

NIEL

Environmental Scorecard 2022

This is an update of NIEL’s Vision 2020 and the NIEL 2021 scorecard which reviewed certain environmental indicators, some of which were also used in the draft programme for Government (PfG) 2016-21 in Northern Ireland¹. The 2016-21 PfG initially had [14 outcomes](#) but by 2018 these had been reduced to [12 outcomes](#) and there were 49 indicators for those 12 Outcomes². At the time of writing, the PfG covering the period 2022 to 2027 had not been published.

The indicators reviewed are as follows:

- (1) Greenhouse gas emissions and renewable energy production in NI
- (2) Biodiversity
- (3) Freshwater
- (4) Bathing water
- (5) Waste
- (6) Transport
- (7) Air quality

One major change from the 2021 scorecard is that freshwater is a separate category in this scorecard.

Where appropriate, the change in the parameter being reviewed is shaded green where the change means the target was met or red where the change means the target was not met. The target is highlighted in grey, as outlined in Table 1 below.

Table 1 Shading used to indicate progress towards meeting targets

	Green shading for targets met
	Red shading for target not met
	Grey shading to highlight the target

1 Greenhouse Gas (GHG) emissions and energy production from renewable sources in NI

According to DAERA’s Greenhouse Gas Emissions 2019³ report, Northern Ireland’s GHG emissions in 2019 were 21.4 Million tonnes of Carbon Dioxide equivalent (MtCO₂ e), up from 19.4 MtCO₂ e in 2018⁴, a rise of more than 10%. The level of GHG emissions in NI in 2019 is approximately 18% lower than in 1990 when the emissions were 26.07 MtCO₂e. The 1990 levels are important because the UK Climate Change Act of 2008⁵ and the 2019 amendment to that act⁶ which established the UK target of achieving net zero carbon by 2050 use 1990 as the baseline year. 1990 is also the baseline year for GHG emissions in the NI Climate Change Bill passed by the NI Assembly on 9th March 2022⁷. This means that NI’s GHG emissions in 2019 fell below the target set in the NI Executive’s draft Programme for Government (PfG) 2016-21 for GHG emissions to be 20% lower than 1990 levels by 2020. This also means that NI’s per capita (or per person) GHG emissions were 11.32 tonnes of CO₂ equivalent (tCO₂ e) as 21.4 MtCO₂e divided by 1.89 million people⁸ gives 11.32). This would place NI in the top ten highest per capita GHG emitters in the world in 2019, just above Estonia (with 11.09 tonnes per capita GHG emissions) in ninth place and just below Czechia (with 11.47 tonnes per capita GHG emissions) in eighth place in the list of global GHG per capita emitters in 2019⁹. The UK is 26th in that list with per capita emission of 6.71 tonnes per capita GHG emissions. This high level of per capita GHG emissions in NI places a particular onus on us to set our ambitions for reaching net zero as quickly as possible and in the interest of fairness, earlier than most other countries. NIEL therefore welcomes the passing of Northern Ireland’s first Climate Change bill¹⁰ in the NI Assembly on 9th March 2022 and looks forward to its speedy and full implementation.

Figure 1 Greenhouse gas (GHG) emissions levels in NI in selected years and PfG target

	Reduction in Greenhouse Gas (GHG) emissions (on 1990 levels) (PfG)				
Target 2020	Level 2019	Level 2018	Level 2015	Level 2014	Level 2011
20%	18%	20.17%	17.8%	18.2%	17.4%

Source: DAERA Greenhouse Gas Emissions 2019¹¹

The 2010 Strategic Energy Framework (SEF)¹² had a target of 40% of NI’s electricity to be generated from renewable sources by 2020. This target was achieved in 2020. For the 12 month period January 2021 to December 2021, 41.3% of total electricity consumption in NI was generated from renewable sources located in Northern Ireland which is 7.9% lower than the previous 12 month period (49.2%)¹³. Of the renewable electricity consumed, in 2021 82.1% was generated from wind, compared to 84.9% for the previous 12 month period (January to December 2020). The target in the 2021 SEF¹⁴ is to have at least 70% of electricity consumption from a diverse mix of renewable sources by 2030, though paragraph 15 (1) in the Climate Change Act¹⁵ which was passed by the NI Assembly on 9th March 2022 sets a target for the Department for the Economy to ensure that at least 80% of electricity consumption is from renewable sources by 2030.

