



**Public Consultation on
Dublin City Council Draft Climate Change Action Plan
2019-2024**

**Submission prepared by students and staff on the
MSc in Climate Change: Policy, Media and Society
at Dublin City University**

**The contents and recommendations of this submission have been endorsed
by the sabbatical officers of DCU Students' Union and the committee of the
DCU Sustainable Living Society**

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Executive Summary

This submission was prepared by students and staff on DCU's MSc in Climate Change: Policy, Media and Society. Students enrolled on the programme and staff teaching on the programme were invited to participate in the preparation of this submission, but there was no requirement on them to do so. As such, this submission does not necessarily represent the views of all students and staff involved in the programme. The contents and recommendations of this submission have been reviewed and endorsed by the 2018–19 sabbatical officers of DCU Students' Union and the committee of the DCU Sustainable Living Society.

Responding to climate change is the most urgent challenge facing society. The mass mobilisation by school students on Friday 15 March 2019 indicates clearly the desire of large sections of the Irish public for stronger action at multiple levels to respond to climate change. We welcome the publication of Dublin City Council's (DCC) draft climate action plan, and this opportunity to input to the process. The draft plan is detailed, wide-ranging, and well presented. We also warmly welcome the extensive public information campaign that has accompanied the public consultation process. We offer the following recommendations to strengthen the draft plan.

Cross-cutting observations

Building on the recommendations of the Citizens' Assembly to place climate change at the centre of policymaking, DCC ought to follow the lead of cities around the world by declaring a "climate emergency". The draft plan could have struck a more even balance between adaptation and mitigation, and the connections therein could have been explored further.

Every effort should be taken to integrate the draft plan with broader policy processes at local and national level. Because of its scale, size, and resources, we urge DCC and the other Dublin local authorities to act as a test bed for innovative climate action initiatives for other local authorities. We welcome the strong emphasis in the draft climate action plan on engaging the public on climate action initiatives. DCC should work with existing initiatives and organisations in this regard. We further recommend that the need for a just transition be more fully and explicitly incorporated throughout the final version of the plan.

Energy and buildings

Significant increases in detail and ambition are needed to achieve DCC's targets in this area. More attention should be given to public lighting, which accounts for 25% of DCC's energy use and 32% of emissions. The revised plan should include a clear timeline with targets for replacement of existing public lighting. We are concerned that the draft plan does not include provision for replacement of existing street lights with solar powered lights, which would reduce emissions from public lighting to near zero. We note the poor energy rating of a significant amount of DCC's housing stock. While significant retrofits have been undertaken in recent years, these have predominantly been shallow. We suggest that DCC could undertake a pilot deep retrofit of a social housing apartment block, which because of their physical characteristics are more challenging to retrofit than other types of housing stock.

Transport

We suggest a range of proposals to amend and advance a number of measures proposed in the draft plan. Priorities should include faster decarbonization of DCC’s vehicle fleet and the further development of EV charging infrastructure, as well as reducing DCC’s emissions from aviation. DCC should also seek to further promote modal shift to more sustainable transport modes. Our recommendations in this regard include reducing the cost of public transport, extending traffic-free areas in Dublin city centre, extending cycling lanes, and providing subsidies for the purchase of electric bikes.

Flood defences

The draft plan lacks a clear roadmap of future actions that could incorporate some of the examples of best practice suggested in the draft plan. Nature based solutions and an amenity aspect to flood resilience should be adopted where possible. Many flood resilient city initiatives have been implemented or piloted that DCC could seek to replicate. The recommendations of *Green Roofs Over Dublin: A Green Roof Policy Guidance Paper for Dublin* should be taken into account in the final climate action plan. Pervious surfaces can include a nature based element such as rain gardens. Susdrain in the UK have implemented rain gardens and have detailed case study examples of best practice. Considering the risk to Dublin from coastal flooding, it is most likely that grey infrastructure will be increasingly necessary as global action to mitigate climate change is currently insufficient.

Nature based solutions

We broadly support the ongoing and planned initiatives set out in the draft climate action plan in the area of nature based solutions. The recent National Biodiversity Conference agreed a charter that sets out specific and deliverable actions for a range of public sector bodies including government departments, agencies and semi-state companies. These could be used to inform future DCC initiatives. There may be potential to link with networks of community gardens in the DCC local authority area to promote regional and local food production and the reduction of food miles and food packaging.

Resource management

The conversation around food waste should be reframed as “wasted food” in order to move thinking from food waste as “acceptable disposal” to “wasted resources and wasted nutrients”. Further consideration could be given to working with food distribution networks such as FoodCloud. DCC could also lead by example by offering primarily vegetarian and vegan meals in their facilities and buildings. DCC could link with third level institutes as they seek to reduce the amount of single use plastics available on campuses. DCC should consider alternative measures health and well-being of cities to assess the economic development of a city beyond consumer spending. Engagement with existing climate action based programmes such as An Taisce’s Climate Ambassadors programme and the Cool Planet Experience Champions programme should also be considered. Finally, consideration should be given to employing the arts for storytelling on issues around climate change.

1. Introduction and context

This submission was prepared by students and staff on Dublin City University's MSc in Climate Change: Policy, Media and Society. Students enrolled on the programme as well as staff teaching on the programme were invited to participate in the preparation of this submission, but there was no requirement on them to do so. As such, this submission does not necessarily represent the views of all students and staff involved in the programme.

