action	Person/Group Responsible	Time Frame	Status
Awareness campaign	Niamh O'Dowd, Saorla Kelly Kavanagh	Oct 2013	Ongoing
National Tree Week 2013	Saorla Kelly Kavanagh /Green Committee	March 2013	Completed
One million trees in one day	Saorla Kelly Kavanagh /DCU Community	March 2013	Completed
National Tree Week/International Women's Day	Saorla Kelly Kavanagh /Green Committee	March 2014	Completed
One million trees in one day	Saorla Kelly Kavanagh /DCU Community	March 2014	Completed
Goal 6 : Biodiversity on Campus			
Action	Person/Group Responsible	Time Frame	Status
Submit project descriptor to Intra placement for Environmental Science and	Sam Fahy/Saorla Kelly Kavanagh	Oct 2013	Completed

Health Course - focus on Biodiversity for			
Manage and monitor placement	Sam Fahy/Saorla Kelly Kavanagh/ Richard Cole (Intra Student	Apr 2014	ongoing
Participate in Intervarsity Bioblitz	Green Team + experts !	May 2014	Ongoing

Transport Action Plan

Goal 1 : Smarter Travel Campus (in conjunction with NTA)

Action	Person/Group Responsible	Time Frame	Status
Awareness of sustainable transport to/from campus	Sam Fahy/Transport Team	Oct 2013	ongoing
Awareness of shower facilities on campus for walkers/cyclers	Sam Fahy/Transport Team	Oct 2013	ongoing
Establishment of Smart transport committee	Sam Fahy/STC	Apr 2014	ongoing

Goal 2 : Promote Walking/Cycling

Action	Person/Group Responsible	Time Frame	Status
Marchaton	DCUSU/Green Comm	March 2014	Completed
Transport Green Day	Transport Team	Apr 2014	Ongoing
Engagement with 5k fun run	All Green Committee !!	Apr 2014	Ongoing
Rediscovery Centre bicycle workshops at each Green Day	Sam Fahy/Rediscovery Centre	Oct 2013	Ongoing

Water Action Plan

Goal 1 : Reduce Water Consumption on Campus & At home

Action	Person/Group Responsible	Time Frame	Status
Awareness campaign	Water team	Oct 2013	Ongoing
Green Day 3 - Water	Water team	Mar 2014	Completed
Flow Movie	Water team	Mar 2014	Completed
Rocket competition	Abdul Ali Hassan, Brendan Heery/ water team	Mar 2014	Completed

Goal 2 : Water Harvesting for Community Garden

Action	Person/Group Responsible	Time Frame	Status
Assess possibility of rain water harvesting (RWH) on community garden sheds	Abdul Ali Hassan, Brendan Heery/ water team	Oct 2013	completed
Source materials for RWH system (with limited/no financial resources)	Abdul Ali Hassan, Brendan Heery/ water team	Nov 2013	Completed
Install system	Abdul Ali Hassan, Brendan Heery/ water team	Nov 2013	Completed

Goal 3 : Water Bottles

Action	Person/Group Responsible	Time Frame	Status
Gather information on potential reusable water bottles	Saorla Kelly Kavanagh, Lorna Finnegan, Sam Fahy	Oct 2013	Completed
Assess student feedback on reusable water bottles via FB	Lorna Finnegan	Feb 2014	Completed
Identify units/groups within DCU that could financial support a water bottle for first year orientation packs	Sam Fahy	Apr 2014	Ongoing
Identify suitable bottle	Water bottle group	May 2014	ongoing
Put reusable water bottle in all first year orientation packs	Water bottle group	Sept 2014	ongoing

Communications Action Plan

Goal 1 : Green Days

Action	Person/Group Responsible	Time Frame	Status
Agree first set of dates	Sam Fahy/Green Committee	Oct 2013	Completed
Agree focus + activities	Green Committee	Oct 2013	Completed
Awareness campaigns on FB etc	Green Committee	Oct 2013	Completed/Ongoing for future dates
Write report on completed GD's	Nominated Green Committee member	Oct 2013	Completed/Ongoing for future dates

Goal 2 : Sustainability/An Taisce Green Campus Information session for all new first years

Action	Person/Group Responsible	Time Frame	Status
Get agreement with Student Support and Development for slot in Orientation week	Sam Fahy/Paul Doherty	May 2013	Completed
Draft slides and submit to SSD	Sam Fahy	Aug 2013	Completed
Deliver presentation (10 times!!)	Sam Fahy	Sept 2013	Completed
Report for next intake – Sept 2014	Sam Fahy	Sept 2014	Ongoing

Goal 3 : Notice Board

Action	Person/Group Responsible	Time Frame	Status
Identify process for gaining notice boards on campus	Saorla KK	Jan 2014	Completed
Apply for Notice Board	Saorla KK	Feb 2014	Completed
Manage and update 'Sustainability DCU' notice board	Green Comm	Apr 2014	Ongoing

Goal 4 : Linked Events

Action	Person/Group Responsible	Time Frame	Status
Identify potential linked events to support Green Committee activities	Green Committee	Oct 2013	ongoing

5. Monitoring and Evaluation

In 2012/2013 the DCU Green Committee focused on Waste, Energy and Biodiversity across our campus. Having not participated in the An Taisce Green Campus Programme before, there were many stumbling blocks in our first years in particular in relation to the monitoring and evaluation of projects. With all efforts being provided on a voluntary basis the following lessons were learned:

- The Green Committee Chair cannot lead all projects.
- Establishing a timeline for projects that take into account the academic calendar (i.e. when exams are etc.) is very important as coming up to major project submission dates and exam time there is an understandable significant reduction in student engagement.
- Committee Meeting need to be regular and have a set format – in 2013/2014 the DCU Green Committee agenda will include an agenda point for reports from each of the Team leaders on projects and progress.
- Records of meetings need to be diligently kept – with written reports from each team leader particularly on monitoring and evaluation of projects – as this will aid significantly the writing of the next application.

With our lessons learnt in mind here is a report on the monitoring and evaluation of projects in 2012/2013 undertaken without our current insights.

5a. Waste

All waste collections from DCU are weighed and recorded by Thorton's, our current waste partners. Figure 5a.1 below shows the breakdown of waste from DCU in 2012.

