

Draft Green Growth Strategy for Northern Ireland

Comments by

Northern Ireland Environment Link

21st December 2021

Northern Ireland Environment Link (NIEL) is the networking and forum body for non-statutory organisations concerned with the natural and built environment of Northern Ireland. Its 63 Full Members represent 190,000 individuals, 262 subsidiary groups, have an annual turnover of £70 million and manage over 314,000 acres of land. Members are involved in environmental issues of all types and at all levels from the local community to the global environment. NIEL brings together a wide range of knowledge, experience and expertise which can be used to help develop policy, practice and implementation across a wide range of environmental fields.

These comments are made on behalf of Members, but some members may be providing independent comments as well. If you would like to discuss these comments further, we would be happy to do so.

Malachy Campbell
Senior Policy Officer
Northern Ireland Environment Link
89 Loopland Drive
Belfast
BT6 9DW
P: 028 9045 5770
E: info@nienvironmentlink.org
W: www.nienvironmentlink.org

Northern Ireland Environment Link is a Company limited by guarantee NI034988 and registered with The Charity Commission for Northern Ireland NIC10107

Introduction

NIEL welcomes this consultation, its cross departmental nature and the opportunity to comment on it.

Section 1

Q1 - Is our Vision 2050 the right vision? If not what would you change?

The vision for 2050 outlined on page 14 says

“Northern Ireland has taken significant action for the climate and our environment, has placed nature and biodiversity on a path to recovery, and moved from a high to a low emissions society.”

The sentiment is reasonable but the wording is vague and does not have an appropriate level of ambition, so on balance, no, this is not the right vision.

The vision needs to have clear, SMART target, with milestones and clear policies and/or legally binding commitments.

NIEL believes that as well as tackling climate change, the Green Growth strategy needs to address the many problems with our biodiversity so that it is properly protected and enhanced, as each one can affect the other. In fact, peer reviewed evidence on climate change¹ and biodiversity² shows that the nature and climate emergencies are inextricably linked. It is therefore essential that we pursue an integrated and joined-up approach to tackling these two emergencies, which were formally recognised by the NI Assembly on 3rd February 2020³. Further to that, NIEL would suggest the vision needs to set legally binding targets to halt and reverse the decline of biodiversity in NI, such as the 30 x 30 target to protect 30% of land and sea by 2030, as a means of becoming nature positive by 2030, rather than just placing nature on a path to recovery, and to ensure that NI is net zero in terms of greenhouse gas (GHG) emissions no later than 2050, and preferably earlier, rather than just being a low emissions society and aim for NI to become as sustainable a society as possible.

NIEL understands that this Green Growth strategy will require an action plan or implementation plan and that not all the detail is or has to be provided in this consultation but one of NIEL's fundamental criticisms of this draft of the Green Growth strategy is that it lacks an appropriate level of ambition and detail, in particular firm, ambitious and SMART targets which NIEL believes are necessary in order to clearly map out what the strategic

targets/outcomes are for NI. Unless the targets are clear, it is likely that the subsidiary action/implementation plan(s) will not achieve what the evidence suggests needs to be achieved and/or what the strategy aims to achieve. For example, even in the scenario where NI only reduces its GHG emissions by at least 82% by 2050, as the consultation says on page 36, this will involve Northern Ireland achieving Net Zero carbon dioxide (CO₂) emissions by 2050. On the basis that this is an absolute minimum level of emissions reductions that will need to be achieved by 2050, there is no good reason why the overall vision could not state that NI will be at least net zero in terms of CO₂ emissions by 2050, rather than just saying “Northern Ireland has taken significant action for the climate and our environment”. This illustrates the lack of ambition in this draft. Consequently, NIEL does not agree with the description on page 8 of the Green Growth strategy consultation document as setting out an ambitious vision on the basis that a strategy based on a target that lacks ambition can not therefore be described as a strategy with an ambitious vision.

On the basis that other strategies will have to align with the green growth strategy, NIEL would support the Executive being ambitious and aspirational and going further than other administrations. For example, if the Executive decided that an appropriate target would be for NI to be a net zero GHG society by 2050, or earlier, NIEL would support that. The UK Climate Change Committee (CCC) Sixth Carbon Budget⁴ also referred to the need for the UK to have the "**highest possible ambition**" as regards pathways to net zero. This would be an appropriate approach given that it is possible, if not probable, that the emissions reductions target for NI will be amended upwards, for example, if the current draft of the PMB on climate change passes into legislation. It is also worth noting the advice of the CCC can and has been amended. In the 2017 report “Building a low-carbon economy in Wales – Setting Welsh carbon targets”⁵ the CCC advised Wales set a target of reducing emissions by 85% by 2050. This was then revised upwards in 2019⁶ when the CCC recommended a target for Wales of 95% GHG emissions reductions. When Wales decided to aim for 100% emissions reductions the CCC supported that. The point is that targets are not static and are likely to move in the near future. NIEL therefore recommends that the NI Executive ensures NI’s GHG emissions are reduced as much as possible and as quickly as possible, in line with amongst other things, the CCC’s stated intention of the UK having the "**highest possible ambition**" as regards pathways to net zero.

The consultation says on page 2 that

“This decade, the 2020s, must be a decade of urgent action”

The need for action as soon as possible is also illustrated by the statement in the DAERA discussion document on a climate change bill for NI that in relation to GHG emissions⁷

“the later cuts are made, the greater they must be to achieve the same long-term goal, and so they will be more expensive to implement”

NIEL agrees with this statement and so believes that the Executive needs to provide more detail as to what it will do, what legislation and policies it will introduce and/or enact in order to ensure this is a decade of urgent action. A core part of this will be developing and achieving appropriate milestones. However, some important targets are missing. For example, NIEL is surprised and disappointed that Section 3 “Pathway to a Low Emissions Society” of the consultation makes no reference whatsoever to the need to reduce methane (CH₄) emissions, despite the fact that the clear advice of the CCC is that the Balanced Pathway scenario, which is the basis of the target in the DAERA climate change bill (which aims to have a reduction of at least 82% in GHGs by 2050), requires net zero CO₂ by 2050 and a 42% reduction in methane emissions in NI during the period 2020-2050. This was made clear by the CCC on the first page of the CCC letter to the AERA Minister dated 1st April 2021⁸. It would therefore be reasonable to expect the Executive would ensure there is a target to reduce methane emissions in NI by 42% from 2020 to 2050 in line with the CCC’s advice. The rationale for the omission of this target for methane from the Green Growth strategy is unclear. All relevant GHGs must be accounted for and included in the targets in the Green Growth strategy.