DCU's MSc in Climate Change: Policy, Media and Society was launched in September 2018. The programme examines how societies are responding to climate change, and how that response can be strengthened. It is the only Master's programme in Ireland focused on climate change that adopts a social science and humanities perspective on this challenge. It brings together DCU's distinctive strengths in the study of climate change governance and law, communications and media, societal transitions, and education. Further details of the programme are available at www.dcu.ie/dc669.

The process of formulating this submission was student-led, with staff playing a facilitating role. Students and staff who contributed to this submission participated in a preparatory workshop on 6 March 2019, facilitated by [Dr. Diarmuid Torney](#) who teaches modules on "Climate Change Policy and Governance" and "Environmental Change and World Politics" on the programme. Students were allocated the action areas covered below to research in advance of the workshop. Following detailed discussion of each theme at the workshop, students drafted material for their allocated theme. This was compiled and circulated to the group for comment, following which the content of this submission was finalised.

Prior to submission and at their request, this document was shared with the 2018–19 sabbatical officers of DCU Students' Union and with the committee of DCU Sustainable Living Society. Both have fully endorsed the contents and recommendations contained in this submission, and issued the following statements in support:

DCU Students' Union: "This submission was reviewed by DCU Students' Union's 2018–19 sabbatical officers. On behalf of the Students' Union, we endorse all recommendations made by staff and students on the MSc in Climate Change: Policy, Media and Society. Many of our students attended the Student Strike for Climate on 15 March and as representatives of the wider student body we welcome all clear and definite action on climate change as set out by DCC's plan, but feel it could be improved by the recommendations made herein."

DCU Sustainable Living Society: "This submission was reviewed by members of the committee of DCU Sustainable Living Society who spearheaded the Plastic-Free-DCU movement in 2018. We endorse all recommendations made by the staff and students on the MSc in Climate Change: Policy, Media and Society, in particular the recommendation that DCC declare a 'climate emergency' and place climate change at the heart of all policy making. Linking to this declaration, a pledge to be carbon neutral by 2030 would be very welcome."

2. Cross-cutting observations

Responding to climate change is the most urgent challenge facing national and global society. Our understanding of the urgency of the climate challenge is informed *inter alia* by the report on Global Warming of 1.5°C published by the Intergovernmental Panel on Climate Change (IPCC) in October 2018 (IPCC, 2018). The projected consequences of failure to limit warming to 1.5 degrees include more extreme droughts and floods, as well as severe impacts on ecosystems and the human communities that depend upon them. Although these impacts will be felt more severely in some parts of the world, no region will be left unharmed. These impacts will not be felt only by future generations. The impacts of climate change are already being felt around the world. The IPCC made clear that they will become much more severe within the lifetime of current generations. The IPCC report also stated unequivocally that, to have a reasonable chance of making 1.5 degrees, we need a radical change of direction that will bring us to zero net greenhouse gas emissions by mid-century. The costs of the transition will be significantly less than the costs of not acting. However, the report also noted that the scale of transition needed to limit global warming to 1.5 degrees is “without documented historic precedent” (IPCC, 2018, p 22).

The mass mobilisation by school students on Friday 15 March 2019 indicates clearly the desire of large sections of the Irish public for stronger action at multiple levels to respond to climate change. An estimated 11,000 participated in the “Fridays for Future” march to Dáil Éireann. 5,000 participated in a similar march in Cork, with many smaller marches in other parts of Ireland (Irish Times, 2019).

Against this backdrop, we welcome the publication of DCC’s draft climate action plan, and this opportunity to provide observations on its content. The draft plan represents the most significant climate change planning process at local government level in Ireland to date, and has been underpinned by significant effort by staff across DCC and beyond. The draft plan is detailed, wide-ranging, and well presented. It provides a good starting point for a societal discussion on how DCC and its citizens can transition to a zero carbon and climate resilient local, regional and national economy and society. In particular, it provides excellent baseline data, much of which could form the basis of public information campaigns.

We also warmly welcome the extensive public information campaign that has accompanied the public consultation process. Information about the draft climate action plans of the four Dublin local authorities has been displayed prominently in public places as well as on social media in a manner that has drawn wider attention to the climate challenge than would usually be the case. This is a very positive development, and should be continued into the future in different contexts. Several of those involved in preparing this submission attended the public information session in the Mansion House. We appreciate the effort of the four local authorities, Codema, and the newly established Dublin Metropolitan Climate Action Regional Office (CARO) in hosting this and the numerous other public information events.

2.1 Placing climate change at the centre of policymaking

The Citizens' Assembly recommended that climate change ought to be placed at the centre of policymaking (recommendation no. 1). This ought to be mirrored at local government level. One visible way of doing so would be for DCC to follow the lead of other cities around the world and declare a "climate emergency" (Campaign Against Climate Change, 2019; The Climate Mobilization, 2019a). Such a measure would clearly communicate to the public that DCC is serious in its promises to take meaningful action, and that its number one priority is climate mitigation and adaptation. In a time of rapid global warming where CO₂ concentrations in the atmosphere are higher than they have been at any point in the last 800,000 years, this step is long overdue (Lüthi *et al.*, 2008).