Figure 2 Electricity production from indigenous renewable energy sources

	Electricity Consumed From Indigenous Renewable Sources (SEF)						
Target 2020 (SEF)	Level 2021	Level 2020	Level 2018	Level 2016	Level 2014/15	Level 2013/14	Level 2001/02
40%	41.3%	49.2%	38.6%	25.4%	19.9%	19.5%	1.5%

Source: Electricity Consumption and Renewable generation in Northern Ireland: Year ending December 2021¹⁶

2 Biodiversity and Habitats

Previous scorecards focused on the condition of Special Areas of Conservation (SACs) designated under the EU Habitats Directive (Directive 92/43/EEC)¹⁷ and Special Protection Areas (SPAs) designated under the Birds Directive¹⁸. These sites are protected in NI legislation by the Conservation (Natural Habitats etc) Regulations (Northern Ireland) 1995¹⁹ which was subsequently amended by the Conservation (Natural Habitats etc) (Amendment) (EU Exit) Regulations (Northern Ireland) 2019²⁰. This scorecard takes a broader look at biodiversity in NI.

The poor health of NI’s biodiversity is illustrated, amongst other things, by the State of Nature Report (2019)²¹ which found that 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, are threatened with extinction from Ireland as a whole. The 2015-2020 NI Biodiversity Strategy²² 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 NI²³ 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 left²⁴. Furthermore, 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 2020²⁵. This represents a worsening of the situation from 2020 when 35% of ASSI features were in unfavourable condition²⁶.

This decline has occurred despite legislation such as the Wildlife and Natural Environment Act (Northern Ireland) 2011²⁷ (the WANE Act) which places a statutory duty on public bodies in Northern Ireland to conserve biodiversity. NIEL believes all relevant bodies need to fully comply with the biodiversity duty in the WANE Act 2011 and that a non-regression clause to prevent any further biodiversity loss would be an essential component of the next Northern Ireland biodiversity strategy, as well as being cross referenced in the Environment Strategy and

Green Growth Strategy. NIEL also believes it would be important to include a non-regression clause to prevent any further weakening of environmental laws and policies that were in place at the end of December 2020. It appears that having such a non-regression clause would be supported by the NI Assembly Agriculture, Environment and Rural Affairs (AERA) Committee which said it is critically important that there should be no regression from the level of environmental protection that existed at the point in time when the UK left the EU²⁸.

The UK Government has set a target to ensure effective protection and management of at least 30% of land and seas for biodiversity by 2030. This target needs to be set in legislation in NI and appropriate finance allocated to ensure it is achieved. NIEL welcomes the endorsement of this target by the AERA Minister in the NI Assembly on 25th May 2021²⁹.

The transposition and coordination of what are meant to be UK wide laws, policies and strategies is a fundamentally important point for biodiversity in NI, mainly because of the repeated and ongoing failures to fully transpose and implement those UK laws, policies and strategies to NI legislation, policies and strategies. For example, the proposals in relation to peatland in the draft Environment Strategy³⁰ illustrate this very clearly. In its 2020 report “Land Use: policies for a Net Zero UK”³¹ in Table 1 on page 15, the UK Climate Change Committee (CCC) made recommendations in relation to both upland peat and lowland peat, one of which was to mandate all upland peatland within a SSSI was to be under restoration before 2023. The CCC listed DEFRA and the equivalent bodies in Scotland, Wales and NI as being responsible for this so it is clear that this recommendation applies to ASSIs in NI. Yet, the draft Environment Strategy³² says on page 46 “All semi natural peatlands are conserved or restored to healthy, functioning ecosystems by 2040”. This means that in addition to the question of which peatlands the target applies to, it appears the draft environment strategy, like the earlier draft NI Peatland Strategy³³, is proposing a target is achieved in NI 17 years later than the date by which that target is meant to be achieved across the UK, according to the specific advice of the CCC. NIEL sees no good reason for DAERA to propose there is a 17 year delay in NI’s implementation of a UK wide policy and believes the NI Executive needs to take steps to ensure greater levels of cohesion across the UK for UK wide policies.