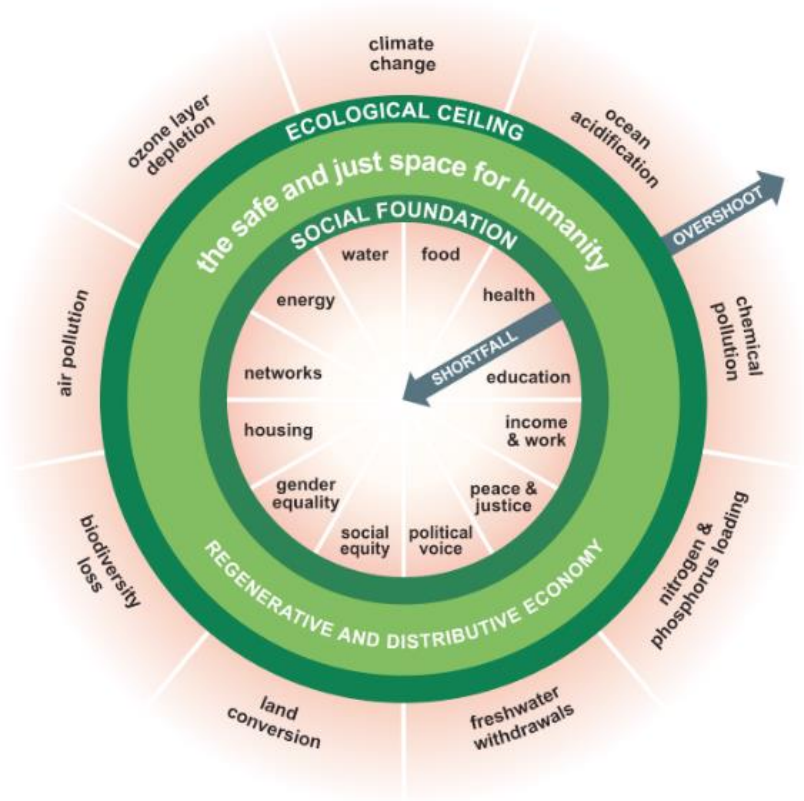
The consultation says on page 24 that

“The Green Growth approach ensures that Northern Ireland can further deliver on the UN 2030 Agenda for Sustainable Development.”

NIEL would support this approach but if delivering on the Sustainable Development Goals (SDGs) is such an important part of the Green Growth strategy then NIEL would encourage the Executive to go further and explicitly refer to the importance of delivering on the SDGs in NI as a principle of the strategy.

If NI is to develop in a sustainable manner then NIEL believes NI needs to move towards a Doughnut Economics model⁹, where we thrive within the planetary boundaries and ensure everyone is above the social foundation level. The Doughnut model is outlined in Figure 1. It consists of two concentric rings: a social foundation, to ensure that no one is left falling short on life’s essentials, and an ecological ceiling, to ensure that humanity does not collectively overshoot the planetary boundaries¹⁰ that protect Earth’s life-supporting systems. Between these two sets of boundaries lies a doughnut-shaped space that is both ecologically safe and socially just: a space in which humanity can thrive.

Figure 1 Doughnut economics model



The consultation says on page 46 that

“As individuals, we each have an important role to play. It will be our behaviours and individual choices that will dictate whether we can address the climate crisis in time. Individual decisions about how we travel, what we consume, where we work, what we eat and how we value nature and the world around us will collectively add up to success or failure.”

However this is only partially true. For example, it would not be possible for an individual to take the bus or train or bicycle in to work or for other purposes, if there is no bus route, railway line or safe cycling infrastructure in place which offers them that option. Similarly, local regenerative food growing practices need to be in place for people to eat local, healthy, sustainable food. As such, while we do need individuals to make better decisions we need our decision makers to make different decisions and to enable change by providing the opportunities for different decisions to be made.

The Covid-19 pandemic also brought home to people that our food supply chains are very long and in many cases too long and these long supply chains can mean we are exposed to vulnerabilities in the supply chain. There would be many benefits to NI producing more of the

food consumed in NI as this could, amongst other things, reduce the GHG emissions from the production, transportation and storage of that food. NI should seek to grow more local food in a regenerative way in harmony with nature in a way that reduces the use of chemicals used and protects and enhances our soil. The work required to transform our food system is complex and must begin as soon as possible.

NIEL has consistently advocated for the integration of government strategies to ensure better delivery and outcomes and so welcomes the commitment to align strategies, though it is important to say that, as previously referred to, the principle of integration also applies to the management of other issues within the Green growth strategy, most notably, protecting and enhancing biodiversity. If the Green Growth Strategy is meant to guide/direct other strategies such as the biodiversity strategy and the environment strategy, amongst others, then greater clarity and firm SMART targets with higher ambition will be needed. The question of how the Green Growth strategy relates to the Programme for Government remains and NIEL would welcome clarification on that point from the Executive. Furthermore, a fundamental part of the change the green growth strategy envisages bringing about will be in our economic choices. NIEL therefore supports that statement on page 3 of the consultation that

“We also will ensure that the transition to a more sustainable economy is fair and just for everyone.”

The concept of just transition is explored further in our response to Q8.

Q2 - Are our Green Growth principles right? If not, what should be included / taken out and why?

The ten green growth principles are good but lack clarity.

The need to integrate our approach to climate change and biodiversity was referred to above in our response to Q1 and looking at the first of the green growth principles for example, it aims to

“Respect our planet - by restoring and protecting our natural capital. Future human wellbeing depends on a healthy and resilient natural world”

This is a welcome principle. However, given the poor state of NI’s biodiversity, more appropriate and effective action is urgently needed to better protect our biodiversity. Despite the fact that the Wildlife and Natural Environment Act (Northern Ireland) 2011¹¹ (the WANE Act) places a statutory duty on public bodies in Northern Ireland to conserve biodiversity, NI’s biodiversity is not doing as well as it should and in many cases is doing very badly. For

example, the State of Nature Report (2019)¹² clearly demonstrates that Northern Ireland's terrestrial, air, water, and marine environments are suffering, with 11% (272) of the 2,450 species found in Northern Ireland that have been assessed using the IUCN Regional Red List criteria, and for which sufficient data were available, threatened with extinction from Ireland as a whole.

The 2015-2020 NI Biodiversity Strategy¹³ was supposed to deliver a plan on how Northern Ireland could meet its local and international commitments to protect nature and ensure the environment can continue to support people and the economy. However, a review of the NI Biodiversity Strategy by RSPB NI¹⁴ revealed that 83% of government commitments (35/42) set out in the strategy have not been adequately met.

NI got a ranking of 12 (out of 240 countries and territories, where a ranking of 1 is the lowest biodiversity intactness and 240 the highest) in a Biodiversity Intactness Index, which indicates how much nature is left from a pristine state, for the amount of nature it has left¹⁵.

The status of NI's water bodies clearly illustrates how NI is failing to properly protect our environment. The EU Water Framework Directive (WFD) (Directive 2000/60/EC)¹⁶ requires that EU Member States aim to achieve Good Ecological Status (GES) in all waters by 2015 and if that is not possible, it allows interim targets to be set for 2015 and 2021 with full compliance by 2027. Having failed to meet the WFD targets for 2015 and 2021, the proposed target in the draft environment strategy for example is for 70% of water bodies (rivers, lakes, transitional and coastal water bodies, and groundwater bodies) in Northern Ireland to have achieved GES by 2027, which is unacceptable.