We suggest that this declaration could be linked to pledges or a resolution to transform to 100% renewable energy as soon as possible (for an example of such an initiative, see The Climate Mobilization, 2019). Major cities like Bristol and Manchester, comparable in size to Dublin, have already passed motions to declare such an emergency, linked with targets to aim for a carbon neutral society by 2030 and 2038 respectively (Campaign Against Climate Change, 2019b). Thus, DCC should keep pace with these cities and join the rapidly growing club of local governments.

We are concerned that many of the measures outlined in the draft climate plan lack specificity given the scale and urgency of the climate challenge. We therefore recommend that DCC attaches specific goals to measures contained in the plan to the greatest extent possible. This should include at minimum setting milestones (e.g. 2020, 2025, 2030) instead of the currently used expressions "onwards" and "ongoing", combined with quantitative goals, for example the percentage of fleet vehicles that are to be converted to low/zero emission by a specified point in the future. This will ensure that progress can be measured more precisely, and will allow for more streamlined path correction where necessary. This would benefit DCC greatly in its ability to effectively manage this ongoing process.

2.2 Balancing adaptation and mitigation

We acknowledge the political and administrative context within which local authorities in Ireland operate and the constraints this places on the ability of local authorities to respond to climate change. We also note that local authorities were encouraged to focus on adaptation, including through the development of the *Local Authority Adaptation Strategy Development Guidelines*, published by the Department of Communications, Climate Action and Environment in December 2018 (DCCAE, 2018). to focus on adaptation in the elaboration of their climate action plans. In this context, we welcome the decision of DCC and the other three Dublin local authorities to include a focus on mitigation as well as adaptation in their draft climate action plans. Nonetheless, we feel that the draft plan could have struck a more even balance between adaptation and mitigation, and that the connections between adaptation and mitigation could have been drawn out further.

We are also concerned at the draft plan's strong focus on DCC's own operations, for example with respect to the built environment. Although understandable in terms of the direct policy

levers DCC has at its disposal, we nonetheless feel that the plan could usefully focus more broadly on the opportunities and challenges for climate action (both adaptation and mitigation) in the Dublin region. We are also of the view that, with 2050 now appearing on the horizon, the time horizon for the plan ought to be extended into the second half of the 21st century, perhaps to 2100.

Moreover, we suggest further elaboration of the connections between this climate action plan and other local and national policy planning processes. The climate plan ought to be fully integrated into DCC's five-year corporate planning process, the next iteration of which is to be finalised by end-2019 in line with the term of the new Council to be elected in May 2019. It should also be more explicitly anchored in national processes such as Project Ireland 2040 and the forthcoming all-of-government climate action plan.

2.3 The need for a just transition

Justice and equity considerations have rightly gained prominence in debates over how to respond to climate change. The noted political philosopher Prof. Henry Shue has talked about “the unavoidability of justice” when dealing with climate change—it is inescapably a challenge of how we allocate the costs and benefits of climate change and our responses to it (Shue, 1992). All citizens, including those in poverty, must be fully enabled to play a part in shaping and participating in the new low carbon economy and society, and the needs of those suffering energy poverty must be given priority in shaping policy responses. This must be done in an anticipatory fashion, rather than as an afterthought once a decision has been taken to close a facility or industry. Ireland must also take seriously its climate justice obligations in an international context. This means not just assisting those countries that are most vulnerable to climate impacts through development aid, but living up to its obligations to transition to a low carbon economy and society at home.

In this context, it is striking that DCC's draft climate plan contains little explicit consideration of this important dimension. We recommend that the need for a just transition be more fully and explicitly incorporated throughout the final version of the plan.

2.4 DCC's potential as a role model

We warmly welcome the proactive role that DCC and the other Dublin local authorities in conjunction with Codema and the Dublin Metropolitan CARO have played in the development of climate action plans. Because of its scale, size, and resources, DCC in conjunction with the other Dublin local authorities can act as a test bed for innovative climate action initiatives, and can potentially provide leadership for other local authorities.

DCC should make extensive use of its ability to influence stakeholders, such as for example the National Transport Authority or Dublin Bus. Through this, DCC's successful development and implementation of effective climate mitigation and adaptation measures would not be an end in itself but could serve as templates for other institutions and bodies that have influence on the emissions in this sector. The relatively low share of DCC's operations of the total

transport emissions in Dublin should not be seen as an excuse to downplay the importance of the actions of DCC as a role model for other actors.

2.5 Public and stakeholder engagement

We welcome the strong emphasis in the draft plan on engaging the public on climate action initiatives, and we note the significant public engagement efforts that have underpinned the public consultation process in which we are participating. A huge amount of excellent work is already being undertaken in this area, and we urge DCC to work with the full spectrum of existing initiatives and organisations in this regard. This entails going beyond those initiatives and organisations called out in the draft plan. For example, while the plan mentions the Green Schools programme it does not recognise the Green Campus programme. DCC ought to strive to integrate all aspects of “best practice” across the sector in this regard.

The draft climate plan contained many powerful and attention-grabbing facts from micro to macro level that could be used to spearhead public information campaigns and serve as a catalyst for bigger Governmental communication projects. The communication efforts around this public consultation were commendable and could be built upon through new and innovative ways of communicating. These could reference well-known landmarks that resonate with the public consciousness such as Bull Island. They could also place Dublin in comparative perspective, for example by comparing Dublin to similar size cities in terms of GHG emissions, share of public transport, or numbers walking and cycling. These locally-relevant, fact-based communications could replace the existing consultation call posters, flyers and flags around the city given their presence in commendable and attention-grabbing public locations.