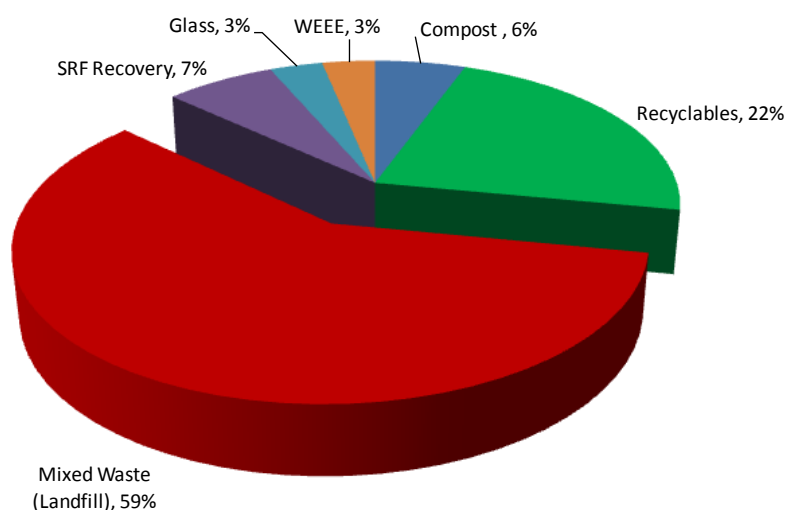


Fig 5a.1: 41% Overall Recycling Rate For 2012

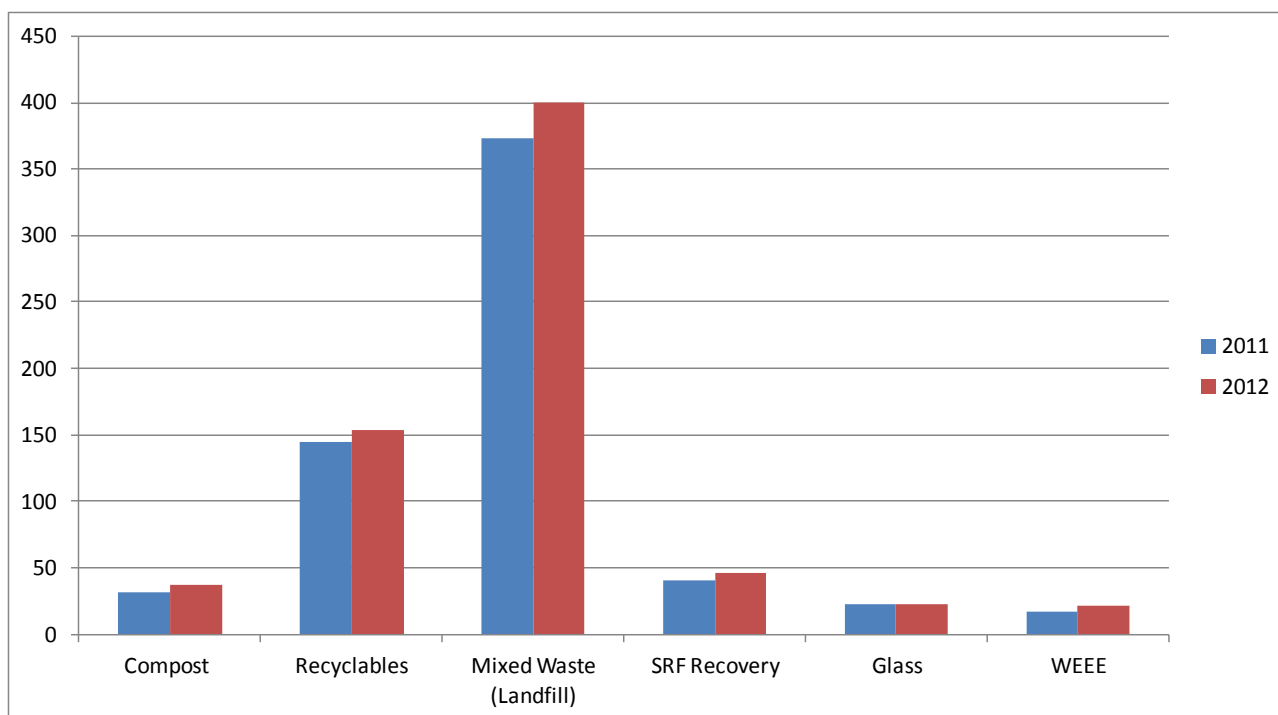


Fig5a.2 : Breakdown of waste stream in metric tonnes comparing 2011 and 2012.

Waste stream	Total Waste 2011 (Tonnes)	%	Total Waste 2012 (Tonnes)	%	Kg per FT Student 2012/2013		% variance
					2011/2012	2012/2013	
Compost	31.03	5%	37.63	6%	3.64	4.14	+14%
Recyclables	144.19	23%	153.05	22%	16.92	16.84	-0%
Mixed Waste (Landfill)	373.52	59%	400.55	59%	43.83	44.07	+1%
SRF Recovery	40.56	6%	46.09	7%	4.76	5.07	+7%
Glass	23	4%	22	3%	2.70	2.42	-10%
WEEE	16.41	3%	21.94	3%	1.93	2.41	+25%
Total	628.72	100%	681.26	1	73.77	74.95	+2%
Total Full Time Students					8,523	9,089	+566

In 2012 the total waste output increased to 681.26 metric tonnes compared to 628.72 metric tonnes in 2011. This represents an overall increase of 8%, however DCU did manage to maintain the same rate of recycling with 41% of the waste diverted from landfill. While our initial environmental review did not include Glass and WEEE we were able to get this data from our estates office and make the necessary comparisons. Using full time students as a scaling factor we can see that comparatively our overall waste production has increased per full time student. This is not a good outcome and more effort needs to be focused at reducing the overall waste production at the initial stages i.e. purchasing etc. There are however some positives the total level of composting and WEEE recycling per full time students rose significantly much of this success if due to our catering services and to Kathleen Whelan in the Estates Office who drives and promotes the WEEE recycling. We anticipate that as the projects below continue to grow and develop that we should be in a position to improve this significantly. We do need to focus on

reducing the production of waste, projects that will address this directly are the reusable coffee cups and also the reusable water bottles but these do take some time to embed before we will see results.

Project 1: Segregated bins in Student Hub aiming to increase % diverted from Landfill

Early in 2013 the Green Committee agreed to see if we could reduce our waste going to landfill from our baseline data figures. In this project we specifically targeted the Student Area – The Hub. It was agreed to start small and with the help of the Estates Office and Thornton's a recycling bin was installed in the Hub. Mark Young was the lead and regularly monitored the bin in term of visibility and usage and reported orally to the Green Committee on progress. Mark noted that students were not making good use of the bin and that the visibility of the bin was not particularly high. In the evaluating this project it was noted that the deployment of internal recycling bins needs to be broader to embed their correct use.

During the summer of 2013 Paul Doherty and Patrick Keane, during their intern placement, devised a number of action points that they felt would help increase recycling and reduce the amount of waste leaving the campus destined for Landfill. These included a waste audit of the current external waste management system in DCU, a site visit to DCU's current waste management company, proposals for a more effective internal waste management infrastructure and meeting with other institutions that had received An Taisce Green Flag recognition such as TCD and UCC. There were several useful outputs from this project are summarised below (Full details are available in Appendix 4).

Location of internal recycling bins

- Currently, there are no internal recycling points on the DCU campus – There are several 'green bins' in offices but there are no communal areas dedicated to recycling (mixed dry, organic, glass). As part of this project a proposal was drafted to be submitted to the DCU Estates Office for the introduction of such facilities. This would be a huge benefit to the green campus initiative and publicly for DCU to be leading the way for sustainability in third level institutions in Ireland. As well as the sustainability benefit of these installations there will also be a financial benefit to the University leading to savings on waste disposal. The proposal is currently being finalised for submission to The DCU Estates Office.

A tour of the Thornton's Waste facility highlighted some very interesting points

- Waste only need to be sorted into 'Recyclables' and 'non-Recyclables' as Thornton's have the facilities to segregate the recyclables on their site – this has important implication for what bins are required at DCU but also it should be remembered that when the next call for tender is required for our waste management partners then specifying this as a requirement in the call would be important as if a new waste company required greater segregation this would invalidate our investment in dual recycling bins.
- A second interesting point highlighted by the visit to Thornton's is that not only do they put all our designated 'recyclable' waste (i.e. what we have put in green bins) through the waste segregator but they also put our red bins (i.e. designated by us as non recyclable) through this machine. This allows Thornton's to divert any recyclable waste that has inadvertently been put into the incorrect bin from going to landfill, saving both the environment and money. DCU does not get any rebate on saving made through this process – i.e. we pay full price for

red bins! The details of how much savings are made are not known at this time but it may well be a next step on this project to investigate this.

Project 2: Reduce total tonnage of waste produced (per head of student) via Awareness campaigns, Seminars, Green Screens

The aim of this project was to communicate with the DCU campus community to encourage and support a concerted action to reduce the production of waste on campus. As an initial set Dr. Anne Morrissey, Green Committee member made a visit to UCC to understand how they had accomplished such significant levels of recycling – Anne’s report is available in Appendix 5. The group working on this project decided to focus was on printed matter. In 2011 DCU spend approx €500k on printing (both external and internal), while much of this printing may have been necessary and completely justified there did not appear to be any controls or measures in place to prevent unnecessary or duplication of printing. Initial plans were to develop a survey for circulation to all staff and students to assess the level of understanding; a draft survey was developed however due to the student completing their course of studies at DCU this project has not currently reached any conclusion but is under consideration for continuation by the current Green Committee.

Project 3: Potable Water Points & Campaign to reduce plastic bottle waste

It was agreed by the Green Committee to try and tackle this issue as it was considered that a major contributor to waste on campus was plastic bottles. The predominant source of these was 500ml water bottles typically purchased on campus. In fact several of the food outlets on campus offer meal deals that include a free plastic bottle of water. While the committee felt that we should promote the drinking of water over other soft drinks we needed to address where students could source water if they were not to purchase same. The project took two strands, Paul Doherty, as president of the SU and a member of the Green Committee undertook to investigate where the SU might source reasonable priced reusable water bottles. In addition it was agreed to undertake a campus survey of where all the potable water points were and map them. Sam Fahy engaged with the DCU Estates Office who agreed that should there be a requirement for more potable water points that they would investigate their installation. Unfortunately in 2012/2013 there were insufficient resources to undertake this mapping exercise but the project has been taken up by the 2013/2014 Green Committee. It is planned to have reusable water bottles available for sale through the DCU SU from January 2014 and that the initial map will be published on the Sustainability web pages by end Q1 2014.