As of 2018, only 36.6% of Northern Ireland's water bodies were achieving GES, and this is lower than the level in 2015 when 37.4% of water bodies achieved GES. The decline in the 52 water bodies achieving GES since 2015 is a clear indication that existing measures are not adequate to address the significant water management issues in NI. Furthermore, in 2018, 31.3% of 450 river water bodies in NI were classified as 'high' or 'good' quality, compared to 32.7% in 2015¹⁷. According to the statistics on freshwater quality standards released in August 2020¹⁸, 95% of NI's lakes failed Water Framework Directive quality standards with only one lake out of twenty one in Good condition in 2019 compared to five out of twenty one lakes in Good condition in 2015. However, according to the most recent Water Framework Directive Statistics report¹⁹ published in December 2021 by DAERA, the presence of ubiquitous, persistent, bioaccumulative, toxic (uPBT) substances, so-called 'forever' chemicals, were assessed as part of chemical status of our water bodies since 2018. NIEL welcomes the department's work to expand of the chemical sampling to include these uPBT chemicals. These uPBT substances were detected at all monitored stations and as a result no rivers, no lakes and no transitional and coastal water bodies in Northern Ireland achieved good environmental status.

This poor performance is perhaps not surprising given that in 2019, an official UK report²⁰ on the freshwater pearl mussel, produced as part of the reporting process on the implementation of the Habitats Directive in the UK said that

“the lack of juvenile recruitment and an ageing population will almost certainly lead to the future extinction of this species from NI, unless there is a fundamental improvement of their current habitat”.

As regards the sources of freshwater pollution, the agriculture sector has long been the most significant source of water pollution incidents in Northern Ireland. According to the NI Environmental Statistics Report 2021²¹, in 2019 there were 1,754 water pollution incidents either reported to NIEA or discovered by NIEA of which 941 were substantiated as having an impact on the water quality of the receiving waterway. Agriculture accounted for 36.5% of those substantiated incidents followed by industry (17.4%), other (17.1%) domestic (16%) NI Water (10.7%) and Transport (2.3%). According to the NI Environmental Statistics report 2020²² in 2018, there were 1,793 water pollution incidents of which 924 were substantiated and agriculture accounted for the largest proportion (30.5%) of the 924 substantiated water pollution incidents investigated by NIEA. In fact, according to official DAERA figures, agriculture was responsible for the largest proportion of substantiated water pollution incidents investigated by NIEA or its predecessor, in 2017²³, 2016²⁴, 2015²⁵, 2014²⁶, 2013²⁷, 2012²⁸, 2011²⁹ and 2010³⁰. Given that agriculture has been the main source of water pollution in NI every year of the last decade, it seems clear that a different approach to how we manage our land, particularly in terms of water pollution, is needed as a matter of urgency. This seems to be a UK wide problem. As the UK Government’s 25 year plan for nature, ‘A Green Future’³¹ stated

“Overall, farming is now the most significant source of water pollution and of ammonia emissions into the atmosphere in the UK.”

In order to help tackle these, and other negative impacts from our food production methods, there needs to be a greater emphasis on nature friendly farming practices and the use of natural capital and the role of ecosystem services in the green growth strategy and other related strategies including the environment strategy, the biodiversity strategy and any future food strategy, including in relation to soil formation, pollination, nutrient cycling, water regulation and purification. This should tie in to the proposed amended payments system for agricultural support based on the principle of public money for public goods, in other words farmers should be rewarded for the environmental/ecosystem goods and services they provide. NIEL would like to see a greater emphasis on an agro-ecology approach which involves the application of integrated ecological, economic and social principles towards resilience in food.

The nature of food production will likely be a key component of the green growth strategy and NI needs to develop the agro-ecological production of food, shorten supply chains, develop local markets, develop initiatives to address food poverty and food waste and to promote food that is healthy for us and the planet. The potential cross departmental benefits (win-wins) from buying healthy local food for school meals for example, is explored in more detail in our response to Q12 in relation to the role of public procurement.

In relation to protected areas, according to the NI Environmental Statistics report 2021, 36% of the features in NI's Areas of Special Scientific Interest (ASSIs), which are protected by law, were in unfavourable condition in 2020³². This represents a worsening of the situation from 2020 when 35% of ASSI features were in unfavourable condition³³. If the NI administration and DAERA in particular, can not even ensure that the features of our ASSIs, and other areas which are protected by law, are kept in favourable condition and that an internationally protected species, the freshwater pearl mussel, is threatened with extinction, then it is clear that different decisions need to be made.

There is currently no marine plan in place for Northern Ireland. Without an effective and spatially prescriptive marine plan that prioritises nature positive and sustainable development at sea, the goal of Green Growth in a marine context is untenable.

NIEL therefore believes that firm commitments to protect and enhance natural capital and biodiversity, on land and at sea, are necessary.

The Valuing our Environment³⁴ report (2007) found that economic activities related to the environment in Northern Ireland contributed £573m to the regional economy and supported 32,750 full time equivalent jobs. The AERA Minister said in the NI Assembly on 25th May 2021³⁵ that "Protecting and restoring biodiversity in Northern Ireland is a long-term commitment.". On that basis NIEL would expect to see firm commitments to protect and restore biodiversity in strategies like the Green Growth strategy. For example, amongst other specific targets, there should be a target to have effective protection and management of at least 30% of land and sea for nature and people by 2030, a target which was endorsed by the AERA Minister in the NI Assembly on 25th May 2021³⁶ and a target to ensure there is a requirement for biodiversity net gain in all development proposals as part of a NI commitment to become nature positive by 2030. The JNCC report "Nature positive"³⁷ published in September 2021 produced by the Joint Nature Conservation Committee, Natural England, Natural Resources Wales, NatureScot and the Northern Ireland Environment Agency outlined nine practical steps that would be necessary to prevent and ultimately reverse biodiversity loss and which can be delivered rapidly. The nine changes are:

1. Ensure wildlife thrives within SSSIs/ASSIs and Marine Protected Areas through improving their management and tackling sources of harm. Protected areas need to be the beating hearts of nature networks on land and at sea, supporting thriving populations of species that spill out across the rest of the network.
2. Better conserve remaining wildlife habitats outside SSSIs/ASSIs, in particular those areas identified as parts of nature networks or as important blue/green infrastructure.

3. Invest in habitat restoration and creation to strengthen nature networks that deliver for biodiversity and climate change. In particular, we need to create large areas of wildlife habitat with restored ecosystem functions.

4. Integrate outcomes for nature into developments on land and at sea, ensuring access to nature is improved, and delivering a wide range of health and other benefits.

5. Tackle atmospheric and diffuse water pollution, especially from nitrogen and ammonia.

6. Develop the market for green finance, putting in place the frameworks necessary to facilitate

private investment in nature recovery, and ensuring there is a supply of investable on-the-ground projects.

7. Deploy Nature-based Solutions by default. Decision makers need to ask themselves 'can nature provide a solution?'

8. Develop the UK's evidence base so that it is ready to support the larger, transformative changes underway.

9. Adopt targets to become Nature Positive, so that nature goals are put on an equal footing with climate change ambitions

These nine actions should be built in to the green growth strategy, the NI environment strategy, the NI Biodiversity strategy and other strategies, in line with the principle of integration the consultation document refers to on page 8 in order to make NI nature positive. The role of adaptation also needs to be built in to the guiding principles of the strategy.