3 Freshwater

The situation as regards our freshwater habitats in NI at the start of 2022 could hardly be worse. The EU Water Framework Directive (WFD) 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, the target was for 70% of water bodies (rivers, lakes, transitional and coastal water bodies, and groundwater bodies) in Northern Ireland to have achieved GES by 2021. However, there has been an ongoing decline in the 52 water bodies achieving good environmental status (GES) since 2015 which is a clear indication that recent measures are not

adequate to address the significant water management issues in NI. In 2015 37.4% of NI's water bodies achieved GES. By 2018 this had fallen further to 36.6% of NI's water bodies achieving GES. According to the statistics on freshwater quality standards released in August 2020³⁴, 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 data in the Water Framework Directive Statistics report³⁵ published in December 2021 by DAERA, the situation had worsened with no rivers, no lakes and no transitional and coastal water bodies in Northern Ireland achieving good environmental status. NIEL is concerned that the long term ambition of DAERA and the NI Executive falls short of the WFD targets, as illustrated by the fact that on page 24 of the draft Environment Strategy, the target is to have "By 2027: 70% of waterbodies at Good Status". Having twice failed to meet the WFD targets (for 2015 and 2021), NIEL regard it as unacceptable that NI is preparing to fail WFD targets for a third time, as the proposed target in the draft environment strategy for 70% of water bodies in NI falls sort of the revised date for full compliance.

This extremely poor performance is perhaps not surprising given that in 2019, an official UK report³⁶ 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".

According to the NI Environmental Statistics Report 2021³⁷, in 2019 there were 1,754 water pollutions 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%). This number of pollution incidents must be reduced.

If the NI administration and DAERA in particular, can not 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 and as a matter of urgency.

Figure 3 Percentage of waterbodies achieving GES in NI

	Rivers (out of 450)	Lakes (out of 21)	Transitional (marine and coastal) (out of 25)
% achieving GES in 2020	0%	0%	0%
% achieving GES in 2019		1 (5%)	
% achieving GES in 2018	31.3%	5 (23%)	10
% achieving GES in 2015	32.7%	5 (23%)	9

Source for 2020 figures - Water Framework Directive Statistics report 2021³⁸

4 Bathing Water

There is no target for the number or percentage of sites reaching any particular level but sites are categorised in terms of ‘Excellent’, ‘Good’ or ‘Sufficient’.

In 2021³⁹ 19 sites (up from 17 in 2020) were rated as Excellent for bathing water quality: Magilligan (Benone); Magilligan (Downhill); Castlerock; Portstewart; Portrush (Mill) West; Portrush (Curran) East; Portrush (Whiterocks), Portballintrae; Ballycastle; Helen's Bay; Crawfordsburn; Groomsport; Millisle; Ballywalter; Cloughey; Tyrella; Murlough Co Down; Cranfield (Cranfield Bay) and Kilclief. In 2021, the following five sites were rated as good; Carnlough; Ballygally; Browns Bay; Newcastle and Ballyhornan and two sites were rated as sufficient Ballyholme and Waterfoot.

5 Waste

According to DEFRA⁴⁰, the 2020 target for recycling waste from households in NI was 50%. This target was met in 2019 as the recycling rate was 50.6%, however, NI subsequently failed to meet the target in 2020.

Figure 4.1. NI Recycling Rate for Waste from Households (WfH) (including preparation for re-use) (EC Revised Waste Framework Directive – Target) (UK harmonised WfH measure)

	NI Recycling Rate for Waste from Households (WfH) (including preparation for re-use) (EC Revised Waste Framework Directive – Target) (UK harmonised WfH measure)										
Target	Level 2020	Level 2019	Level 2018	Level 2017	Level 2016	Level 2015	Level 2014	Level 2013	Level 2012	Level 2011	Level 2010
50%	49.1%	50.6%	47.7%	46.3%	43.3%	42.1%	42.6%	41.5%	40.7%	40%	37.8%

Source: <https://www.gov.uk/government/statistics/uk-waste-data>

Note: The EC revised Waste Framework Directive waste from households recycling rate (including preparation for re-use) is a UK target.

Figure 4.2. Non-hazardous Construction & Demolition Recovery Rate (including preparation for re-use and recycling) (EC Revised Waste Framework Directive – Target)

Non-hazardous Construction & Demolition Recovery Rate (including preparation for re-use and recycling) (EC Revised Waste Framework Directive – Target)						
Target 2020	Level 2016	Level 2015	Level 2014	Level 2013	Level 2012	Level 2011
70%	79.4%	Not calc.	81.9%	Not calc.	79.1%	78.2%

Source: Revised unpublished data from DAERA to support overall UK submission

Note: The EC revised Waste Framework Directive non-hazardous Construction & Demolition waste recovery rate (including preparation for re-use & recycling) is a UK target. The figures shown have been rebased to the NI level using estimations or approximations derived from English data for some aspects of the calculation. These estimated values may appear better than expected but are broadly consistent with those from England. The figures are calculated every two years.