Project 4: Reusable Cups

In this ongoing project the DCU Green Committee sought to reduce the number of paper coffee cups consumed on campus every day. Initial discussions started with the DCU catering company, TriSpace in December 2012 to investigate how we could work together to move from paper cups to a more sustainable cup. Samantha Fahy, chair of the Green Committee, investigated what other universities had done. One example from a partner University in Sweden was the creation of University branded reusable cups. In discussion with colleagues at Linköping University, they reported a very good uptake from the student body with a significant impact on the reduction of paper coffee cups. While the DCU catering company was interested in this there was an imminent change in management of the company. This put this project on hold for some time (~6mts). In mid 2013 Sam Fahy met again with senior management in TriSpace who were again very interested in supporting sustainable activities on campus. It was noted that paper coffee

cups cost them 17c per cup with an additional cost for the lids and so following several discussions it was agreed that the initial step would be for TriSpace to invest in 100 reusable cups, these were purchased in October 2013 and went on sale in the main restaurant, TriSpace has very kindly sold these cups at below cost price of €3.50 (the cost price was €4.54each). In addition a 10% discount was offered to all those who brought their own cup. This project is however only beginning the next agreed steps are:

1. If the initial 100 cups sell successfully then TriSpace will work with the Green Committee and DCU SU to investigate the possibility of purchasing DCU SU branded cups. It was felt that students would be more inclined to purchase an SU branded mug.
2. Investigate the number of people availing of the 10% discount and consider mechanisms to promote this across the staff and student body.
3. Investigate the possibility of replicating the model across all coffee outlets on campus.

Project 5: External Segregated bins

From its initial registration the DCU Green Committee has been looking at what measures could be practically implemented on campus to increase our level of recycling. One of the original suggestions was the introduction of external segregated bins. This however posed several problems the largest being that there were insufficient funds at the time for an overhaul of the Universities external bins. In addition to this any replacement of the bins on campus would entail a full tender action as DCU is a public body. During informal discussion of some Green Committee members (towards end of Semester II 2012/2013 when attendance numbers were light !!) we agreed that we would look at running a pilot research project that would examine the efficacy and aesthetics of several external recycling bins. To this end Paul Doherty and Sam Fahy identified external bin companies that would participate. The following companies agree to supply trial bins for the project:

Company	Address	Web
	Ecobin Ltd., Kilbrook Mews, Enfield, Co. Meath, Ireland.	http://www.ecobin.ie/
	Glasdon Ireland Division, Glasdon UK Limited, Preston New Road, Blackpool, Lancashire, FY4 4UL	http://www.glasdon.ie/
	Larkin Street Products, Business Centre, Weir Road, Tuam, Co. Galway, Ireland	http://www.larkin-eng.com/

Two members of the Green Committee Dr. Anne Morrissey and Sam Fahy opened discussion with the chair of the Environmental Science Programme at DCU, Dr. Blánaid White and agreed to submit a fourth year project on the bins. The project description is outlined below.

Efficacy of External Recycling Bins

Our planet, both locally and globally, is being pushed to the brink through unsustainable lifestyles, production and consumption patterns and the impact of population growth. The concept of sustainable development embraces economic viability, social & cultural equality and environmental sustainability to provide a framework for our future. Sustainability is a long term vision with a long term impact for our

future generations but required immediate action. As an element within its overarching activities towards supporting sustainability, DCU has committed to the development of a Sustainable Green Campus.

Fourth Year Project Supervisors: Dr Anne Morrissey and Samantha Fahy, Sustainability Manager.

In October 2013 DCU deployed three different styles of external recycling bins. This project will compare and contrast the efficacy of these bins and in addition investigate the engagement/awareness and behaviours of campus users in relation to recycling and sustainability.



Programme of Work

1. Literature Review

The literature review should focus on behaviour and awareness in relation to recycling.

2. Design of Experiment

Design an experiment to assess across all DCU Campus users (staff, students and visitors) over the following non-exhaustive list of criteria – Student can add additional criteria where relevant.

Clarity of message	Is it clear how the bins should be used, is the labelling appropriate, suggestion for improvements...
Usability	Are the ports suitable...
Aesthetic	Does the appearance of the bin encourage people to use it...
Efficacy of use	Assessment of levels of contamination of recycles material – This will require an analysis of the bin contents of each of the bins over a period of time i.e. several data points will be required over an extended period. Students will be expected to measure these data themselves.
Campus User Attitude	What are the awareness levels/attitudes towards sustainability/recycling?
Cost Saving	Using estimations based on the existing bins and their efficacy, estimate the annual cost saving with current bins and also with

	replacement of all bins across campus.
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3. Methodology

The project will require a range of data collection methodologies including surveys, interviews, focus groups to ensure that the opinions of all Campus users are captured. Engagement with the DCU Estates Office and other support units in DCU will be required.

4. Deliverable/Recommendation

The final report should not only contain a report on the efficacy of the bins but also include recommendations that would lead to greater engagement/behavioural change from campus users.

To date a student has been selected for the project, Aoife Fallon and she is working with Anne Morrissey and Sam Fahy. The literature review has been completed but has not as yet been assessed and so is not included at this time but can be made available as soon as it has been assessed and the project is completed. The final report for the project will be submitted in Q2 2014.

It is anticipated that this report will be used to inform DCU call for tender documentation for the replacement of external bins, it is hoped that such a call will be made in Q4 2014 subject to available funding.

Goal 6: Community WEEE Recycling

On Tuesday 25 March 2014 DCU Sustainability/Green Committee ran a free recycling of electrical waste event in conjunction with WEEE Ireland. This event was organised in order to further reduce waste around campus by encouraging students, staff and the wider community to bring in any broken, unused or unwanted electrical items. The event was promoted as a competition between the three group DCU staff, DCU Students and the external community. There was participation from all the targeted groups and a wide variety of items brought in ranging from kitchen appliances to bulbs and batteries. Overall the event proved to be very successful and we will be looking forward to working again with WEEE Ireland in the future. Bank of Ireland donated a €50 one for all voucher as a prize for the raffle and a DCU sports bag was donated by a staff member.

20 people brought in items.

5b. Energy

Dublin City University as part of the e3 energy management initiative (<http://www.e3.ie>) implements many initiatives annually to reduce their energy consumption across campus. This initiative at DCU is being led by Richy Kelly, DCU Estates Manager and member of the DCU Green Committee and in several cases is supported by SEAI under the Better Energy Workplace Programme. A brief summary of these is available in Appendix 6. The projects undertaken by the Green Committee, detailed below, compliment and support the initiatives undertaken under the BEW programme.

Project 1: Student Hub Project: Assessment and monitoring via real time data management system

The Hub Energy project was initiated from the DCU Green Committee in December 2012. We specifically focused on the Hub as it is the Student Centre on Campus and an ideal testbed for demonstrating this project as the students have significant control of activities in this building. The basis for the campaign was to reduce the electricity use in the DCU Student Centre, the Hub over the months of February March and April in comparison with figures from the last 3 years (2010, 2011, 2012). The energy savings target of the awareness campaign was to reduce the electricity consumption in the Hub over the three months to 143,761kWh which represented a 15% reduction. Achieving the savings would save 12.4 Tonnes of CO₂ which is the equivalent amount of carbon that would typically be extracted from the atmosphere by circa 310 square meters of woodland.

The Hub was split into three regions Spar Shop, NuBar and the Hub Remainder which contains the SU Offices as well as the old bar used for functions, the Print Room and Kendal Hair dressers – the breakdown is a function of the DCU Building Management System (BMS). A typical breakdown of consumption is shown in Figure 5a.1 below.