Section 2

Q3 - Are we right to adopt a Green Growth approach bringing together green jobs, climate action and the environment?

In principle, this is the right approach but much depends on what exactly how the green growth approach is interpreted and implemented.

NIEL believes that investing in a sustainable, resilient, low and ultimately zero carbon, green economy will help to create a bigger, better and more resilient ('future proofed') economy that is better able to meet the demands of a changing society. The many benefits of a green or greener economy have been highlighted and endorsed by many prominent organisations. For example, this is supported by the findings of the United Nations UNEP Green Economy Report (GER)³⁸ that

"Greening the economy not only generates growth and in particular gains in natural capital, but it also produces a higher growth in GDP and GDP per capita. Under the GER modelling exercise, a green investment scenario achieves higher economic growth rates than a business as usual scenario within 5-10 years"

The case for developing a green economy was made in the House of Commons Environmental Audit Committee in its "A Green Economy"³⁹ report which said

"The whole economy needs to be green and traditional sectors of the economy will need to be transformed"

The many potential economic benefits of moving to a net zero GHG economy are clear. For example, in the Sixth Carbon Budget, the CCC found⁴⁰ that

"the net costs of the transition to net zero by 2050 (including upfront investment, ongoing running costs and costs of financing) will be less than 1% of GDP over the entirety of 2020-2050, lower than we concluded in our 2019 Net Zero report."

Modelling commissioned for the CCC Sixth Carbon Budget report⁴¹ suggests achieving net zero in the UK will give a boost to UK GDP growing to around 2% of GDP by 2030, with an accompanying boost to employment of around 1%. According to this analysis the GDP boost will continue growing after 2030 before levelling off at around a 3% boost by 2050. The CCC goes on to say⁴² that considering the various economic models and evaluations, the investment programme for achieving net zero set out in section 2 of the Sixth Carbon Budget report

“can provide a significant economic boost in the coming years and support the UK’s economic recovery.”

Investing in a green economy and zero carbon options can also save money in the long term. The CCC said in its Sixth Carbon Budget report (page 261) that

“Around half of the measures to reduce emissions are expected to be cost saving by 2050, primarily decarbonising electricity and surface transport.”

The potential for job creation in renewable energy and low carbon choices is enormous and must be maximised. This was illustrated by research for The Institute for Public Policy and Research⁴³ which concluded that greater investment in a green recovery and clean, low-carbon jobs could create 1.6 million new jobs over the next decade in the UK, of which over 40,000 could be in Northern Ireland. This is more than three times the 11,700 FTE jobs in the low carbon and renewable energy (LCRE) economy in NI which generated £2 billion in 2017⁴⁴.

Of those 1.6 million jobs, half a million (560,000) could be created by improving the energy efficiency of homes, which would also help reduce fuel poverty and help the health and economic prospects of thousands. Action is required across government but it is important to recognise that many of the green economy policy options can generate benefits across society, in line with the aims of the Green Growth strategy and the draft NI Programme for Government (PfG) 2016-21. For example, the benefits from investing in better insulation in buildings could create jobs for people and firms (relevant to the Department for the Economy), reduce carbon emissions (relevant to DAERA) and reduce fuel poverty (relevant to the Department for Communities) by saving energy and making buildings warmer. This would have very positive impacts on the physical and mental health of those who would be taken out of fuel poverty and live in warmer properties (relevant to the Department of Health) and all of this could be delivered by improving building regulations, which is the responsibility of the Department of Finance. This illustrates why integration between departments and strategies to green the NI economy is so important.

Q4 - Is a statutory Green Growth test needed to ensure we put climate action, environment and green jobs at the heart of policy development?

A green growth test, if properly designed and implemented, could in theory help ensure that NI develops in a much more sustainable manner and as such would be a good idea but NIEL would need much more detail on a number of questions including exactly what this test would entail; what the aim of a green growth test is; when and how the test would be applied; who would conduct the test and how the findings of the green growth test will be applied, before it would be in a position to formally support this proposal. For example, if a green growth test were to be applied and the result of the test was that a particular proposal

did not have a positive impact or even had a negative impact in terms of climate action and/or the environment and/or green jobs, should that development go ahead as proposed? There are other questions in relation to this that need to be answered including whether or not a green growth test could and would be applied retrospectively to approved long term plans and policies including community and local development plans.

NIEL supports the approach outlined on page 14 of the consultation that

“We need to integrate decarbonising and environmental principles into policy making.”

There are examples of evaluation methodologies or tools that the NI Executive could learn from and possibly adopt when developing its green growth tests. For example, the World Bank has adopted climate screening tools⁴⁵ which are designed to help users to understand the level of risk posed by climate and other natural hazards at an early stage of planning and design of national or sector-wide strategies, development policy, institutional strengthening and/or reforms and this could be a good starting point in terms of a risk analysis. However it seems that the main aim of the green growth test referred to should, in essence, be to evaluate how sustainable any proposed development is or will be and as part of that evaluation, to explore and better quantify the implications of and opportunities that c/would be created by any proposed development and the potential impacts in terms of climate action and/or the environment and/or green jobs in addition to any evaluations required by law, policy and/or established practice.

Q5 - Should Green Growth be one of our top Executive investment and budgetary priorities?

NIEL would support green growth being one of the Executive's top priorities but only on the basis that the Green Growth strategy is appropriately designed with the appropriate SMART targets and milestones and contributes to making NI a much more sustainable society. NIEL would encourage the NI Executive to develop our economy in line with the statement in the Programme For Government's Outcome Delivery Plan for 2018-19 which said⁴⁶

“Our health and wellbeing are directly affected by the quality of the environment around us and, therefore, it is vitally important that we take steps to protect and enrich our natural environment. Achieving economic growth at the expense of the environment, through degradation of finite resources by overuse or causing pollution is not sustainable.”

NIEL welcomes the recognition implicit in the wording of Q5 that making NI a more sustainable society will require specific financial support. Previously, despite support from the largest main political parties, a Green New Deal was never progressed. As our economy awaits rebuilding, it is time to revisit and revive this opportunity to boost economic growth while cutting emissions, lowering energy costs, and boosting local employment. A cross-

departmental unified vision in the form an all-encompassing Green New Deal is needed, which should be based upon the six key principles set out by the UK Committee on Climate Change⁴⁷ in a letter from May 2020 to the prime Minister and First Ministers in Scotland and Wales and the First and Deputy First Ministers in Northern Ireland to rebuild whilst delivering a stronger, cleaner and more resilient economy. The CCC recommended that Governments in all UK nations should prioritise the following actions to recover from the pandemic:

1. Use climate investments to support economic recovery and jobs.
2. Lead a shift towards positive, long-term behaviours.
3. Tackle the wider 'resilience deficit' on climate change.
4. Embed fairness as a core principle.
5. Ensure the recovery does not lock-in greenhouse gas emissions or increased risk.
6. Strengthen incentives to reduce emissions when considering tax changes.

We must have a focus on actions which promote both Adaptation and Mitigation efforts.