The most recent DAERA report on [construction, demolition and excavation waste arisings in Northern Ireland is for 2009/10](#). . No more recent data is publicly available for Northern Ireland.

In 2018, the UK generated 67.8 million tonnes of non-hazardous C&D waste, of which 62.6 million tonnes was recovered. This represents a recovery rate of 92.3%. The recovery rate from non-hazardous C&D waste has remained at similar levels from 2010 to 2018. Source: <https://www.gov.uk/government/statistics/uk-waste-data>

Figure 4.3 Biodegradable municipal waste (BMW) to landfill, NI split of UK total, 2012-2020

Biodegradable municipal waste (BMW) to landfill, NI split of UK total, 2010-18 (Landfill Directive require tonnage to be no greater than 35% of the 1995 baseline by 2020)									
Allowance 2020	Level 2020	Level 2019	Level 2018	Level 2017	Level 2016	Level 2015	Level 2014	Level 2013	Level 2012
35% of 1995 levels	22% of 1995 levels	21% of 1995 levels	24% of 1995 levels	25% of 1995 levels	27% of 1995 levels	25% of 1995 levels	26% of 1995 levels	24% of 1995 levels	32% of 1995 levels
429,000 tonnes	275,000 tonnes	260,000 tonnes	296,000 tonnes	302,000 tonnes	331,600 tonnes	307,000 tonnes	322,000 tonnes	298,734 tonnes	394,000 tonnes

Source: <https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management>

<https://www.gov.uk/government/statistics/uk-waste-data>

Note: The EC Landfill Directive on reducing biodegradable municipal waste landfilled is a UK target. The figures shown have been rebased to the Northern Ireland level without using estimations or approximations.

As per the table above, Northern Ireland has remained below the allowance 2012-2020, meaning that less than 35% of municipal waste to landfill has been Biodegradable Municipal Waste, (BMW). It was encouraging to see a sustained decrease in BMW to landfill since 2016, with the lowest ever level of 21% BMW to landfill having been achieved in 2019. In 2020, however, there has been an increase in BMW sent to landfill, rising to 22%. This represents an additional 15,000 tonnes of biodegradable waste, which had the potential to be recycled or composted, being sent to landfill in 2020 when compared to 2019.

Figure 4.4 Amount of Biodegradable Local Authority Collected Municipal Waste (BLACMW) Sent to Landfill (Northern Ireland Landfill Allowance Scheme Target & Key Performance Indicator (KPI-g) (Waste Strategy)

Amount of Biodegradable Local Authority Collected Municipal Waste (BLACMW) Sent to Landfill (Northern Ireland Landfill Allowance Scheme Target & Key Performance Indicator (KPI-g) (Waste Strategy)									
Allowance	Level	Level	Level	Level	Level	Level	Level	Level	Level
2019/20 (tonnes)	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13
220,000	126,404	126,286	153,324	171,295	204,380	218,898	229,099	251,951	276,702

Source: Northern Ireland LACMW Statistics Annual Reports (2013-14 to 2020-21), Northern Ireland Landfill Allowance Scheme Reports (2013-14 to 2019-20)

<https://www.daera-ni.gov.uk/articles/northern-ireland-local-authority-collected-municipal-waste-management-statistics>

<https://www.daera-ni.gov.uk/publications/annual-nilas-reports>

The Landfill Allowance Scheme (NI) Regulations 2004 (as amended) placed a statutory responsibility on councils, in each scheme year, to landfill no more than the quantity of biodegradable waste for which they had allowances. The scheme concluded at the end of the 2019/20 financial year, however the continued monitoring of biodegradable waste is required for [existing target commitments](#) which specify that it must be reduced to 35% of the total amount (by weight) of biodegradable municipal waste produced in 1995.

NI's councils sent 126,404 tonnes of biodegradable waste to landfill during 2020/21, which was 53.8% of all waste sent to landfill. During the previous year, 126,286 tonnes of biodegradable waste was sent to landfill which was 52.6% of all waste sent to landfill.