As well as addressing the perceived citizens’ “knowledge gap” as it pertains to climate change, DCC initiatives in this area ought to address the often more pressing “value action gap”, i.e., that people often express a desire to protect the environment but do not (or cannot) put these values into practice. This will entail creating supports that go beyond education to include policy and infrastructure supports for positive behaviour change. In this sense, the “Public Awareness” section of the draft climate plan could be expanded to incorporate this wider DCC role in supporting behaviour change beyond awareness raising initiatives.

3. Energy and buildings

The Energy and Buildings section is clear and informative. It includes a necessary breakdown of the DCC’s energy use and emissions, which allows for a better understanding of the areas that should be targeted in emissions reductions plans. The inclusion of case studies provided Dublin-based examples of how we can improve our energy use and building quality through resourceful and innovative ways. Overall, this section was clear and showed an obvious desire to improve energy use and building conditions. However, we are concerned that significant increases in detail and ambition are needed if DCC intends to achieve its targets. If the target of 33% increase in energy efficiency by 2020 and 40% reductions in GHG

emissions by 2030 are to be achieved, a clear breakdown of how these targets will be reached ought to be included, preferably in an infographic format.

3.1 Public lighting

The draft plan points out that public lighting accounts for 25% of DCC's energy use and 32% of the DCC's emissions. If DCC intends to achieve its target of 40% reduction in GHG emissions by 2030, this public lighting category appears to be low hanging fruit. We are concerned that public lighting is addressed only in one short paragraph. It may make sense to give more detail and attention in the revised plan to a category that makes up one third of DCC's GHG emissions.

The draft outlines that 5,500 of the 20,500 SOX lamps have been replaced with LED lights, and that replacing another 4,000 by 2020 would contribute to GHG reductions. Although this is true, these targets are not ambitious enough. If the plan is to replace all public lighting with energy efficient lights, there should be a detailed plan setting out when this will happen. For example, 4,000 lights could be replaced by 2020, another 4,000 by 2022, another 4,000 by 2024, and the remaining 3,000 by 2025. It should also be noted that other cities have experienced negative social and health effects from switching to particular types of LED replacement lights. Some studies have shown a possible link between blue light LED street lights and rises in sleep disorders and breast cancer (Holzman, 2010). This should be taken into account in selection of appropriate LED lighting by DCC.

We are further concerned that the draft plan does not include provision for replacement of existing street lights with solar powered lights that will cut the public lighting emissions of 32% of DCC's emissions to 0%. This would leave just 8% of DCC's emissions reduction target to be achieved. Street lights should be equipped with their own energy source in order to increase the share of renewable energy used, a technology already offered by various companies (for examples see Electric Skyline, n.d.; Voltimum, n.d.). Additionally, street lights could be used as EV charging stations, reducing the need for separate investments (ubitricity, n.d.). This is entirely possible as seen in "green cities" such as Adelaide, South Australia which "has been installing grid-connected PV street lamps that produce six times the energy needed for the lighting" (Beatley, 2007). Rather than investing resources into energy efficiency, DCC should leapfrog this stage and go straight to zero GHG emitted from public lighting. This would make achieving the 2040 40% reduction target much more possible.

3.2 Retrofitting the social housing stock

The Energy and Buildings section of the draft plan pays significant attention to retrofitting existing social housing. 70% of DCC's social housing stock received worse than a C3 BER grade, and the most common grade was an F rating. While the draft focuses significantly on social housing, there is no discussion of retrofitting private housing, which would be responsible for a large amount of GHG emissions in a populous city such as Dublin.

Under the recast Energy Performance of Buildings Directive (2018), Ireland must produce a long term renovation strategy for the building stock by March 2020. This strategy must facilitate the cost-effective transformation of existing buildings into nearly zero-energy buildings, and must provide milestones for 2030 and 2040. This will provide a strong impetus for DCC to produce a long term renovation strategy for social housing. DCC has the potential to serve as a test bed for innovative approaches. We suggest that DCC could undertake a pilot deep retrofit of a social housing apartment block, which because of their physical characteristics are more challenging to retrofit than other types of housing stock.

In summary, the Energy and Buildings section of this draft demonstrates a clear understanding of what needs to be done to achieve the DCC's overall GHG emissions reduction targets. However, in order to achieve these targets by 2030, more aggressive and detailed action needs to be taken, including more radical transformation in the public lighting category to replace all lights with solar powered lights (cutting 32% of DCC's emissions to zero). More detail is needed in terms of retrofitting buildings and achieving long term goals, e.g. short term goals for 2025 or a figure for how many social houses will be retrofitted with solar panels.

4. Transport

The transport section includes a wide range of measures that have the potential to significantly improve the current situation in the city of Dublin. In particular, the following points are welcome:

- Measures to improve and extend cycling lanes, including segregation of lanes and cycling schemes
- Policies to increase modal shift to cycling and public transport
- Last mile delivery eco hubs and development of last mile delivery solutions
- Expansion of pedestrian zones and traffic-free areas
- Installation of EV charging stations and expand availability
- Mobility-as-a-service (MaaS) promotion
- Development of strategies to convert fleet to low emission vehicles, more electric vehicles (EVs) within council fleet
- Carbon offset programme for staff flights
- Increase number of public bike parking facilities

A number of the Citizens' Assembly's recommendations on climate change (Citizens' Assembly, 2017) are important for the transport sector and should form the basis for DCC's climate action plan:

93% of the Members recommended that the number of bus lanes, cycling lanes and park and ride facilities should be greatly increased in the next five years, and much greater priority should be given to these modes over private car use.