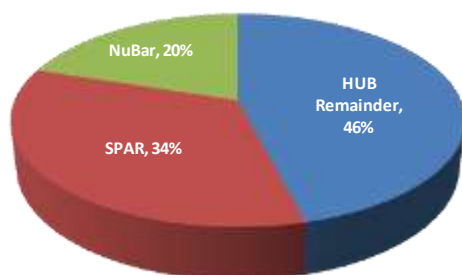


Fig 5b.1. Typical breakdown across the Hub Regions

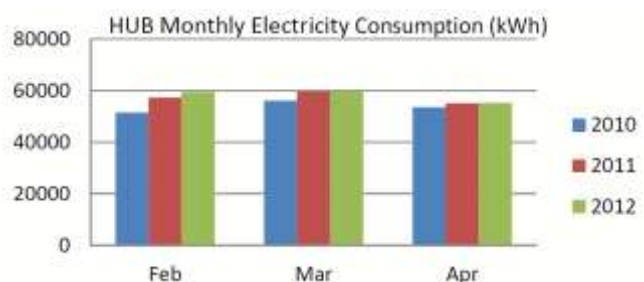


Fig 5b.2 Energy consumption for Hub Centre

Figure 5b.2 shows the energy consumption for the Hub Centre for Feb Mar and Apr for the previous three years.

Paul Doherty (SU President 2012/2013) and Richy Kelly (Estates Office), both members of the Green Committee worked on this project. A campaign was run with the Hub to inform and encourage Hub users to turn off computer, lights, Wi-Fi etc. when not required. The message was communicated via a word of mouth and email campaign – it was agreed not to use posters to reduce paper consumption and waste. Data gathered via the DCU BMS for Feb, Mar and Apr 2013 is shown below in Figure 5a.3.

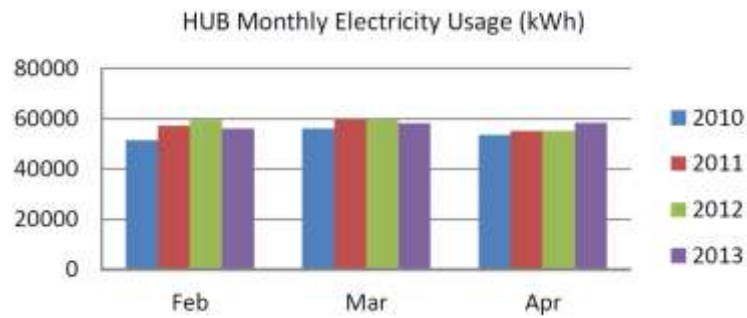


Fig 5a.3. HUB Centre Energy Consumption 2010 – 2013

Results:

The total energy consumed in the Feb – Apr period for 2013 was 172,689 kWh down from 174,378 kWh in the same period in 2012. This is however significantly less than the targeted reduction to 143,761 kWh, savings of 1,689 kWh as compared to a targeted 30,617 kWh represents only a 6% attainment rate which is not particularly impressive. Electricity consumption increased in both the NuBar and the Spar Shop with a minimal reduction in the remainder of the Hub Centre.

We believe there are several explanations for this poor attainment rate including a lack of experience when setting the target in the first place and an untargeted campaign. In addition the SU reported that they believed that the general usage of the Student Centre over the 3 months had increased massively over the previous years. Other factors that may have affected results include:

- Increase in student activities and events in the Student centre, especially nuBAR DCU.
- An unusually warm April would have caused extra energy usage in Spar DCU due to their large amount of refrigeration units.
- Increased student numbers in DCU.

We would like to see this project proceed again for 2014 with a more targeted campaign for the Spar and other Hub businesses.

The 2014 campaign will target the communication of the following energy tips:

- Switch off artificial lighting when natural light levels are sufficient.
- Switch off lighting in rooms which are not in use; where feasible use task-specific lighting.
- Turn off PCs at night rather than leaving them on and save 25% of their annual energy bill.
- Configure your computer to 'energy saving mode' or turn off PCs if they are not in use for more than an hour.
- Switch off any energy consumables which are not in use e.g. photocopiers, electric heaters, TV Screens

Project 2: Campus Wide Shut Down to increase awareness

Unfortunately due to lack of time and resources this project made very limited progress in the period 2012/2013. There was however significant efforts made in December 2013 to have the biggest shut down over the Christmas period. This was supported by the Green Committee, Sustainability DCU and the DCU Estates Office – results are not currently available, but will be included in future reports.

Project 3: Power down across campus campaign

This project was merged into Project 2 above.

Project 4: Use the stairs campaign

This project aimed to inform and educate DCU campus user of the benefits of taking the stairs rather than using the lift. These benefits include the health benefit of additional exercise and the environmental benefit of reducing energy consumption and hence reducing carbon emissions. Initial work was carried out by Alan Mangan, DCU Estates and Green Committee Member on comparisons between calorific consumption and energy savings by using the stairs. Our intention is to create a poster that would compare the calorific content of food with physical energy expended eg “10% of a chocolate muffin equates to five flights of normal stairs”. This project has been significantly delayed but is still ongoing and we would hope to have posters in place at each lift shaft across campus by Q2 2014.

5c. Biodiversity

The focus of this theme is to increase awareness within our community of the need for biodiversity, how our actions are affecting this biodiversity and identify ways that we can enhance and protect the natural biodiversity on our campus. Our initial habitat survey will be used to help us with this effort. We will regularly review the biodiversity on campus and compare back to this original survey. In May 2014 Richard Cole has started a full biodiversity survey of the campus as a Intra placement for his degree in environmental health working with Sam Fahy and Saorla Kelly Kavanagh. It is expected that this database will take 3-4 months to complete and the results will then be compared to the original survey. We would like to use the results of this (as well as the results of the Intervarsity BioBlitz) to ensure that we are aware of invasive species on campus and put in place a plan to manage such species.

The following projects have been undertaken to help with our aim to increase awareness and understanding.

Project 1: Community Garden and Vegetable Plot

The creation of a DCU Community Garden was one of the largest projects undertaken by the Green Committee in 2012/2013. We were most fortunate that DCU was in a position to allocate us a space at the far end of campus that was ideal for such a project. Full details of the Garden and our proposal for its development can be found in Appendix 7.

The ethos governing this initiative will be that it is an open, all inclusive Community Garden that will be utilised as a resource for teaching, research, education, training, recreation and community engagement.

The objectives of the DCU CG are to:

- foster engagement and cooperation both internally within DCU and into our local community through the co-development of a Community Garden,
- facilitate and support relevant teaching and learning programmes from across the University, in particular where the garden can be used as a resource to support such courses,

- facilitate the engagement and demonstration of research development and innovative activities from across the University,
- foster healthy food production and create an environmentally friendly, ecologically sustainable environment,
- educate the members of the DCU CG and the wider community about environmental protection and sustainability through the creation of a space for formal and informal education and expression,
- encourage social interaction, community building and cross-cultural understanding and collaboration.

There are several ways to engage with the DCU CG

Membership Type	Role
Garden Member	Access to communal beds/areas in the Community Garden
Co-Plot Holder	There are no individual plots only community ones. A minimum of 5 people can apply to the Management Committee for access a plot
Sponsor	Support the Community Garden initiative
Trainer	Provide training to garden users
Visitor	Provide support to garden users

Progress to date:

Early in 2012 DCU agreed to the allocation of an unused green space to the DCU Green Committee for development as Community Garden. Throughout 2012 the Green Committee engaged with several external organisations to help with the development of the site. These included Global Action Plan (GAP), the National Botanic Gardens of Ireland and Teagasc. We also worked with internal experts from Horticulture and Environmental Science to ensure we had maximum engagement across the University and community. We also linked up with St. Aidan's CBS Secondary School and as they were seeking their Biodiversity flag we agreed to work together towards our flags. We were very fortunate toward the end of 2012 to get some financial support from the Dublin City Council Local Agenda 21 Environmental Partnership, the DCU Quality Promotion Office support and a donation from Woodies DIY. The table below indicates the progress that has been made on the garden to date and a summary of our plan going forward. Applications have been submitted to several programmes to gain the funds necessary to carry out some of the additional works.