Figure 4.5 Local Authority Collected Municipal Waste (LACMW) Sent to Landfill as a % of Municipal Waste Arisings (KPI-f)

Local Authority Collected Municipal Waste (LACMW) Sent to Landfill as a % of Municipal Waste Arisings (KPI-f)								
Level 2020/20	Level 2019/20	Level 2018/19	Level 2017/18	Level 2016/17	Level 2014/15	Level 2015/16	Level 2013/14	Level 2012/13
22.8%	24%	28.9%	32.6%	37.3%	43.4%	40.3%	48.6%	53.6%

Source: Northern Ireland LACMW Statistics Annual Report (2013-14 to 2019-20)

Figure 4.6. Household Waste Sent for Recycling (inc preparation for reuse and composting) as a % of Household Waste Arisings (PfG 2012-2015 Target & Key Performance Indicator (KPI-a2) (Waste Strategy) & also EC Revised WFD Household Waste Recycling Target 2019/20

Household Waste Sent for Recycling (inc preparation for reuse and composting) as a % of Household Waste Arisings (PfG 2012-2015 Target & Key Performance Indicator (KPI-a2) (Waste Strategy) & also EC Revised WFD Household Waste Recycling Target 2019/20										
Level 2020/21	Target 2019/20	Level 2019/20	Level 2018/19	Level 2017/18	Level 2016/17	Level 2015/16	Target 2014/15	Level 2014/15	Level 2013/14	Level 2012/13
50.9%	50%	51.9%	50%	48.1%	44.4%	42.2%	45%	42.0%	41.4%	39.8%

Source: Northern Ireland LACMW Statistics Annual Report (2013-14 to 2020-21)

The household waste recycling rate of 50.9% has once again met the Northern Ireland Waste Management Strategy target to recycle 50% of household waste by 2020. This target was first met in 2018/19. However, the 2020/21 figure is a decrease of 1.0% compared to the previous year.

Figure 4.7 Local Authority Collected Municipal Waste (LACMW) Sent for Recycling (inc reuse and preparation) as a % of Municipal Waste Arisings - Key Performance Indicator (KPI-e2) (Waste Strategy)

Local Authority Collected Municipal Waste (LACMW) Sent for Recycling (inc reuse and preparation) as a % of Municipal Waste Arisings - Key Performance Indicator (KPI-e2) (Waste Strategy)									
UK CEP Target 2025	Level 2020/21	Level 2019/20	Level 2018/19	Level 2017/18	Level 2016/17	Level 2015/16	Level 2014/15	Level 2013/14	Level 2012/13
55%	50%	51.1%	49.8%	47.6%	44.0%	41.8%	41.4%	40.7%	38.8%

Source: Northern Ireland LACMW Statistics Annual Report (2013-14 to 2020-21)

In December 2017 the UK agreed to adopt the Circular Economy Package (CEP) proposals with the finalised version published in the [Official Journal of the European Union](#) in summer 2018.

The CEP sets ambitious new recycling targets on a wider definition than was the case in earlier directives. Previous UK waste strategies have prioritised waste management from households whereas CEP now broadens the scope of arisings and subsequently the obligations to all sectors generating municipal waste that is similar in profile to household waste. The municipal recycling rate target is to achieve 65% by 2035 with interim targets of 55% by 2025 and 60% by 2030.

DAERA have yet to take forward measures towards implementation of CEP and associated targets in NI. The DAERA Circular Economy Package Statement can be found [here](#).

6 Transport The % of all journeys which are made by walking/cycling/public transport for the PfG 2016-21⁴¹.

The % of all journeys which are made by walking/cycling/public transport was an indicator for Outcome 2 “We live and work sustainably – protecting the environment” and as an indicator for Outcome 11^a “We Connect People and Opportunities Through our Infrastructure” in the 2016-21 PfG. However, there is no clear target in the 2016-21 PfG as to what % of all journeys which are made by walking/cycling/public transport is to be achieved. As such, this is just a report of the extent of change in the % of all journeys which are made by walking, cycling or public transport since 2020.

According to the PfG, the baseline year for this indicator is 2015 when 25% of all journeys made were by walking, cycling or public transport in 2015. In 2019, the Executive Office⁴² described this indicator as having not changed and overall, it seems clear that up to 2019 there was little change in the percentage of journeys in NI which are made by walking, cycling and public transport since 2003. According to the Department of Infrastructure Travel Survey for Northern Ireland in 2020, on average, just under two thirds (65%) of all journeys made were made by car, 27% of all journeys made were made on foot, 3% of all journeys made were made by public transport and 2% of all journeys made by bike⁴³. This represents a significant increase from 2019⁴⁴ when 24% of all journeys were made by walking, cycling or public transport, the same level as in 2018 and as in 2004, as outlined in figure 1.