96% of the Members recommended that the State should immediately take many steps to support the transition to electric vehicles.

92% of the Members recommended that the State should prioritise the expansion of public transport spending over new road infrastructure spending at a ratio of no less than 2-to-1 to facilitate the broader availability and uptake of public transport options with attention to rural areas.

As mentioned in section 2 above, it is crucial to have specific and quantifiable goals in all areas. While the implementation of the *Greater Dublin Area Transport Strategy 2016-2035* offers some of those, e.g. doubling trips made by walking, cycling and public transport, precise goals are missing when it comes to the overall reduction of car journeys and the conversion of DCC's fleet into lower emission vehicles.

4.1 DCC vehicle fleet

Despite the still prevalent picture of a “bridge fuel”, recent research suggests that natural gas in most cases does not perform better than oil or gas in terms of emissions. On the contrary, in some cases, especially if the gas comes from hydraulic fracturing (“fracking”) sources, it seems to perform even worse (Howarth, 2014, 2019; Transport & Environment, 2018). Given the fact that the EU has less than 10 years to burn gas before it exhausts its carbon budget believed to ensure a maximum global temperature rise of less than 2°C (O’Sullivan, 2017), the “upgrade” to any natural gas-based infrastructure poses a serious risk of lock-in of unsustainable technologies. Instead, DCC should ensure that all of its vehicles are emission-free by no later than 2030 while pursuing efforts to achieve this goal by 2025, depending on technical feasibility.

4.2 EV charging stations

With the goal mentioned above in mind, EV charging stations should be installed to the extent that is deemed necessary in order for a DCC fleet converted to 100% renewable energy to be fully operational in time. While the plans for EV charging stations mentioned in the report are welcome, it should be ensured that enough are being installed in time in order to achieve this goal. In doing so, it is paramount that the energy for these stations has been primarily or completely generated from renewable sources. Until Ireland's energy grid has been largely decarbonized, DCC should where feasible equip EV charging stations with the necessary technology to at least partially generate and store renewably sourced energy, e.g. sourced through solar and wind. Public spaces and buildings could be fitted with technology accordingly and stored at local charging points.

4.3 Reducing DCC emissions from aviation

We welcome DCC's commitment to offset emissions from staff flights. This shows that DCC takes its role as a leader for climate protection seriously. However, just as in the case of private car journeys, the avoiding flying should be the first priority. DCC should explore all available technologies, such as video conferences and over-land transport. Flights should be considered only where it is absolutely necessary and unavoidable. Thus, flights should be deemed acceptable only in cases where the personal presence of an employee is crucial, and where overland transport is impossible. If it is possible to make use of lower carbon travel, for example by train, this option should be chosen even if a flight would be cheaper and shorter.

4.4 Policies to promote public transport

Dublin is ranked at the higher end of the spectrum of cities regarding cost of public transport, and as one of the lowest regarding access to public transport (Premack, 2018; Poelman and Dijkstra, 2015). While the measures outlined in the draft plan are important, easy access to public transport through low prices, or even a free-of-charge model, might be crucial for achieve significant modal shift. These free or cheap schemes are becoming more and more popular throughout Europe and, when well implemented, offer to possibility to save public money (Shearlaw, 2016; Griswold, 2018). All efforts related to a cheaper public transport system should be tied into MaaS, and should therefore facilitate the switch between different forms of public transport as well as cycling and walking.

4.5 Traffic-free areas and expanded pedestrian zones

The draft plan mentions several measures to decrease car use in the inner city, which are welcome. However, given the necessary pace to transform to a low carbon economy, a more comprehensive partial ban of private cars in the city centre area should be considered. Major cities like London, New York, Oslo and Madrid have already partially excluded certain cars from their city centres, and the trend is likely to continue (Anzilotti, 2018; Jones, 2018; Bendix, 2019). Recent analysis has shown that the benefits of such bans include not just cleaner air, but also potentially boosted retail takings. Madrid, for example, experienced an increase of 9.5% on its main shopping street after limiting its road access for motorists to the city centre (Reid, 2019)

DCC could orient its actions based on these examples. Exceptions should be made for more sustainable modes of transport, such as public transport and electric vehicles, as well as for delivery traffic to and from stores in the city. By doing so, traffic could be minimized while the risk of accidents is being decreased at the same time, and air quality would be improved. Current traffic jams through the city centre would be alleviated, and public transport could move more freely. As part of such measures, DCC should consider investing in water-permeable parking lots at the fringes of the area, so that people can park their vehicles and switch to bike or public transport. This would tie in with a variety of measures already proposed in the draft plan, and would arguably improve their efficiency and/or replace them

(see, for example, but not limited to, the following transport sector actions in the draft plan: 5, 10, 14, 15, 16–20, 24, 26–30, 38–41, 46, 50).