Phases	Timeline
Development	2012/2013
<p>Green and Lush cleared the garden twice over the period (€908)</p> <p>McKeon Construction Ltd did several jobs – they did the initial clearing of the entrance, glasshouse and general removal of materials from the site. They also installed the protective fence for the bees. (€2,511.72)</p> <p>Woodies also made a significant donation of tool and compost. The Horticulture course also provides some support (€300) towards tools</p> <p>There was a cross campus call for a An Taisce Clean Up in May 2012 (Appendix 8) for which there was a great turnout and much work was accomplished in clearing choking grass and briars from the fruit trees and bushes.</p>	Ongoing – it is expected that the development of the Community Garden will take many seasons!
Phase I: Fruit Trees and Bushes	2013/2014
<p>Courses were delivered on pruning skills for apple trees and fruit bushes in conjunction with Teagasc & the Botanic Gardens. The blackcurrants were picked (at least 15 KGs) in August. The gooseberries were attacked by sawfly and so the crop was poor. Sawfly is very easy to eradicate and we will be ready for it next year. The renewal of the apple trees was a huge success. Apple fruit production was at least ten times that of last year. We were lucky to get some rhubarb from a plant that has survived in the garden over the last 7 years.</p>	Completed – but will require ongoing work to keep garden under control!
Phase Ia: Bees	2013
<p>In May/June 2013 the Irish Bee Keepers Association installed the first bee hive in the DCU Community Garden. A fence was installed to protect the bees from Community Garden users. The Irish Bee Keepers Association provides regular maintenance for the bees. No honey has yet been harvested but maybe soon!!</p>	Completed
Phase II : Develop Plots	2013/2014
<p>Open plots</p> <p>Planted and harvested some of the potatoes planted by Marie-Bé and Hannah. We currently have onions in the ground that will be harvested in the next few weeks. And finally, in late October 2013 garlic, winter onions, strawberries and rhubarb were planted.</p> <p>Horticulture Students are using the garden as a facility to test herbicide products as part of their course. See project 3 below for more details.</p> <p>Environmental Science is interested in a research project on the bees as well as using the facility for research and teaching.</p>	<p>Completed (NOTE: not all plots opened as done on a need basis) more plots will be open as demand rises.</p> <p>Ongoing</p> <p>Ongoing</p>

Phase III – Raised Bed	2014/2015
An application has been made to LA21 for support for the installation of a raised bed for disability access in the garden. Additional work will be required for the entrance to make it wheelchair accessible.	
Phase IV – Seminar Shed I	2014/2015
Fundraising required. An application has been made to the DCU QUID programme for funding to develop this shed. The proposal is to develop the shed into a Sustainability Space that would enable and support a diverse range of activities from sustainability seminar programmes to the establishment of a Men's Shed all of which enhance the lives of those within the DCU community but also more broadly into our society.	
Phase V – Shed II	2014/2015
Fundraising required	
Phase VI – Pollytunnels & Glass house	2015/2016
Fundraising required – we may need an external sponsor to get the necessary funds to sort this. An alternative idea being muted is the possibility of using plastic bottles to make a greenhouse – to be investigated!	

Project 2: Community engagement

As reported under project one above there has been significant engagement with our local community – apart from the support from GAP, etc in the development of our Community Garden we are also working very closely with St. Aidan's Secondary School. In 2012 we agreed that as they were also seeking their Biodiversity Green Flag we would work together. In December 2012 we invited the Green Committee from St. Aidan's to give a talk at our Sustainability Seminar on how they have achieved their Green Flags. The boys made an excellent presentation in the Helix. During 2012/2013 St. Aidan's Green Committee also made several visits to the DCU Community Garden and Saorla Kelly Kavanagh, Estates & Green Committee visited the School and gave talks on biodiversity and horticulture. In 2013 Saorla Kelly Kavanagh and Sam Fahy DCU Sustainability Manager attended the planting ceremony at St. Aidan's where two native Irish oaks were planted to support their efforts toward biodiversity in their school. In addition we agree for regular access for the St. Aidan's Green Committee to the DCU Community Garden where they come down once a week to work on the Garden under the supervision of Saorla Kelly Kavanagh.

There is significantly more potential for community engagement with the DCU Community Garden, current limiting factors are the lack of facilities on the site. Should we be successful with fund raising to refurbish a shed on the site that would also provide toilet facilities and this would enable us to engage more significantly.

Project 3: Integrated with core activities

The Community Garden has provided a new environment and platform for enhanced engagement across the entire DCU community and will continue to do so in the future. There are several projects based in the Community Garden supported by the Green Committee and its members.

- In March 2013, Chelsea Willis a student from University of Western Ontario, visiting DCU for the Semester under took a project working with Anne Morissey and Sam Fahy and other Green Committee members. Chelsea submitted her final report title “Biodiversity Evaluation and Species Risk Assessment of the Green Space of Dublin City University – A before-after impact design study” full version available in Appendix 9.
- The CG has been used by Teagasc Fetac level 6 students and DCU’s Horticulture students for practical work and experiments. For example, an experiment was conducted by a number of Green Committee Horticultural students to investigate the difference between an organic herbicide and a conventional herbicide. Initial variables assessed include overall effectiveness of the herbicide (i.e. the number of species affected) and timing of plant die back. Long term variables will include timing of regrowth, amount of regrowth (based on species number and abundance), soil pH, organism count and crop productivity.
- The DCU campus has also been used by Teagasc Fetac level 6 students to carry out a planting and pruning practical. This practical was facilitated by a member DCU’s Grounds Department in the Estates Office.
- Students from the School of Nursing are undergoing a project on the ‘Effects of Recycling on Health’. This is a group project that is part of their course. These students are part of the Green Committee and are working with other members of the G-C to use the results of the project to help encourage recycling on campus.
- Saorla Kelly Kavanagh will start a PhD. on April 1st and will use the honey in the Community Garden as a resource for her studies.
- A member of the Green Committee, Niall Durham is investigating the development of a control system that is able to adjust the heating needs for a classroom. This is sensor based research and the overall aim is to create a cheap effective system that will reduce the energy needs of any room.

Project 4: ‘A plant for U at DCU’ & Project 5 : Programme to increase Native Irish trees on campus

These two projects are very closely linked and so are being combined together. There have been several stands supported by the DCU Green Committee and in particular Saorla Kelly Kavanagh.

Rockery

Early in 2013 a rockery was established just outside the Spar shop on what was an unused and unsightly area. While the Estates Office has supported the initial planting the rockery is now open for staff and students to sponsor a plant for it.

Trees @ DCU

Throughout 2012 and 2013 we have run a campaign with suppliers to DCU asking them to sponsor a tree at DCU. The initial suggestion came from Richy Kelly, DCU Estates Office and Green Committee members and was driven by Saorla Kelly Kavanagh. Table 5c.1 lists the trees planted and their sponsors. This project will continue.

Table 5c.1 Sponsored trees

Common name	Latin name	Irish name	Sponsor	Date
Silver birch	Betula pendula	Beith chlúmhach	Ace Decorators	Dec-12
Wild cherry	Prunus avium	Silíní fiáin	The Students' Union	Mar-13
Bird cherry	Prunus padus	Donnroisc	Academy signs	Apr-13
Pendulate oak	Quercus robur	Dair ghallda	Thorntons recycling	01/03/2013
Wych elm	Ulmus glabra	Leamhán sléibhe	McKeons	03/04/2013
Silver birch	Betula pendula	Beith chlúmhach	DCU Spar	17-Apr-13
Hawthorn	Crataegus monogyna	Sceach gheal	USTART	01-Sep-13
Strawberry tree	Arbutus unedo	Caithne	Tully Nurseries	01-Aug-13
Rowan/Mountain ash	Sorbus aucuparia 'Autumn Spire'		Hodges Figgis	01-May-13
Hawthorn	Crataegus monogyna	Sceach gheal	Nubar	01-May-13
Crab apple	Malus sylvestris	Crann fia-úll	DGM Ltd	01-May-13

In addition there was a concerted campaign to plant more trees right across campus, between 2011 and 2013 the number of trees on campus has nearly doubled and the percentage of native Irish trees has increased from 34% to 60%. DCU was part of the 'One million trees in one day' campaign. Staff and students planted trees on the day (Sam Fahy (National Centre for Plasma Science Technology), Ursula Baxtor and Michael Woods (Business), Ger McEvoy, Graham Whelan, Alan Mangan, Mark Argue, Kevin Moran, Kathleen Whelan and Mark Roache (Estates), Shay Keating (Security), Marie-Bé Leduc (Environmental Science student) and Declan McCool (Politics student)).