There were some noticeable changes in travel patterns from 2019 to 2020 as illustrated by the overall results on page 3 of the Travel Survey NI which show that from 2019 to 2020 the average miles travelled per person per year decreased from 6,130 in 2017-2019 to 4,550 in 2020 (a decrease of approximately 25%) and the average number of journeys per person per year decreased from 906 in 2017-2019 to 826 in 2020 (a decrease of approximately 9%)⁴⁵.

^a This was an indicator for Outcome 12 (of the 14) in the first draft PfG 2016-2021 and was retained as an indicator in what became Outcome 11 (of the 12) in the amended version of the PfG more recent. The original Outcome 12 became Outcome 11 in the amended PfG.

This 2020 report also states that

“The survey methodology changed in 2020 in response to the COVID-19 pandemic. Therefore, 2020 results are not directly comparable to those of previous years.”

According to research by the Ulster University⁴⁶, prior to 2020 less than 4% of workers in Northern Ireland worked mainly from home. However, the COVID-19 pandemic produced a significant change in behaviour, following the introduction of the ‘work from home’ mandates in April 2020. Soon afterwards 41% of workers in NI were working from home and, by April 2021, more than 30% of UK businesses were reporting that some or all of their employees were still working remotely. As the Ulster University report says, the most recent Google mobility data (14 January 2022) confirms this trend with workplace mobility levels still 29% lower than the January-February 2020 baseline. The Ulster University research also indicates that between 41% and 60% of current jobs in NI could in the future be completed remotely (at least in part).

The results for 2020 are somewhat anomalous and only time will tell how things will change as the covid related restrictions are relaxed. However, the employee survey findings conducted for the Ulster University report show support for continued remote working, particularly in those occupations where it can be more facilitated such as managerial, professional and administrative roles. The results suggested greatest support for a return to the office for 2 to 4 days per week and that there is a belief that some form of hybrid working will become a permanent feature. The results were broadly consistent across groups and ages, but returning to the workplace was marginally more popular for men, younger people and those in the private sector. Given these findings, NIEL believes the NI Executive should do its best to facilitate a shift away from personal transport to public transport and active travel. Amongst other things, paragraph 22 of the Climate Change Bill⁴⁷ passed by the Assembly on 9th March 2022 will require increased investment in active travel. Paragraph 22 of the bill states

“The Department for Infrastructure must develop sectoral plans for transport which set a minimum spend on active travel from the overall transport budgets of 10%.”

According to Sustrans⁴⁸, in the current financial year spending on active travel remains at just 2% of the transport budget and equates to £7 per person. By comparison Scotland is spending £21 per head and Wales £23. The coalition government in RoI committed to spending £66 per head or 20% of its transport budget on walking and cycling over the next five years. However, spending 10% of the travel budget on active travel would represent a significant increase on the preset situation and so is a very welcome development.

Figure 5 Proportion of all journeys where the main mode of travel² is walking, cycling or public transport³ 2009 to 2020.

Year	Number in sample	% of all journeys taken by walking, cycling or public transport ²
2010	2,042	20%
2011	1,969	21%
2012	1,944	23%
2013	1,876	23%
2014	1,815	22%
2015	1,867	25%
2016	1,917	24%
2017	1,708	26%
2018	1,719	24%
2019	1,839	24%
2020	771	33%

Source: Travel Survey for Northern Ireland 2020⁴⁹

7 Air Quality in NI

Air pollution is monitored at a number of automatic monitoring stations throughout Northern Ireland. The number of sites at which pollutants are monitored changes from year to year depending on Local Authority monitoring priorities. Air pollution levels can be heavily influenced by prevailing weather conditions at any one time. More information on trends in air quality for NI and the current air quality at monitoring sites can be accessed at www.airqualityni.co.uk. According to the air pollution figures for 2020 from DAERA, all air pollution targets were met in 2020.

Air quality has a significant impact on public health. In its annual Air Quality in Europe report⁵⁰, the European Environment Agency states that

“Air pollution is the single largest environmental health risk in Europe”

It went on to say that

“Heart disease and stroke the most common reasons for premature death attributable to air pollution and are responsible for 80% of cases of premature death: lung disease and lung cancer follow (WHO, 2014a)”⁵¹.