4.6 Measures to increase cycling

The *Transport Strategy for the Greater Dublin Area 2016–2035* shows how shares of cycling in the city have improved over the last years. Specifically, the number of cyclists travelling to the city centre has risen by 114% between 2006 and 2014, despite “significant shortcomings for cyclists on the road network, in terms of convenience and safety” (National Transport Authority, 2016: p.32). This demonstrates the great willingness of citizens to commute by bike. Thus, it should be ensured that measures to extend and segregate cycle lanes are implemented as soon as possible so that these numbers can increase to the highest extent possible.

Additionally, DCC should work together with stakeholders to offer grants to citizens who want to purchase e-bikes, similar to the German model of electric vehicle purchase incentives (Madeline Chambers, 2019).

5. Flood resilience

Overall, flood resilience schemes across DCC have been implemented well and have served to protect large areas of the city. However, much more could be done to enhance mitigation and adaptation efforts. The draft plan, although thorough, lacks a clear roadmap of future actions that could incorporate some of the best practices that are suggested within the draft plan. For example, within the Flood Risk Management section (p.79), the FAB Plus strategy is mentioned but none of the three case studies highlighted incorporate an amenity or biodiversity element. This is again the case in the Flood Defence section (p.80), where it is stated nature based solutions are the “preferred response”, albeit not always possible. However, the two case studies lack any nature based solutions.

Throughout the draft plan, the necessity of communicating with the public on the implementation of actions is highlighted. This is highly welcome as any mitigation or adaptation actions that will be taken would benefit greatly from public input and participation. This may be even more important within flood defence and alleviation projects, as can be seen from the case of the sea wall in Clontarf.

The draft plan makes clear that a lot of the groundwork for areas at risk has been undertaken, and that further projects to monitor risks are in place. There are many flood resilient city initiatives elsewhere in the world that have been implemented or piloted, which DCC could use as a framework. It may be possible to combine and modify various best practice initiatives to incorporate them into future actions. One such example is the City of Chicago’s practices in water management actions. Information on this is readily available, including “A Guide to Stormwater Best Management Practices, Chicago’s Water Agenda” (City of Chicago, 2003).

5.1 Green roofs

Published in 2008, *Green Roofs Over Dublin: A Green Roof Policy Guidance Paper for Dublin* (Van Lennep and Finn, 2008) provides an in-depth approach to incorporating green roofs into the city. It highlights the many benefits that would arise from such a policy. It is not clear how far this policy guideline was taken towards implementation at the time. We suggest that some of the Guidance Paper's suggestions are taken into account in the further elaboration of DCC's climate action plan. The third recommendation within the Guidance Paper states that "...implementing a green roof policy is the most important step. In all other city examples, this was always the most vital aspect to ensure that green roofs are included on new and existing buildings, both private and commercial" (Van Lennep and Finn, 2008: p.67). Green roofs can also become urban farms, increase biodiversity and act as amenities.

5.2 Pervious surfaces

Pervious surfaces can include a nature based element such as rain gardens. Susdrain in the UK has implemented rain gardens and have detailed case study examples of best practice. One such example from London is the Derbyshire Street Pocket Park. A SuDS approach was taken to transform a *cul de sac* into a small park with rain gardens which increased biodiversity and it is now a local amenity for residents in the area (Susdrain, 2015). A cycle path was also included in the project, which enables locals to have a zero carbon and safe means of travelling. The bike shed in the park also has a roof that encourages insects such as bees and butterflies. The project made the most of the space for three climate change actions. In many of Susdrain's case studies, public engagement was key to the success of the project. In the example above, a notice was put in the park detailing its water drainage function.

5.3 Grey infrastructure

Considering the risk to Dublin from coastal flooding, it is most likely that grey infrastructure will be increasingly necessary as global action to mitigate climate change is currently insufficient. Again looking abroad for inspiration, the East Side Coastal Resiliency Project in New York is an ambitious plan to protect Manhattan from hurricanes and storm surges, such as Hurricane Sandy, that caused immense damage to the city. The project is expanding an existing coastal park and community input was essential at the design stage of the project (NYC East Side Coastal Resiliency, 2018). It involves hard solutions and a lot of construction but it has also incorporated biodiversity and an amenity aspect.

5.4 Inclusion of stakeholders

We note that Irish Water is absent from the list of stakeholders. According to its website, Irish Water is responsible for the flooding of public water mains and flooding from public sewers. Irish Water states that it is not responsible for rainfall or storm water flooding (Irish Water, 2019). However, the current forecasted population growth as stated in the draft plan is expected to increase by just over 400,000 in the greater Dublin Area (p.23). An increase of population will put increasing pressure on the assets under the control of Irish Water. For this reason, they should be considered a stakeholder within DCC's climate action plan. As the population increases, the network will become less resilient as capacity is reached.

5.5 Public awareness

The data, maps and graphs presented in the Flood Resilience section of the draft plan are very engaging and clearly articulate the potential impacts of climate change. More could be done from a public awareness perspective to make these images and messages easy to digest. One potential way of increasing awareness would be to include place names on maps and images that are at risk to the effects of climate change.

6. Nature based solutions

We welcome the focus in the draft plan on nature based solutions, and we broadly support the ongoing and planned initiatives set out in the draft climate action plan in this area. The recent National Biodiversity Conference, entitled “New Horizons for Nature”, provided an extensive forum for discussion of challenges and opportunities related to biodiversity and nature based solutions. The charter agreed at the conference, “Our Seeds For Nature”, sets out specific and deliverable actions for a range of public sector bodies including government departments, agencies and semi-state companies. These could be used to inform future DCC initiatives.