This project will also continue.

National Tree Week and International Women's Day 2014

During National Tree Week (3rd – 7th March 2014) and in conjunction with International Women's Day (8th March 2014) the DCU Green Committee/Sustainability DCU asked women from across Dublin City University to plant trees on our campus. An email send to all staff/students seeking volunteers was completely oversubscribed in minutes. These trees were kindly donated by staff members and the One Million Trees in One Day Campaign.



Some of the planters supporting Tree Week and International Women's Day

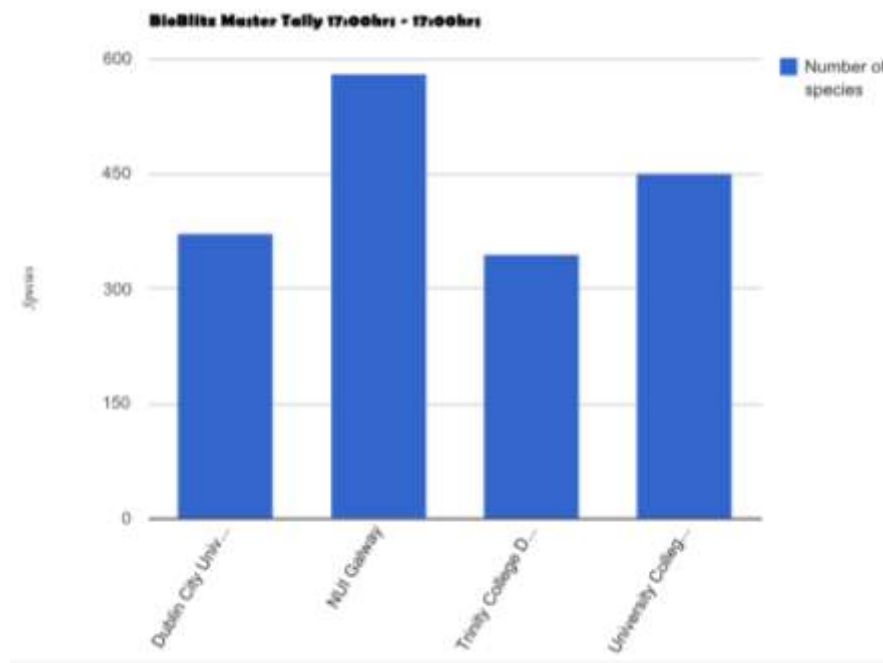
DCU's tree planters include: Shirley O' Brien and Aisling Deignan from Oilscoil (Birch – *Betula pendula* and Mountain Ash – *Sorbus aucuparia*), Suzanne Dockery, School of Mechanical and Manufacturing Engineering (Birch – *Betula pendula*), Eimear Donoghue DCU student / Green Committees Waste Team leader (Willow – *Salix viminalis*), Samantha Fahy, Sustainability DCU (Willow - *Salix cinerea*), Ailbhe Garvey, DCU in the Community (Pine – *Pinus sylvestris*), Mariane Galpo, student Sustainability Officer (Hazel – *Corylus avellana*), Sarah Ingle from the Office of Quality Improvement (Hawthorn - *Crataegus monogyna*), Saorla Kelly Kavanagh, Sustainability DCU (Pine – *Pinus sylvestris*), Tia Keyes, School of Chemical Sciences (Alder - *Alnus glutinosa*), Jenny Lawler, School of Biotechnology (Hawthorn - *Crataegus monogyna*), Ekaterina Nesterenko, APT (Mountain Ash – *Sorbus aucuparia*), Genevieve Quinn, ISS (Mountain Ash – *Sorbus aucuparia*), Maree Ralph, Oilscoil (Alder - *Alnus glutinosa*), Ana Terres, RIS (Alder – *Alnus glutinosa*) and Le Min Vinci DCU student Green Committee member (Blackthorn – *Prunus spinosa*).

Special word of thanks to the DCU Estates and Grounds Department with particular thanks to Kevin Allen for his identification of where best to plant the trees on campus.

Intervarsity BioBlitz 2014

In May 2014 DCU along with three other third level institutions participated in a competition to identify the most species on campus within a 24 hr period. We were very fortunate to have Richard Cole, a third year Environmental Science Student to manage the event. We put a call out to all staff and students and while

the event was scheduled for the last day of term there was a reasonable turnout with over 15 volunteers. We were also very fortunate to have some external experts come in to help us – Enda Mullen, a District Conservation Officer (DCO) with the Wicklow Mountains National Park and Howard Fox from the National Botanical Gardens were a great help. As can be seen from the chart below DCU came 3rd with 373 individual species identified. A full list of all the species identified from all the universities can be see here : <http://records.biodiversityireland.ie/bioblitz.php?bkey=IntersivityBioBlitz2014>.



Final tally for the 1st Intersivity BioBlitz (University Colleg... is University College Cork)

6. Link to Learning on Campus

As mentioned in the introduction there are several activities across campus that are focused at engaging and embedding Sustainability at DCU. In addition to these the Green Committee has support even greater engagement as demonstrated is the list below. At the end of this section there is a table with a (non-exclusive) list of the programmes within DCU that have a sustainability element address within them.

- In 2010/2011 Dr. Anne Morrissey developed a new module MG334 Business and Society, which introduces the learner to key issues in environmental and sustainable development faced by organisations and develops in learners an awareness of the link between corporate social responsibilities, management of the organisation and the environment. In its initial year there were 7 students but in 2012/2013 this grew dramatically to 99. With a core element of the module requiring a practical project Anne called on other members of the Green Committee to help. Both Samantha Fahy and Richy Kelly gave presentations to the class outlining current activity and then supported and supervised several project groups. Some of the projects and suggested feedback from those students that will feed into future Green Committee plans can be found in Appendix 10.

- During the summer of 2012/2013, two students from the B.Sc. in Environmental Science & Health undertook their internships with Samantha Fahy and focused on Green Committee Activities. Reports from Paul Doherty and Patrick Keane can be found in Appendix 4. It is envisaged that this practice will continue in future years.
- Also in 2013/2014 Anne Morrissey and Samantha Fahy submitted a fourth year project to the MSc B.Sc. in Environmental Science & Health on the deployment and monitoring of the external recycling bins at DCU. This project is ongoing.
- The Community Garden has provided a new environment and platform for enhanced engagement across the entire DCU community and will continue to do so in the future.
- The CG has been used by Teagasc Fetac level 6 students and DCU's Horticulture students for practical work and experiments. For example, an experiment was conducted by a number of Green Committee Horticultural students to investigate the difference between an organic herbicide and a conventional herbicide. Initial variables assessed include overall effectiveness of the herbicide (i.e. the number of species affected) and timing of plant die back. Long term variables will include timing of regrowth, amount of regrowth (based on species number and abundance), soil pH, organism count and crop productivity.
- The DCU campus has also been used by Teagasc Fetac level 6 students to carry out a planting and pruning practical. This practical was facilitated by a member DCU's Grounds Department in the Estates Office.
- Students from the School of Nursing are undergoing a project on the 'Effects of Recycling on Health'. This is a group project that is part of their course. These students are part of the Green Committee and are working with other members of the G-C to use the results of the project to help encourage recycling on campus.
- During 2013 the Green Committee was very lucky to have the support and input from Dr. Blánaid White, Chairperson for the B.Sc. in Environmental Science & Health. Through working on the development of the Community Garden Blánaid identified with another Green Committee member, Saorla Kelly Kavanagh (DCU Estates & Sustainability), a research project investigating honey and potential environmental markers that are found in it. Having bees in the Community Garden provided the resource and external funding has now been put in place and Saorla will start a PhD. on April 1st 2014.
- A member of the Green Committee, Niall Durham is investigating the development of a control system that is able to adjust the heating needs for a classroom. This is sensor based research and the overall aim is to create a cheap effective system that will reduce the energy needs of any room.