NIEL also recognises that it is appropriate that health and education are likely to remain the top priorities for the Executive but it is important to recognise that those issues are also dependent on our environment and that by better managing and protecting the environment important contributions can be made to the achievement of goals in those other areas. For example, as regards health, in addition to the obvious benefits of clean air and water and healthy food, the beneficial relationship between human health and the environment was illustrated by the EU's PHENOTYPE study⁴⁸ which found that positive health effects of green space have been observed on a range of issues including but not limited to: longevity^{49, 50}, cardiovascular diseases⁵¹, people's self-reported general health^{52,53}, mental health⁵⁴, sleep patterns⁵⁵ and even recovery from illness⁵⁶.

Similarly, a 2016 WHO report⁵⁷ summarizing evidence on the health effects of green space in urban areas showed that green spaces offer numerous public health benefits, including psychological relaxation and stress reduction, enhanced physical activity and a potential reduction in exposure to, among other harmful urban factors, air pollution, noise and excessive heat. The report concludes that there is a need for both small, local green spaces situated very close to where people live and spend their day, and large green spaces that provide formal recreational facilities and opportunities to interact with nature. Research⁵⁸ which looked at the entire population of England below retirement age between 2001-05 (40,813,236 people) found that populations that are exposed to the greenest environments also have lowest levels of health inequality related to income deprivation, concluding

"The implications of the study are clear: environments which promote good health may be key in the fight to reduce health inequalities."

According to the Department of Health report ‘A Fitter Future for All, Framework for Preventing and Addressing Overweight and Obesity in Northern Ireland 2012-2022’⁵⁹, one way of addressing the “obesity time bomb” which was described as “one of the most important public health challenges facing Northern Ireland” is by providing access to green space as children with greater access to green space are less likely to be overweight. The report states (page 22) that

“Green spaces link directly to levels of physical activity. Children with more green space are less likely to be over-weight. Children in greener neighbourhoods have lower Body Mass Index.”

In relation to education, there are many benefits of outdoor play for children in addition to health including general educational benefits, an understanding of risk, interpersonal and social skills, the joy of exploration and community benefits. Interacting with natural environments enables children and young people to learn by doing, experiment with ideas and take positive action alleviating the feeling of helplessness in relation to climate anxiety and ecological grief. In nature, they also think, question, and make hypotheses — thereby developing inquisitive minds where they take risks, try and fail, and try again, gaining resilience and confidence. As the National Trust’s Natural Childhood report explains⁶⁰

“children who learn outdoors know more, understand more, feel better, behave better, work more cooperatively and are physically healthier”

The Dasgupta Review⁶¹, which the consultation referred to on page 14, recommended that our education systems should introduce nature studies from the earliest stages of our lives, and revisit them in the years we spend in secondary and tertiary education.

Section 3

Q6 - Do we need specific targets for each sector set out in Climate Action Plans? If yes, how would this be brought about; and if no, how should we ensure we drive change?

Ultimately, yes. Different sectors will need to have a detailed strategy to achieve net zero greenhouse gas emissions and developing and implementing sectoral targets will be an essential part of this. While it is not yet clear what climate change legislation will be passed in NI, the current draft of the cross party Private Members Bill (PMB) on climate change which passed its second stage on 10th May 2021, by a 2:1 majority⁶², requires the Executive to lay Assembly Climate Action Plans (CAPs) before the Assembly on a 5-yearly basis and amongst other things those CAPs will include sectoral plans which detail the policies that will be taken forward in each sector of the economy so this PMB offers a guide to how this issue of developing Climate Action Plans could be approached.

Q7 - Do you agree on the definition of the sectors?

This question is quite vague as the reference to sectors on page 39 merely states that

“How we define the specific sectors for sectoral pathways and trajectories is important to enable us to measure progress.”

The above statement is true but it appears that the sectors which will need to reduce emissions have not been adequately defined in the consultation and this makes responding to question 7 very difficult. While NIEL welcomes the reference to the role of the public sector on page 58, overall this is another example of lack of detail in the Green Growth strategy limiting the responses that can be given.

Section 4

Q8 - Do you agree with the adoption of a Just Transition approach? If not, what approach should we be taking and why?

Absolutely, yes. In fact, a just transition will be essential.

NIEL has repeatedly called for a just transition, for example, in our response to the Discussion Document on a Northern Ireland Climate Change Bill in April 2021⁶³.

Ensuring a just transition is a key component of reaching net zero as it is essential that the move to a net zero carbon economy respects worker rights and is achieved with the help and input of employers and employees to ensure the positive economic opportunities are maximised. This point was clearly made by the CCC in its 2019⁶⁴ report “Net Zero The UK’s contribution to stopping global warming” (on page 253) that in relation to a just transition

“The concept is now widely recognised as a crucial element of a low-carbon transition – a just transition declaration was signed by 53 governments (including the UK) at the COP 24 conference in 2018”

Furthermore, in relation to a just transition, the CCC said on page 12 of that same report⁶⁵,

“The transition, including for workers and energy bill payers, must be fair, and perceived to be fair. Government should develop the necessary frameworks to ensure this. An early priority must be to review the plan for funding and the distribution of costs for businesses, households and the Exchequer.”

It its Sixth Carbon Budget report the CCC said (page 29)

“Only a just transition will be successful.”

On page 280 of the Sixth carbon Budget the CCC said

“A strategy for a just transition is required.”

In the UK CCC report ‘Policies for the Sixth Carbon Budget’ page 42 CCC said

“Reaching Net Zero will not be possible without involving people in the transition.”

In its letter to the AERA Minister dated 1st April 2021, the CCC also said

“The UK Government and Northern Ireland Executive both have key roles to play in delivering a just transition that ensures the costs of UK Net Zero are spread fairly and the benefits shared widely.”

While a just transition was referred to in the consultation, NIEL would like to have seen a more detailed exploration of the importance of a just transition and how it might be managed as well as the related importance of how DAERA will co-operate with other NI departments most notably the Department for the Economy and Department of Finance in relation to ensuring that there is a just transition in NI that meets the needs of NI society and maximises the job opportunities such a transition creates.

The importance of the Sustainable Development Goals in the just transition was illustrated by the launch, at COP26 in Glasgow, of a set of high-level principles⁶⁶ from the multilateral development banks, which link the just transition with the SDGs.

NIEL believes that NI could and should adopt the approach taken in Scotland to a just transition. The Scottish Government established the Scottish Just Transition Commission ⁶⁷ in 2019 to advise on a net-zero economy that is fair for all. The Scottish principles for a just transition state that action to reduce net greenhouse gas emissions should: support environmentally and socially sustainable jobs; support low-carbon investment and infrastructure; create decent, fair and high-value work in a way which does not negatively affect the current workforce and overall economy and contribute to resource efficient and sustainable economic approaches which help to address inequality and poverty. The Scottish Government also committed funding to a just transition with £100m pledged towards a Green Job Fund, £60m to help industrial and manufacturing sectors decarbonise, £70m for improved refuse collection infrastructure and £150m to deliver a 50% increase in woodland. Similar funds in Northern Ireland should be established to help create opportunities for blue

and green infrastructure, sustainable tourism, nature restoration, to mitigate against climate change and help progress other key Executive priorities.

Q9 - How do we ensure this Just Transition - is a Commission the right way forward?