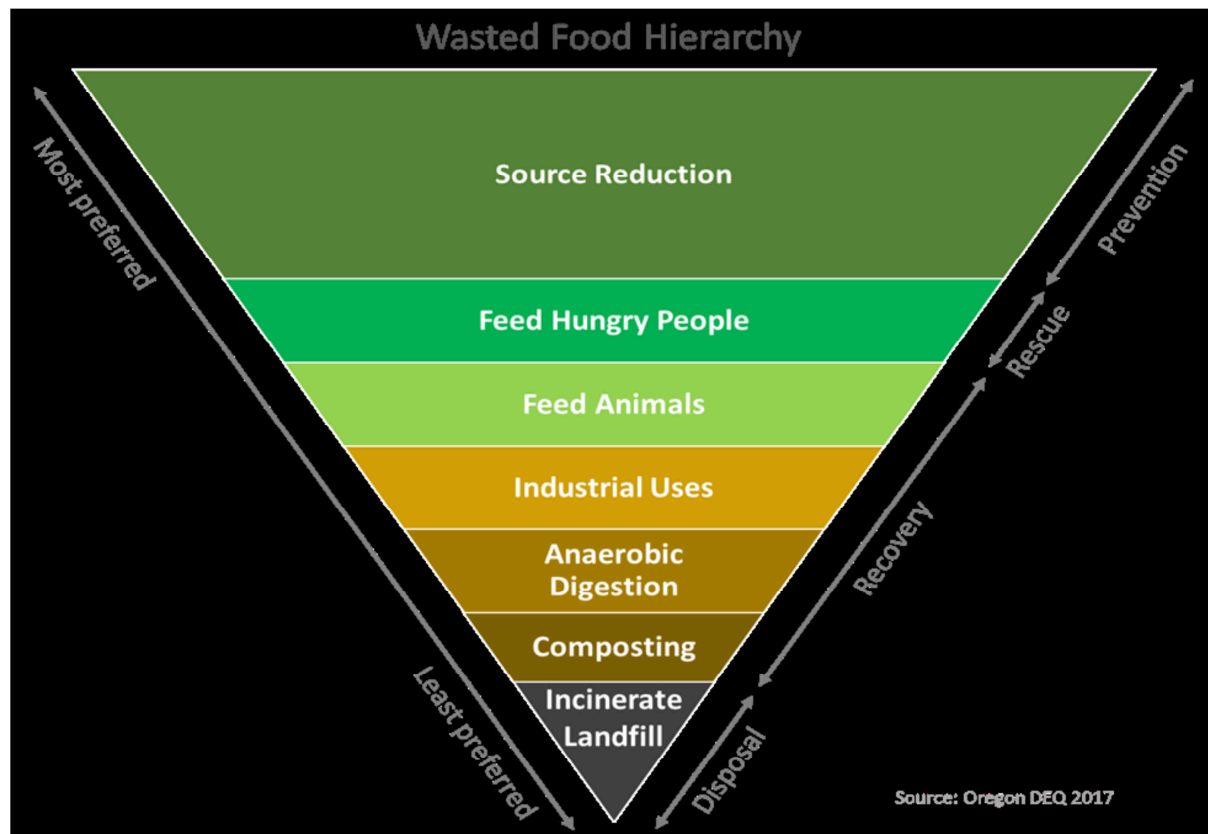
There may be potential to link with networks of community gardens in the DCC local authority area to promote regional and local food production and the reduction of food miles and food packaging (Dublin Community Growers, n.d.).

7. Resource management

7.1 Food waste

Ireland’s National Mitigation Plan identifies in brief the potential to reduce carbon emissions along the full life-cycle of the food/processing chain through food waste reduction (DCCAE, 2017: p.135). 93% of the members of the Citizens Assembly recommended that the State should introduce a standard form of mandatory measurement and reporting of food waste at every level of the food distribution and supply chain, with the objective of reducing food waste in the future (Citizens Assembly, 2018: p.6). Echoing this approach, the Oregon Department of Environmental Quality (DEQ) recommends reconsidering the issue of food waste as an aspect of “materials management”, with materials management referring here to minimizing the impacts and maximizing the value of products and materials, including food, across the full life cycle, from production through distribution, consumption, use and disposal, or recycling and reuse (State of Oregon DEQ, 2017: p.2). Further emphasis in the Oregon DEQ strategic plan is given to “changing the conversation” on food waste and renaming the problem as “wasted food” in order to move away from the historical concept of food waste as a matter of “acceptable disposal” rather than a problem of “wasted resources and wasted nutrients” (ibid.). Figure 1 below outlines a vision for a “Wasted Food Hierarchy” which sees incineration/landfill as the least preferred option and source reduction followed by feeding hungry people as the first and second most preferred options (State of Oregon DEQ, 2017: p.4).