² Main mode is the form of transport used for the greatest length of the journey. For example, if the journey had 2 stages, walking 1 mile to the train station and then taking a 10 mile train journey, the train would be the main mode and therefore the journey is assigned to the "public transport" category

³ Public Transport includes ‘Metro and Ulsterbus’, ‘Other bus’, ‘NI Railways’ and ‘Black taxi’

The International Agency for Research on Cancer (IARC) has classified outdoor air pollution - as a whole - as a cancer-causing agent (carcinogen)⁵².

As the DAERA Draft Clean Air Strategy for Northern Ireland (2020) outlined⁵³, research is increasingly pointing to the conclusion that, for exposure to particulate matter PM_{2.5} at least, there is 'no safe level' of air pollution, and that exposure to incremental levels of PM_{2.5} even below objectives can be associated effects on mortality. The Clean Air Strategy consultation also outlined how the Department of Health (DoH) has produced estimated burden costs for NI using figures from the PHE report for England and scaling them based on population differences. DoH has estimated that in 2017, the Health and Social Care (HSC) costs associated with diseases related to air pollution (PM_{2.5} and NO₂) in NI were around £1.5m. The overwhelming contribution is from PM_{2.5} (96%). Taking into account information on diseases where the evidence for an association with air pollution is currently less robust, then the costs could rise to nearly £5.4m (PM_{2.5} 48%, NO₂ 52%). A brief outline of some of the main pollutants monitored and the potential health impacts of those pollutants is follows.

- **Particulate matter (PM₁₀ and PM_{2.5}.)**

Particulate matter (PM) refers to the fine particles found in the air which are harmful to human health. Particulate matter is usually classified by the size (diameter) of the particles. The main categories are those particles with a diameter of less than 10 micrometers or microns (10 µm or PM₁₀) or the even smaller particles, with a diameter of less than 2.5 microns (2.5µm or PM_{2.5}). In comparison, an average human hair is between 50 and 70 microns in diameter (50-70µm). PM is formed as a by-product of burning fuels, in particular solid fuels.

PM₁₀ particles can travel into our airways where they can cause inflammation, and a worsening of the condition of people with heart and lung diseases. Smaller particles, such as PM_{2.5}, are more harmful, because as well as acting as a respiratory irritant, they can penetrate deeper into the lungs and may carry surface-absorbed toxic, or carcinogenic, compounds into the body. The very smallest particles, ultrafine PM_{0.1} (the smallest fraction of PM_{2.5}), are nano-particles smaller than 0.1 microns and are thought, once inhaled, to be able to pass directly into the bloodstream.

The biggest sources of PM in Northern Ireland are domestic wood and coal burning, industrial combustion and road transport. Particles from brake wear, tyre wear and road surface wear currently constitute 60% and 73% (by mass), respectively, of particulate matter emissions from road transport, and will become more dominant in the future⁵⁴. Increasingly, evidence is emerging to show that ammonia emissions (which are predominantly from agricultural activities) are a significant source of PM, as ammonia reacts with other air pollutants to form PM.

The available evidence suggests that long-term exposure to PM_{2.5} can lead to premature mortality. A 2016 report by the Royal College of Physicians (RCP) and the Royal College of Paediatrics and Child Health, "Every Breath We Take"⁵⁵, estimates that in the region of 40,000 deaths per year in the UK are attributable to air pollution, and that the vulnerable and disadvantaged are more at risk than other groups in society. In 2020 the British Heart Foundation said around 11,000 deaths from heart and circulatory diseases in the UK are attributable to air pollution with around 800 deaths every year in NI due to air pollution⁵⁶. According to the NI Road Safety Partnership, 56 people were killed on NI's roads in 2020, the same as in 2019 and one more than 2018 (55)⁵⁷. Based on those figures in 2020 air pollution killed more than 14 times as

many people as died on our roads. Not all sources of air pollution are transport based but though there have been adverts warning of the dangers of speeding and drink driving, we still don't have a clean air strategy or a public safety campaign based on its targets.

- **Nitrogen dioxide (NO₂)**

Nitrogen oxides (NO_x) is the term used for two oxides of nitrogen - nitrogen monoxide, NO, and nitrogen dioxide, NO₂. Most NO, when emitted into the air, rapidly reacts with oxygen to form NO₂, which is the main species of concern, as it can cause health effects and can exacerbate symptoms of heart and lung conditions, thereby reducing quality of life for affected individuals. NO₂ can also adversely affect plant life and biodiversity in sensitive habitats. The major sources of NO_x are domestic, industrial combustion and road transport. The NO_x emitted by road transport, however, poses more of a problem for local air quality, because it leads to increased concentrations of this pollutant at ground level, sometimes in busy streets. Monitoring and modelling of NO₂ concentrations show that this pollutant is a problem at a number of roads and monitoring sites in NI.