Above all, NIEL believes there needs to be a legislative requirement for and subsequent economic commitment to a just transition in NI to ensure that a just transition is seen as something that has to happen, rather than it being an option. Part 1 paragraph 3 (8) of the PMB or Climate Change (no 1) bill provides for a just transition but the DAERA climate change (no 2) bill does not make any provision for a just transition so the climate change legislation passed in NI is likely to be very influential in relation to the just transition.

A Commission is one option and a good one. However, no details as to how such a Commission might work were provided in the consultation document which makes it very difficult for NIEL to comment in detail beyond expressing an opinion on the principle of having a Commission, which NIEL would support.

Q10 - How do we make sure the public and all stakeholders (including young people) are actively engaged with Green Growth? Is a Citizen Assembly Panel the right structure?

Once again there is a lack of detail as regards exactly what it is the Executive proposes be set up and what the remit of the Citizens Assembly panel would be but in principle NIEL would support a Citizens Assembly as a resilient, successful future has to be based on engagement with people. However, engagement should not be limited to a Citizens Assembly if one is set up as broader engagement will still likely be beneficial.

Section 5

Q11 - How can we work most effectively with businesses, local government and organisations across Northern Ireland to maximise and deliver our decarbonisation and Green Growth efforts?

First and foremost, the Executive needs to set a clear policy and legislative framework with clear SMART targets and milestones so that all sectors know and understand as far as possible, what the targets are and what needs to be done.

Appropriate levels of finance will need to be made available in order to ensure delivery of decarbonisation efforts, including for local government.

NIEL would encourage and support stakeholder engagement at each stage of the process. For example, the consultation says that

“shifting quickly towards healthier diets, reducing growth in aviation demand and choosing products that last longer and therefore improve resource efficiency are all key.”

It is therefore essential that consumers better understand the choices they should make.

NIEL recognises that many communities and businesses in Northern Ireland are already playing their part as illustrated by the examples given, though the examples are all from the private sector. NIEL believes that clear direction (in the form of policy and/or legislation) from the Executive would be not just of great assistance but essential in order to push NI further down the path of sustainability than relying on decisions being made by individual organisations.

Q12 - How should the public sector be leading by example on Green Growth?

The public sector should lead by example most notably through procurement and by setting the appropriately supportive legislation and policy. NIEL would support the recommendation on page 58 to adopt a Green Growth aligned procurement strategy for all government spend. This is another area where interdepartmental collaboration will be key to achieving the goals in the Green Growth strategy including lowering emissions and cost saving.

The purchasing power of the government and all the statutory bodies in NI is massive and provides a huge opportunity to drive the development of a more sustainable economy. Procurement expenditure accounts for some £3bn annually, representing a quarter of the NI Executive's budget⁶⁸. If the Department of Finance and the Executive ensured this expenditure was as sustainable as possible it could make a huge difference to reducing Northern Ireland's ecological footprint and should help support many green, low carbon industries, many of which could be local. As the NI Finance Minister⁶⁹ said in relation to a reported £31 million in savings achieved under a new contract which will see 100% renewable energy supplied to government buildings

“procurement can be a key lever in the transition to a Green Economy.”

Take the example of buying healthy local food for school meals. According to the New Economics Foundation⁷⁰ (NEF) 2011 report “The benefits of Procuring School Meals through the Food for Life Partnership” in Nottinghamshire, spending for school meals locally within a Food For Life Partnership (FFLP) framework was calculated to generate over £5 million in value each year, returning £3.11 in social, economic and environmental value for every £1 spent. In addition, the NEF found (page 3)

“Comparing current spending and re-spending in Nottinghamshire now and prior to a focus on procuring locally and seasonally shows that the total amount of money circulating in the local economy from this source has increased substantially, from £181,418 in 2004 to £3,826,688 currently”

NI could learn from Scotland’s sustainable procurement duty, outlined in the Procurement Reform (Scotland) Act 2014⁷¹ which aligns with the Scottish government’s purpose to create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.

Section 6

Q13 - What indicators should we use to measure the success (or otherwise) of our Green Growth strategy?

There are a number of possible indicators that could be used to measure the success or otherwise of the Green Growth Strategy. NIEL would also recommend that for the sake of consistency the indicators used in the Green Growth strategy should, as appropriate, reflect as closely as possible those indicators that are to be used in the draft Programme for Government (PfG). Useful indicators could include:

GHG emissions (the basket of GHGs)

Biodiversity in terms of area of intact habitat e.g. of peatland and species abundance e.g. for the freshwater pearl mussel and the extent and percentage of features of ASSIs and N2K sites in favourable condition.

Pollinator population levels.

The degree of diversification of agriculture, including the contribution from local regenerative vegetable growing.

The amount of land managed by communities for food growing.

Distance from/access to and use of green space including levels of active travel

Number of and severity of water pollution incidents

Quality of water bodies (as per WFD standards)

Air quality and related hospital admissions, illnesses and deaths due to air pollution

Physical and mental health and wellbeing related indicators including new measures such as a measure of wellbeing as well as existing indicators including levels of fuel poverty; number of jobs created in the Low Carbon and Renewable Energy (LCRE) sector, as well as detail on job security and contract length, pay rates, employment rates and other measures of equality and inequality.

Q14 - How can there be effective oversight of Green Growth - should there be a dedicated Assembly Committee, or independent scrutiny?

The consultation suggests that a Climate Action Assembly Standing Committee be established to ensure effective oversight of the Green Growth strategy. This could work but again there is a lack of detail in the consultation as to how this might work including what the remit of the committee would be and what degree of independence such a committee should have. Although the name of the committee is not that important, if a committee is to be established to look at Green Growth, it might be expected that committee would have a name that reflects its remit such as the Green Growth Committee, as opposed to a Climate Action Assembly Standing Committee, as that suggests the remit of that committee would be limited to climate action. As the Overall, NIEL does not believe that the case has been adequately made for green growth to not be within the remit of the relevant Assembly committee, namely the TEO Committee.

Section 7

Q15 - Please add any other comments or suggestions you think are relevant to developing and delivering our Green Growth strategy

The desire for change

NIEL welcomes the publication of the Green Growth strategy, the level of co-operation between departments that was necessary to produce this draft strategy and the recognition by the Executive of the need for change. It is important to recognise that there is a very high level of public support for change. For example, a 2020 survey commissioned jointly by the RSA's Food, Farming and Countryside Commission and the Food Foundation found that 91% of the public said they don't want things to go back to how they were⁷². A Department for Business, Energy and Industrial Strategy (BIES) Public Attitudes Tracker Survey, in June 2020 found that 80% expressed support for renewable energy, with only 2% opposing it.⁷³ A Lucid Talk poll in NI in May 2020 found that 74% of respondents want new laws to protect nature after experiencing the COVID-19 emergency, 75% of people have appreciated access to green spaces since lockdown began and over 50% of people said they would now vote for a political party that invests in nature-rich green spaces⁷⁴. The role of urban and peri-urban agriculture should be taken seriously for the whole range of benefits it provides. It seems clear that for the benefit of the people of NI, the NI administration needs to shift its focus towards improving protection for nature and by extrapolation, all of us and must provide the investment needed in laws, polices, research, monitoring, finance and investment and other support mechanisms that will ensure that change happens.