Figure 1: Wasted food hierarchy



Source: Oregon DEQ (2017: p.4)

In the context of Ireland, the most preferred option of “source reduction” could be achieved through working effectively with businesses and producers to promote and embed the principles of the circular economy. The circular economy is based on theories and principles of industrial ecology with the aim to “close the loop” of materials and substances and reduce resource consumption and discharges into the environment (Jurgilevich *et al.*, 2016: p.2). This approach could apply not just in food production, which in itself may be limited in the DCC local authority area, but also in the production of other consumer goods. It is recommended therefore to expand upon Action 18 within the draft resource management action plan to create a training programme on energy efficiency, circular economy and sustainability for micro and small enterprises.

The second preferred option within the “Wasted Food Hierarchy”, as illustrated in Figure 1, involves the objective to “feed hungry people”. FoodCloud, as a food re-distribution network which links supermarkets to charities, has already made significant carbon savings of 65,625 tonnes of CO² by ensuring 45 million meals have gone to people and not to waste (FoodCloud, n.d.). Consideration should be given to working with FoodCloud in developing strategies and expanding upon existing and future education programmes to reduce wasted food as in Actions 6 and 28 within the resource management action plan. International examples such as the move by the French Government to ban food waste from supermarkets and require that it be given out as free meals via charities may provide inspiration in this respect (Chrisafis, 2016).

7.2 Incentivizing healthier and more climate friendly diets

A significant amount of greenhouse gases can be attributed to the agricultural sector; in Ireland this sector is the single biggest cause of climate change, being responsible for approximately 30% of total emissions (EPA, n.d.). A recent report recommended, inter alia, a 90% reduction in red meat and milk and a 70% reduction in chicken consumption (Lee, 2019; Willett, *et al.*, 2019). DCC could lead by example by primarily offering vegetarian and vegan meals in their facilities and buildings. While meat should not be excluded immediately from all options, it should only be a minor part of the daily meal plan, and its bigger impact on the global biosphere should be reflected in higher prices compared to vegetarian and vegan options.

Rather than models like a “meat free Mondays”, this should be implemented on a daily basis. “Special days” like meat free Mondays have encountered serious backlash in the past, for example in Germany and the US (Anderson, 2013). It might be better to offer everyone the option to choose, thus enabling staff to experiment and try new things without a feeling of forced behaviour change that could backfire. Notably, this measure has the potential to significantly contribute to better health and lower health-related costs for the government (Willett, *et al.*, 2019).

7.3 Elimination of single use items

Various actions within the DCC resource management action plan relate to the elimination of single use beverage and food containers (Actions 24, 25, 26, and 30). These are commendable and consideration could be given to linking with other large scale institutions such as higher and further education colleges in achieving these aims. A number of third level education institutes in the DCC local authority area are involved in An Taisce’s Green Campus programme to reduce the environmental impact of their activities (Green-Campus Ireland, n.d.). These institutions often face issues of common concern such as the proliferation of single use plastics on campuses. Consideration could be given to linking with these and similar institutions in efforts to reduce the amount of single use plastics or containers in use.

It should be remembered however that compostable containers are not always the most suitable option. According to the Conscious Cup Campaign, compostable containers, while offering a better option than standard disposable coffee cups for instance, need to be segregated to a composting facility in order to degrade and can often end up contaminating recycling streams or going to landfill (Conscious Cup Campaign, n.d.). Compostable containers also represent a waste of valuable resources for what is essentially a single-use item (*ibid.*).

7.4 Alternative economic indicators, raising climate hope and linking to the arts

According to the Urban Sustainability Directors Network (USDN) Sustainable Consumption Toolkit, there is potential to employ alternative economic indicators which are closely aligned with the principles of sustainable consumption to provide communities with a more

holistic measure of economic health beyond consumer spending (USDN, 2019a). The role of city authorities is considered in the USDN Toolkit including implementation of the Genuine Progress Indicator and Wellbeing Index along with case studies in different cities (USDN, 2019b).

In terms of engaging with the general public on climate action, there is potential to tie in with existing programmes delivering on community engagement in the area of climate action. Programmes such as An Taisce's Climate Ambassador Programme and the Cool Planet Experience Champions Programme are already established and working within communities in Dublin city and around the country to promote positive climate actions in a local context (Climate Ambassador, n.d.; Cool Planet Experience, n.d.).

In developing a climate change action plan, DCC should also seek opportunities to collaborate with artists and cultural organisations such as DCC Culture Company in expressing through the Arts the multi-faceted nature of climate change and our relationship with it.

8. Conclusion

Notwithstanding the specific observations above, we warmly welcome the draft climate action plan prepared by DCC in conjunction with Codema and the Dublin Metropolitan CARO. The draft plan provides excellent baseline data for both a robust policy planning process as well as an ongoing dialogue between policymakers, stakeholders, and citizens in the Dublin region. We also commend DCC and the other Dublin local authorities along with Codema and the Dublin Metropolitan CARO for their efforts to promote public awareness of the draft plans and the consultation process, including through a high profile advertising campaign and an extensive set of public information sessions.

Responding to climate change is the most urgent challenge facing national and global society. The costs of the transition will be significantly less than the costs of doing nothing, but the scale of societal transformation required is without historical precedent. The mass mobilisation by school students on Friday 15 March 2019 indicates clearly the desire of large sections of the Irish public for stronger action at multiple levels to respond to climate change.

The students and staff of DCU's MSc in Climate Change, as well as the wider DCU community, look forward to publication of the final DCC climate action plan, and we stand ready to work with DCC, Codema, and the Dublin Metropolitan CARO to support its further elaboration and full implementation.

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