- **Ozone (O₃)**

Ground-level ozone is a secondary air pollutant, as it is not emitted directly, but rather is formed from other air pollutants, in particular from nitrogen oxides and volatile organic compounds (VOC)⁵⁸ in the presence of sunlight (via ultraviolet radiation)⁵⁹. Levels of VOCs are monitored much less than other air pollutants. Ground-level ozone should not be confused with stratospheric ozone, found much higher up in the atmosphere, which protects us from harmful ultraviolet radiation. Ozone, once formed, is a transboundary pollutant, in that it can persist in the atmosphere and be transported long distances. Ozone levels can vary from year to year because of weather conditions and transboundary transport. Ozone at ground level has a wide range of harmful effects. It can irritate the eyes, airways and lungs, increasing the symptoms of those suffering from asthma and lung diseases and damage plant growth.

- **Sulphur Dioxide (SO₂)**

Sulphur dioxide is an acidic gas with a pungent, choking odour. It can be produced naturally, such as from volcanic eruptions, but the main sources of concern are man-made. SO₂ is produced as a by-product when fuels that contain small amounts of sulphur are burned: these are invariably fossil fuels such as coal, oil and gas. The largest sources of SO₂ in NI are power generation and solid fuel combustion (particularly household heating). SO₂ can have direct health effects - particularly on sensitive individuals such as those with asthma - because it is a rapidly acting respiratory irritant. It can also lead to the formation of acid rain which damages plant life and biodiversity.

Figure 6 Air pollution levels in NI

Pollutant	EU Obligation	Target Date to be achieved and maintained thereafter	2010	2012	2014	2016	2018	2020
Particulate PM ₁₀	50µg.m-3 24hr Mean not to be exceeded more than 35 times a year	1/01/2005	25 sites 23 compliant 2 non-compliant	15 sites 15 compliant	12 sites 12 compliant	13 sites 13 compliant	10 sites 10 compliant	11 sites 11 compliant
	40µg.m-3 Annual Mean	1/01/2005	25 sites 25 compliant	15 sites 15 compliant	12 sites 12 compliant	13 sites 13 compliant	10 sites 10 compliant	11 sites 11 compliant
Particulate PM _{2.5}	Stage 1 25µg.m-3	1/01/2015	4 sites 4 compliant	4 sites 4 compliant	3 sites 3 compliant	2 sites 2 compliant	2 sites 2 compliant	3 sites 3 compliant
	Stage 2 20µg.m-3	1/01/2020						3 sites 3 compliant
Nitrogen Dioxide NO ₂	200µg.m-3 not to be exceeded more than 18 times a year	1/01/2010	20 sites 18 compliant 2 non-compliant	20 sites 17 compliant 3 non-compliant	17 sites 16 compliant 1 non-compliant	15 sites 15 compliant	16 sites 16 compliant	16 sites 16 compliant
	40µg.m-3 Annual Mean	1/01/2010	20 sites 12 compliant	20 sites 13 compliant	17 sites 14 compliant	15 sites 11 compliant	16 sites 13 compliant	16 sites 16 compliant
Ozone O ₃	Target of 120µg.m ⁻³ not to be exceeded more than 25 times a year averaged over 3 years	31/12/2010	3 sites 3 compliant	3 sites 3 compliant	3 sites 3 compliant	3 sites 3 compliant	2 sites 2 compliant	3 sites 3 compliant
	Target of 100 µg.m ⁻³ (max 8-hr mean) not to be exceeded on more than 10 times each year (UK Air Quality Strategy)	1/01/2010	3 sites 2 compliant 1 non-compliant	3 sites 3 compliant	3 sites 3 compliant	3 sites 3 compliant	2 sites 0 compliant 2 non-compliant	3 sites 3 compliant
Sulphur Dioxide SO ₂	350µg.m-3 3 Hourly Mean	1/01/2005	11 sites 11 compliant	7 sites 7 compliant	5 sites 5 compliant	5 sites 5 compliant	5 sites 5 compliant	5 sites 5 compliant

Source: [https://www.daera-ni.gov.uk/DAERA Air Pollution in NI 2020](https://www.daera-ni.gov.uk/DAERA_Air_Pollution_in_NI_2020)

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