Inaccuracies in the Green Growth strategy

There appears to be some inaccuracies in the information provided in the draft Green Growth strategy.

For example, the consultation says on page 2

“Today, the world is looking on as we lead the way with our innovation in hydrogen”

In 2001, Iceland’s environment minister, Siv Friðleifsdóttir, introduced a draft policy on sustainable development until 2020⁷⁵ which, amongst other things, included a goal that by 2020, 20% of vehicles and vessels in Iceland will be powered by renewable energy, i.e with hydrogen as energy carriers. Given Iceland has for more rha 20 years been exploring the options offered by hydrogen and developing policies with SMART targets for how hydrogen will help Iceland to decarbonise, it does not seem appopriate to describe Northern Ireland as leading the world in hydrogen power. In Scotland, Aberdeen already has 65 hydrogen fleet vehicles, including the buses, refuse trucks, road sweepers, vans and cars⁷⁶. The Aberdeen Hydrogen Strategy⁷⁷ published in 2015 outlines key actions required over a 10-year period to ensure Aberdeen is at the forefront of hydrogen technology. Just last month (November 2021) a green hydrogen filling station opened in Groningen Holland⁷⁸. There are no such filling stations in NI. While it is a NI based manufacturer, Wrightbus, that builds hydrogen buses and NI has had a hydrogen bus since 2016, NI is not really in a position to claim that it is a ‘world leader’ in relation to hydrogen when it is clearly behind other countries. The NI Executive must be objective and accurate in the provision of information and not seek to exaggerate. It is good to be positive and optimistic but we must not fool ourselves in to thinking we are doing much better than we are, as there is a risk that we will not always make the right choices if we do not fully and accurately understand the scale of the problems we face.

Also, the consultation says on page 27

“We know that low carbon and renewable energy are already important parts of our economy and it is estimated that this sector generates around £1 billion in turnover annually and provides 5,900 full time equivalent (FTE) jobs.”

The source for this figure is given as DfE Energy in Northern Ireland, <https://www.economy-ni.gov.uk/articles/energy-northern-ireland> and that report does indeed say on page 14 that

“5,900 full time equivalent (FTE) jobs were generated directly by businesses active in the LCRE economy in each of the years 2016 to 2018.”

However this figure does not match that given by the Office for National Statistics Statistical bulletin “Low carbon and renewable energy economy, UK: 2017”⁷⁹ which says, in table 4 on page 15, that there was a total of approximately 11,700 FTE jobs in the low carbon and renewable energy (LCRE) economy in Northern Ireland in 2017, 5,900 of which were direct FTE jobs and 5,900 of which were indirect FTE jobs.

It may be that the author(s) of the Green Growth strategy only reported or counted the direct FTE jobs in NI in the LCRE economy and not the direct and indirect jobs but based upon the ONS figures it appears that the Green Growth strategy has included inaccurate figures and under-represented the employment in the LCRE sector by approximately 50%. NIEL would again emphasise the need for the NI Executive to be objective and accurate in the provision of information.

Also, the format of the response form with Yes/No answers does not always work well and the department should review this. In many cases the proposals in the consultation are, in principle, good. These good principles could be badly designed and be poorly implemented or well designed and successfully implemented - much depends on details that are not provided in the consultation. As such, in many cases NIEL's response would be conditional rather than definite and so a Yes/No option does not always fully represent the position of respondents who may wish to explain their conditional response or position.

-ENDS-

-
- ¹ Intergovernmental Panel on Climate Change (IPCC) 2018 <https://www.ipcc.ch/sr15/chapter/spm/>
- ² Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) 2019, <https://ipbes.net/document-librarycatalogue/summary-policy-makers-global-assessment-laid-out>
- ³ <http://aims.niassembly.gov.uk/officialreport/report.aspx?&eveDate=2020/02/03&docID=292480>
- ⁴ <https://www.theccc.org.uk/publication/sixth-carbon-budget/> (p17)
- ⁵ <https://www.theccc.org.uk/publication/building-low-carbon-economy-wales-setting-welsh-carbon-targets/>
- ⁶ <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/> page 171
- ⁷ https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Discussion%20Document%20on%20a%20Northern%20Ireland%20Climate%20Change%20Bill%20-%20Full-length%20version_0.pdf page 30
- ⁸ <https://www.theccc.org.uk/publication/letter-economic-costs-of-setting-and-delivering-a-2050-emissions-target-for-northern-ireland/>
- ⁹ <https://www.kateraworth.com/doughnut/>
- ¹⁰ <https://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html>
- ¹¹ Wildlife and Natural Environment Act (Northern Ireland) 2011 (legislation.gov.uk)
- ¹² <https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-Northern-Ireland-summary.pdf>
- ¹³ <https://www.daera-ni.gov.uk/sites/default/files/publications/doe/natural-policy-biodiversity-strategy-to-2020-2015.pdf>
- ¹⁴ <https://www.rspb.org.uk/about-the-rspb/about-us/media-centre/press-releases/rspb-ni-northern-ireland-biodiversity-strategy-failing-after-years-of-inaction/#:~:text=On%20the%20day%20that%20a,have%20not%20been%20adequately%20met.>
- ¹⁵ <https://www.rspb.org.uk/globalassets/downloads/about-us/48398rspb-biodiversity-intactness-index-summary-report-v4.pdf>
- ¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>
- ¹⁷ <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/NIEA%20-%20WFD%20Statistics%20Report%202018.pdf>
- ¹⁸ <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Water%20Framework%20Directive%20-%20Statistics%20report%20-Lake%20Quality%20Update%202020.pdf>
- ¹⁹ <https://www.daera-ni.gov.uk/publications/northern-ireland-water-framework-directive-statistics-report-2021>
- ²⁰ UK's 2019 Article 17 report <https://jncc.gov.uk/our-work/article-17-habitats-directive-report-2019/>
- ²¹ <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2021.pdf>
- ²² <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2020.pdf>
- ²³ https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2019_1.pdf
- ²⁴ https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2018_1.pdf
- ²⁵ https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2017_2.PDF
- ²⁶ <http://www.niassembly.gov.uk/globalassets/documents/raise/publications/2016/environment/2016.pdf>
- ²⁷ <https://www.daera-ni.gov.uk/sites/default/files/publications/doe/ni-environmental-statistics-report-2016.pdf>
- ²⁸ <https://www.daera-ni.gov.uk/sites/default/files/publications/doe/ni-environmental-statistics-report-2014.pdf>
- ²⁹ <https://www.daera-ni.gov.uk/sites/default/files/publications/doe/ni-environmental-statistics-report-2013.pdf>
- ³⁰ <http://www.niassembly.gov.uk/globalassets/documents/raise/publications/2016/environment/2016.pdf>
- ³¹ A Green Future: Our 25 Year Plan to Improve the Environment https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf page 38
- ³² DAERA Northern Ireland Environmental Statistics report 2021 <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2021.pdf>