Programme Chair/ Lecturer	Programme - Year	Module	Description	Green Campus Theme	Notes
Dr. Mark Cummins	Masters/ Graduate Certificate in Sustainable Energy Finance DC959	all	The objective of the programme is to provide a broad and comprehensive overview of sustainability finance to support new business streams within investment banks, professional firms working in the broader green economy and companies which are developing renewable products and technologies.	overarching	
Gerry Conyngham	M.Sc. in Management (Business)	MT5113 : Next Generation Management	The Next Generation Management module aims to provide students with the opportunity to develop the competencies required for successful management careers and to contribute to business success. Particular emphasis is placed on reflective and critical thinking, collaborating with people, creating and sharing knowledge and dealing with complexity. The module is structured around the major personal, organizational and contextual challenges in modern management and focuses on four key themes.1. Personal and Career Development: Competence assessment, planning and development;2. Global and societal awareness;3. Research;4. Digital media and communication	Environmental /Economic impacts	
Dr. Blainaid While	Environmental Science and Health	All	Focus on increasing awareness of environmental issues and their effects on health. Problems such as diminishing fossil fuel reserves, radioactive and general waste management, and climate change have captured the imagination of the public and politicians alike. On this course, you will be encouraged to explore the traditional science disciplines of chemistry, physics and biology in combination with the discipline of health. In this way you will gain an understanding of the cause of the	Energy Water Waste Biodiversity	Three Students from this programme have done 3 mt Intra placements and one fourth year project with Sustainability DCU/Green Campus programme– this

			problems we face, and gain the skills necessary to reduce their impact on the public's health, as well as improving the state of the environment.	Transport	engagement will continue to be developed.
Dr. Michael Parkinson	Degree In Horticulture	All	Offered by DCU's School of Biotechnology and Teagasc, this new four-year honours degree course has been developed to incorporate the theoretical and practical aspects of horticulture providing you with the knowledge and expertise you'll need for a career at the highest professional level. You will have the opportunity to develop your interest in the many aspects of horticulture as well as discover the scientific knowledge that underlies all plant life and the creative and business aspects of horticulture.	Water Waste Biodiversity	Unfortunately there will be no new intake of student on this programme in 2014.
Dr. Anne Morrissey	M.Sc. in Management of Clean Technologies	all	The programme's main philosophy is that for business to be successful and competitive in the long-term, the whole of the business' resources, including environmental, economic and social resources, must be managed from a perspective that integrates the growing importance of clean technologies and the contribution they have to make to economic competitiveness.	all	Distance Education programme Modules can be taken as Continuous Professional Development
Dr. Anne Morrissey	M.Sc. in Management for Sustainable Development	all	The programme's main philosophy is that for business to be sustainable in the long-term, a successful manager must effectively manage the whole of the business' resources, including environmental, economic and social resources, from a sustainable, global perspective.	all	Distance Education programme - Modules can be taken as Continuous Professional Development
Dr. Anne Morrissey	M.Sc. in Management of Operations	OSC2 Module : Business	This module consists of three elements with one assignment per element. In <i>Legal Frameworks</i> , you are introduced to Irish Law, court procedure and litigation, remedies and enforcement	all	Distance Education programme

		Support Systems	and will be equipped to understand European Environmental legislation and how this relates to Irish law. In <i>Research Methods 1</i> you are introduced to Qualitative and Quantitative research methods, while in <i>Business and the Environment</i> you are provided with an understanding of the essential elements of environmental management, including environmental management systems within an organisation and its link to business management.		Module can be taken as Continuous Professional Development
Dr. Charlotte Holland	BSc in Education & Training	ES105: ICT-enabled Ed. for Sustainable Development	The purpose of this module is to enable learners to design, develop and implement a virtual learning environment, which encompasses curriculum development within the theme of Education for Sustainable development. Learners will engage in a series of lectures, practicals and tutorials that will enable discussion and critical reflection on core concepts with technology-enabled Education for Sustainable Development. In groups, learners will source key resources and design and develop their own Moodle (VLE) course within theme of ESD. Individually, learners within each group will take responsibility for the design of learning activities for a key topic on the course. The practical session will focus on upskilling the learners primarily in the use of Moodle to create a virtual learning environment which could be used in a variety of teaching contexts from primary through to further, adult and continuing education. Learners may also be requested to attend external seminars on key topics (such as Human Rights) where such seminars become available.	All	Several other modules in the BSc in Education and Training deal with sustainability principles
Alan Kearns Bert	MA in Ethics	Environmental Ethics: Perspectives	This MA in Ethics programme provides participants with knowledge, skills and competence to examine ethical issues, challenges and dilemmas in professional and public life from a	All	Delivered in conjunction between Mater Dei and

Gordijn.		es & Challenges	<p>wide spectrum of ethical worldviews and theories.</p> <p>The programme provides participants with a grounding in the foundations of ethics, human rights and social justice.</p> <p>Participants will also develop the necessary ethical analysis and decision-making skills to apply ethical perspectives and principles to real-life and professional dilemmas. As such the programme aims to 'add value' to continuing professional development.</p>		Institute of Ethics at DCU
Dr. Colum Foley	Optional modules for several courses	MG334 - Business and Society	<p>The module introduces the learner to key issues in environmental and sustainable development faced by organisations and develops in learners an awareness of the link between corporate social responsibilities, management of the organisation and the environment.</p>	all	Project are linked closely with Green Committee activities on campus
Dr Margaret Farren	MSc in Education and Training Management eLearning Stream (DC902)	all	<p>The MSc in Education and Training Management (eLearning) offers a variety of perspectives and new approaches to teaching, training and learning. You are encouraged to provide evidence-based accounts of how you are improving work practices within your organisation and generating new knowledge.</p> <p>The eLearning strand is unique in its expertise in practice-based and practice-led research, which allows a depth of qualitative analysis unparalleled in other Irish institutions.</p> <p>eLearning allows for the development of synergy - the interaction of the students is integral to the success of the</p>	All	Support education for sustainable development principles

programme.

**Prof. Barry
McMullin**

B.Eng. and M.Eng. in
Electronic Engineering
(Bachelor Honours
and Masters Degree)

Intro
Modules

More than any other discipline, electronic engineers have been at the heart of generating the technology of our modern society. However, there are still major global problems to be solved, and you can be sure that because of their knowledge and skills electronic engineers will be at the forefront in creating solutions. Whether it is problems of clean water, sufficient energy, global warming or better global nutrition and health, electronic engineers will be developing solutions that will complement and coordinate the activities of other disciplines.

Overarching

7. Informing and Involving the Campus and Wider Community

The launch of the Green Campus Programme was marked by a tree planting ceremony by DCU's president Professor Brian Mac Craith. This launch was advertised through social media as well as the DCU news webpage. An email was sent to all staff and students to inform them of the Green Campus Programme and to ask if they would like to get involved. Sustainability DCU informs all incoming students about the Green Campus initiative through presentations during induction week.

Throughout the year email were sent to all staff & student mailing list to advise them of activities relating to the Green Committee such as the An Tasice Spring Clean in the Community Garden (Appendix 8) in May 2012. In October 2012 the DCU student newspaper ran a front page story on the Community Garden (Appendix 11). The DCU Students Union also ran a Green Week in Week 8 2012 to highlight some of the activities of the Green committee and encourage greater engagement. While this was somewhat successful it was agreed that in 2013/2014 along with the green week there would also be a regular Green Day to maintain momentum on green issues across the campus. The 3rd December 2013 marked DCU's first Green Day, there were several activities run across the day see Appendix 12 for programme. Each month a Green Day will be held on campus to create awareness and encourage staff and students to live a more environmentally friendly lifestyle. The upcoming Green Days will have a specific theme associated with them. The theme for the 12th February is Climate Change and the 25th March will be a water themed Green Day to raise awareness for World Water Day.

In December 2012 the Green Committee organised and support the running of a Sustainability Seminar hosted in the Helix at DCU. Prof. Michel Ricard, Head of the UNESCO chair at University Michel de Montaigne Bordeaux gave the keynote address and there were talks from St. Aidan's on their Green Flag efforts. The full programme along with the list of the 33 poster presented following the seminar from PhD students from right across DCU can be found in Appendix 13. This seminar was open access with no registration fee. It was well attended with many delegates from outside DCU. Further seminars are planned.

Much of the external involvement with the Green Committee, such as engagement with St. Aidans and local green organisations has been documented under Section 6 above. It is anticipated that as the Community Garden develops that engagement with the external community will be strengthened.