-
- ³³ DAERA Northern Ireland Environmental Statistics Report 2020 https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2020_0.pdf
- ³⁴ <https://www.daera-ni.gov.uk/sites/default/files/publications/doe/valuing-our-environment-summary-report.pdf>
- ³⁵ <http://aims.niassembly.gov.uk/officialreport/report.aspx?&eveDate=2021/05/25&docID=338424>
- ³⁶ <http://aims.niassembly.gov.uk/officialreport/report.aspx?&eveDate=2021/05/25&docID=338424>
- ³⁷ <https://data.jncc.gov.uk/data/6de7bf27-055e-4407-ad29-4814e1613d90/nature-positive-2030-evidence-report.pdf>
- ³⁸ <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=659&ArticleID=6902&l=en>
- ³⁹ House of Commons Environmental Audit Committee A Green Economy Twelfth report of session 2010-12 Volume 1 HC1025 <https://www.parliament.uk/documents/TSO-PDF/committee-reports/cmenvaud.1025.pdf>
- ⁴⁰ <https://www.theccc.org.uk/publication/sixth-carbon-budget/> page 239
- ⁴¹ <https://www.theccc.org.uk/publication/sixth-carbon-budget/> page 267
- ⁴² Ibid page 267
- ⁴³ <https://www.ippr.org/research/publications/transforming-the-economy-after-covid19>
- ⁴⁴ ONS Low Carbon and renewable energy economy, UK 2017 see Table 3 and table 4 <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2017#how-do-we-measure-the-low-carbon-economy>
- ⁴⁵ <https://climatescreeningtools.worldbank.org/>
- ⁴⁶ Outcomes Delivery Plan <https://www.executiveoffice-ni.gov.uk/sites/default/files/publications/execoffice/outcomes-delivery-plan-2018-19.pdf> page 15
- ⁴⁷ <https://www.theccc.org.uk/2020/05/06/take-urgent-action-on-six-key-principles-for-a-resilient-recovery/>
- ⁴⁸ Positive health effects of the natural outdoor environment in typical populations in different regions in Europe (PHENOTYPE): a study programme protocol <https://bmjopen.bmj.com/content/4/4/e004951>
- ⁴⁹ Takano T, Nakamura K, Watanabe M. Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces. *J Epidemiol Commun Health* 2002;56:913–18. <https://pubmed.ncbi.nlm.nih.gov/12461111/>
- ⁵⁰ Mitchell R, Popham F. Effect of exposure to natural environment on health inequalities: an observational population study. *Lancet* 2008;372:1655–60. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(08\)61689-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)61689-X/fulltext)
- ⁵¹ Gavin Pereira, Sarah Foster, Karen Martin, Hayley Christian, Bryan J Boruff, Matthew Knuiam, Billie Giles-Corti The Association Between Neighborhood Greenness and Cardiovascular Disease: An Observational Study <https://pubmed.ncbi.nlm.nih.gov/22720780/?dopt=Abstract>
- ⁵² de Vries S, Verheij RA, Groenewegen PP, et al. Natural environments -healthy environments? An exploratory analysis of the relationship between greenspace and health <https://journals.sagepub.com/doi/pdf/10.1068/a35111>
- ⁵³ Maas J, Verheij RA, Groenewegen PP, et al Green space, urbanity, and health: how strong is the relation? https://jech.bmj.com/content/60/7/587?ijkey=61b649839da2c8f6e38b03f172ad0e51a80fbe68&keytype=tf_ipsecsha
- ⁵⁴ Grahn P, Stigsdotter UA. Landscape planning and stress. *Urban Forestry Urban Greening* 2003;2:1–18. <https://www.sciencedirect.com/science/article/abs/pii/S1618866704700199>
- ⁵⁵ Astell-Burt T, Feng X, Kolt GS. Does Access to Neighbourhood Green Space Promote a Healthy Duration of Sleep? Novel Findings From a Cross-Sectional Study of 259 319 Australians <https://pubmed.ncbi.nlm.nih.gov/23943772/>
- ⁵⁶ Ulrich RS. Views through a Windows may influence recovery from surgery. *Science* 1984;224:420–1. <https://pdfs.semanticscholar.org/43df/b42bc2f7b212eb288d2e7be289d251f15bfd.pdf>
- ⁵⁷ http://www.euro.who.int/_data/assets/pdf_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf?ua=1
- ⁵⁸ Mitchell R, Popham F. Effect of exposure to natural environment on health inequalities: an observational population study. *Lancet* 2008;372:1655–60 [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(08\)61689-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)61689-X/fulltext)
- ⁵⁹ <https://www.health-ni.gov.uk/sites/default/files/publications/dhssps/obesity-fitter-future-framework-ni-2012-22.pdf>
- ⁶⁰ <https://nt.global.ssl.fastly.net/documents/read-our-natural-childhood-report.pdf> (page 9)
- ⁶¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf

-
- ⁶² <http://data.niassembly.gov.uk/HansardXml/plenary-10-05-2021.pdf>
- ⁶³ <https://www.nienvironmentlink.org/cmsfiles/NIEL-response-to-DAERA-discussion-document-on-climate-change-bill-1-Feb.pdf>
- ⁶⁴ <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/> p257
- ⁶⁵ <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/> p257
- ⁶⁶ <https://www.adb.org/sites/default/files/page/41117/climate-change-finance-joint-mdb-statement-2019-09-23.pdf>
- ⁶⁷ <https://www.gov.scot/groups/just-transition-commission/>
- ⁶⁸ <https://www.northernireland.gov.uk/node/48239>
- ⁶⁹ <https://www.finance-ni.gov.uk/news/murphy-and-dodds-welcome-renewable-energy-contract-delivering-ps31m-savings>
- ⁷⁰ https://www.foodforlife.org.uk/~/_media/files/evaluation%20reports/fflp-nef---benefits-of-local-procurement.pdf
- ⁷¹ <https://www.gov.scot/policies/public-sector-procurement/sustainable-procurement-duty/>
- ⁷² Food, Farming and Countryside Commission and the Food Foundation 2020 survey https://foodfoundation.org.uk/covid_19/rsa-and-food-foundation-survey-shows-changes-in-citizen-attitudes-to-the-food-system/
- ⁷³ Department for Business, Energy and Industrial Strategy BIES Public Attitudes Tracker (June 2020 Wave 34 UK) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/906452/BEIS_PAT_W34_-_Key_findings.pdf
- ⁷⁴ <https://community.rspb.org.uk/getinvolved/b/steppingupnorthernireland/posts/new-poll-shows-strong-public-support-for-a-green-recovery>
- ⁷⁵ Sjálfbær þróun á nýrri öld, Stefnumörkun 2001-2020”; Umhverfisráðuneyti Íslands; 2001
- ⁷⁶ <https://www.sdi.co.uk/news-features/news-and-feature-articles/hydrogen-energy-projects-in-scotland-shaping-a-greener-future>
- ⁷⁷ http://archive.northsearegion.eu/files/repository/20150918111637_AberdeenHydrogenStrategy_March2015.pdf
- ⁷⁸ <https://fuelcellsworks.com/news/first-public-green-filling-station-for-hydrogen-in-groningen/>
- ⁷⁹ <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2017> see table 4