In 2013/2014 DCU's Environmental Society, the Grow Your Own Society and the Student's Union have all contributed to creating awareness about the Green-Campus Initiative. An environmental themed fashion show '*Creating fashion using recycled materials*' is currently being organised between the Environmental

Society and the Fashion Society. The Grow Your Own Society has contributed by encouraging staff and students to grow their own fruit and vegetables and by encouraging staff and students to become creators instead of consumers. This has been achieved by providing learning and creative workshops on, how to prepare the soil for planting, planting demonstrations for a range of vegetables, how to prune fruit trees and shrubs and wreath making. A 'Community Clean Up' event has been organised by the Environmental Society. It will take place on the 19th February 2014. The Media Production Society and the Journalism Society have both helped to promote the Green Campus Initiative. This has been done through radio advertisements and news articles in the Student View (internal newspaper). The Marketing and Communications Department have also promoted this initiative by allowing a section of the DCU Ezine (internal magazine) to be dedicated to the Green Campus Campaign. The committee has engaged with St Aidan's CBS on numerous occasions and are working with them on the Green Schools Programme.

Participation of staff and students has been encouraged by hosting fun workshops (e.g. beeswax candle making) and through competitions (e.g. best sustainable act on campus photo competition). The Environmental Society is working on a number of projects to encourage greater participation (e.g. organising a field trip to Cloughjordan Eco Village). Various seminars have been held on campus to provide educational resources with the hope of '*opening the eyes*' of staff and students (e.g. Adapting to Climate Change: Social Sciences Shaping the Public Policy Response at Local Level - Martin McEvoy Annual Seminar 2013).

8. Green Charter

DCU's Green Committees Green Charter

The Green Committee at Dublin City University, made up of volunteer staff and students, believes in a sustainable future that provides the fair and equitable balance that is needed to share the earth's resources between all its inhabitants while working toward reducing our carbon emissions. It is an enormous task that we must all tackle together.

Our Green Committee is committed to

- embedding sustainable practices across our University
- informing and educating other within the DCU Community about importance of sustainability and why we need to create a more sustainable future
- informing and educating other within DCU on what they can do to have a positive impact both on and off campus
- informing and educating our wider community, including family and friends about importance of sustainability and why we need to create a more sustainable future
- informing and educating our wider community, including family and friends about what they can do to have a positive impact the sustainability of our planet

Specifically in 2013/2014 we will focus on

Energy

- Raise awareness of energy consumption by Students, Staff and Vistors
- Reduce energy consumption on campus in conjunction with Estates workprogramme

Water

- Reduce consumption
- Treat as a valuable resource

Waste

- The DCU sustainability committee together with the Dublin City Council and the DCU environmental society are partaking in the litter awareness campaign . Once every three weeks members will be cleaning up a street in a bid to both reduce litter and create awareness of waste in the local community.
- Together with WEEE Ireland, the waste committee are holding a one day collection of electrical and battery waste within DCU's main campus. Students staff and the wider community can take part in this event in which we hope to encourage people to recycle their electrical items and correctly dispose of them.

Biodiversity

- Increase awareness of the importance of biodiversity
- Create a biodiversity database
- Increase biodiversity on campus through tree planting events

Transport

- In order to reach our goal, we decided to take it step by step. There are so many projects listed for transport. At the moment, with the support of SU, DCU is taking part in Smarter Travel Campus' Marchathon Challenge from 3rd-7th of March. Green Committee also run a Rediscovery Bicycle Workshop every month which also falls on our Greenday.

<http://www.dcu.ie/ocoo/sustainability/sustainable-campus.shtml>

<https://www.facebook.com/sustainabilitydcu>

<https://www.facebook.com/DCUCommunityGarden>

9. Ensuring continuity

It is very important, we believe, to recognise that students are primarily at University to gain a degree in a given period and therefore have other priorities than the Green Committee which must take precedence at times of exams etc. They also move on regularly and therefore the role of staff in insuring continuity of activities and across Green Committees is very important.

Measures that have been put in place to try and ensure that the Green-Campus Programme is maintained include:

1. Each year a Student Union Sustainability Officer will be elected and he or she will be the chair of the Green Committee for the academic year.
2. Members of the Grow Your Own Society and the Environmental Society will automatically become Green Committee members at the start of each academic year. This will be written into the societies' constitutions.
3. The Green Charter has been created and it will be used as a guide for all staff and students.
4. All new staff and students will be informed of the Green Campus initiative during their induction.
5. The Action plans for each of the themes rolls over from year to year with the previous year adding the progress and or comments on past projects. We hope that this will enable us to capture in summary for our successful projects but more importantly our less successful projects so that we can learn from our mistakes. All documents are stored on Google Drives and shared across Green Committee leaders and members.
6. Following our first application for a Green Flag we are now looking for the Green Committee to work more closely with campus operations in the agreeing and setting of progressive annual University targets across our themes where the Green Committee work with operations and academics to deliver greater impact.

10. Summary

Since enrolling in the An Taisce Green Campus programme in March 2012 there have been many projects and initiatives run to develop an understanding of Sustainability issues on Campus and to empower individuals on campus to engage and do their bit. None of this would have been possible without the efforts of the staff and students on the DCU Green Committee and with the support of many Units across campus, particular recognition should go to the DCU Estates Team for their support and efforts. While significant progress has been made there is a lot more to do.

It should be noted that the processing of writing up this report has drawn inputs from many sources. It has also highlighted several points that will aid future DCU Green Committees, such as the importance of keeping meeting minutes in order, focusing on tangible/doable projects and ensuring the setting of targets, success indicators, metrics and timelines at the start with a clear idea of the resource requirements and availability to meet these projects.

Here is an extract of our major achievements since March 2012.

Waste

- Recycling level on campus maintained at 2011 level
- External segregated bins
- Reusable cups available on campus
- 10% for one cup use

Energy

- Reduced energy consumption in Hub
- Increased awareness of energy conservation
- Energy consumption by the campus has decreased by 15.2% since 2011.

Biodiversity

- DCU Community Garden opened and running.
- Two hundred and seventy two native Irish wildflowers were planted to provide nectar for pollinators.
- Nine hundred and fifty plants were planted on the slope of new car park to encourage biodiversity (birds, bees and butterflies).
- Bee hives.
- One hundred and thirty five native Irish trees were planted since October 2012. In addition four non-native trees have been planted.
- The percentage of native Irish trees on campus has risen from 34% in 2011 to 60% in 2013.

Communication

- Sustainability Seminars and Conferences
- The sustainability page on DCU's website has been set up <<http://www.dcu.ie/ocoo/sustainability.shtml>>
- Facebook pages have been set up and are gaining 'likes'!
 - o <https://www.facebook.com/sustainabilitydcu>
 - o <https://www.facebook.com/DCUCommunityGarden>
- Email address : sustainability@dcu.ie has also been setup

Finally one of the ongoing issues faced throughout this programme has been the lack of understanding of sustainability and why our lack of sustainability is the existential issue that faces this and many generation to come. We have encountered many opposing view from those who don't believe that humans have had any impact on the environment or climate change to those who believe there will be a magic bullet to solve the problem. As an Education Institution we particularly need to address and are looking at the establishment of a 'Sustainability 101' module that would be open to all. Our participation in the An Taisce Green Campus Programme is central to enabling us to communicate and embed Sustainability concepts and practices across our entire community.

11. Contact Details

Contact Name:	Samantha Fahy
Contact number:	+353 (0)1 7007626
Email address :	sustainability@dcu.ie
Website :	http://www.dcu.ie/ocoo/sustainability.shtml (this is currently being redeveloped to allow on-going updating by Sustainability Manager/Green Committee members)
Facebook :	https://www.facebook.com/sustainabilitydcu https://www.facebook.com/DCUCommunityGarden

12. Appendices

Appendix 1	DCU Sustainability Timeline
Appendix 2	Minutes of Green Committee Meetings
Appendix 3	DCU Green Campus Review 2012
Appendix 4	Intern Reports
Appendix 5	Report on visit to UCC
Appendix 6	DCU BEW Programme 2012
Appendix 7	DCU Community Garden And Vegetable Plot
Appendix 8	An Taisce Clean up Call ! – May 2012
Appendix 9	Chelsea Willis report
Appendix 10	MG334 List of Projects
Appendix 11	Front page of College View 31 October 2012
Appendix 12	Green Day 1 Programme
Appendix 13	Sustainability Seminar December 2012