FUTURE AGRICULTURAL POLICY PROPOSALS FOR NORTHERN IRELAND

Strategic Environmental Assessment

Environmental Report

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ABBREVIATIONS

AA	Appropriate Assessment
AFBI	Agri-Food and Biosciences Institute
ASSI	Area of Special Scientific Interest
AONB	Area of Outstanding Natural Beauty
APHIS	Animal and Public health Information System
APIS	Air Pollution Information System
APSFR	Area of Potential Significant Flood Risk
AQS	Air Quality Strategy
BPS	Basic Payment Scheme
CA	Controls and Assurance
CAFRE	College of Agriculture, Food and Rural Enterprise
CAMSAR	Condition and Management Survey of the Archaeological Resource
CAP	Common Agricultural Policy
CJEU	Court of Justice of the European Union
COGAP	Code of Good Agricultural Practice
CORINE	Co-ordinated Information on the Environment
DAERA	Department of Agriculture, Environment and Rural Affairs
DAFM	Department of Agriculture, Food and the Marine
DECC	Department of Environment, Climate and Communications
DfC	Department for Communities
DfI	Department for Infrastructure
DHLGH	Department of Housing, Local Government and Heritage
DIN	Dissolved Inorganic Nitrogen
DTCAGSM	Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media
DTM	Digital Terrain Model
DWPA	Drinking Water Protected Area
EFS	Environmental Farming Scheme
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPO	Environmental Protection Objective
EU	European Union
FAPP	Future Agricultural Policy Proposals
FCM	Farming for carbon Measure
FCS	Favourable Conservation Status
FFG	Food and Farming Group
FNP	Farming for Nature Package
FSA	Food Standards Agency
GEP	Good Ecological Potential

GES	Good Environmental Status
GHG	Greenhouse Gas
GR	Generational Renewal
GSNI	Geological Survey of Northern Ireland
H	Horticulture
HERoNI	Historic Environment Record of Northern Ireland
HMWB	Heavily Modified Water Body
HRA	Habitats Regulations Assessment
HSP	Headage Sustainability Package
IM	Investment Measure
JNCC	Joint Nature Conservation Committee
KM	Knowledge Measures
LBAP	Local Biodiversity Action Plan
LCA	Landscape Character Area
LESSE	Low Emission Slurry Spreading Equipment
LGD	Livestock Genetics and Data
LiDAR	Light Detection and Ranging
LMC	Livestock and Meat Commission
MME	Metrics, Monitoring and Evaluation
MSFD	Marine Strategy Framework Directive
NAEI	National Atmospheric Emission Inventory
NAP	Nutrients Action Programme
NI	Northern Ireland
NIEA	Northern Ireland Environment Agency
NISRA	Northern Ireland Statistics and Research Agency
NR	Nature Reserve
NVZ	Nitrate Vulnerable Zones
POP	Persistent Organic Pollutant
RBD	River Basin District
RBMP	River Basin Management Plan
RM	Resilience Measure
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SCM	Supply Chain Measures
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SLNCI	Site of Local Nature Conservation Importance
SPA	Special Protection Area
STL	Soil Testing and LiDAR
SWPA	Shellfish Water Protected Area

UFU	Ulster Farmers Union
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WFD	Water Framework Directive
WHO	World Health Organisation
WTW	Water Treatment Works
WWTW	Wastewater Treatment Works

NON-TECHNICAL SUMMARY

Introduction

In 2018, the Department of Agriculture Environment and Rural Affairs (DAERA), in conjunction with key food, farming and environmental stakeholders, and identified four key desired outcomes that together constituted the long term vision for the Northern Ireland agricultural industry, as follows:

1) An industry that pursues **increased productivity** in international terms as a means to sustained profitability, closing the productivity gap which has been opening up with other major suppliers.

2) An industry that is **environmentally sustainable** in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity while making its fair contribution to achieving net zero carbon targets. This outcome is an integral part of the new Green Growth Strategy and associated Climate Action Plan which will be the Department's initial route map to climate action, green jobs and a clean environment.

3) An industry that displays **improved resilience** to external shocks (such as market and currency volatility, extreme weather events, etc.) which are ever more frequent and to which the industry has become very exposed.

4) An industry which operates within an integrated, profitable, efficient, sustainable, competitive and **responsive supply chain**, with clear transmission of market signals and an overriding focus on high quality food and the end consumer.

Subsequently DAERA undertook an engagement exercise on a draft framework[1] setting out how policies could be developed to deliver these four outcomes. Reflecting the responses received during that process, DAERA refined the identified outcomes and vision for the agricultural industry as outlined in the Future Agricultural Policy Proposals (FAPP) for Northern Ireland.

The EU Strategic Environmental Assessment (SEA) Directive requires that the environment is considered during the preparation of Plans and Programmes. This will ensure that the environment is fully considered during the development of the FAPP.

The purpose of this Environmental Report is to assess and describe the potential effects on the wider environment that could arise from implementing the FAPP, and to give environmental guidance during development of the FAPP in order to make it more sustainable.

A Habitats Regulations Assessment (HRA) was prepared alongside this Environmental Report, and its findings have been incorporated into this report. This focusses on the potential for impacts on any European protected sites from implementation of the FAPP, and also helps to guide the sustainable development of the FAPP.

Description of the FAPP

The FAPP for Northern Ireland is the overarching strategic programme for the development of future agricultural policy to achieve the Department's vision for a future agricultural regime that promotes productive, efficient practices through greater innovation and capacity, whilst protecting the environment, animal health and welfare and public health. The FAPP seeks to deliver the outcomes identified by the Framework Portfolio and oversee the transition from the existing schemes to new approaches and support systems which better address the needs of Northern Ireland agriculture, the environment and rural communities.

To deliver the Framework's four strategic outcomes, a portfolio of measures and cross cutting initiatives are being developed under the FAPP and comprise fourteen workstreams and associated policy proposals for thirteen of these, established to collate evidence, identify gaps, and develop design principles and policy

[1] https://www.daera-ni.gov.uk/consultations/northern-ireland-future-agricultural-policy-framework

proposals. Note workstream 13 Environmental Assessments comprises the environmental assessments to be undertaken for the draft FAPP and does not outline any policy proposals. The fourteen workstreams are as follows:

1) Resilience Measure
2) Headage Sustainability Package
3) Farming for Nature Package
4) Farming for Carbon
5) Investment Measure
6) Knowledge Measures
7) Generational Renewal
8) Supply Chain Measures
9) Soil Testing and LiDAR
10) Livestock Genetics and Data
11) Controls and Assurance
12) Metrics, Monitoring and Evaluation
13) Environmental Assessments
14) Horticulture

It is proposed that the FAPP will cover the period from 2023/24 onwards and that it will be reviewed periodically.

Review of Relevant Plans, Programmes and Policies

All International, European, National, Regional and Sub-Regional Plans, Policies and Programmes considered to be relevant to the FAPP were reviewed. This review took into account where the FAPP lies in relation to higher and lower tiered Plans and Programmes, and considered how these could affect the FAPP as well as how the FAPP could interact with the aims of these Plans and Programmes.

Environmental Baseline

An environmental baseline was produced by SEA environmental topic. The full environmental baseline can be found in **Section 3** of this report. The purpose of this section is to demonstrate the level of baseline environmental information to be used in the assessment of potential effects of the proposed policies.

Biodiversity, Flora & Fauna

The FAPP area contains a variety of habitats and species which are of conservation concern and are protected under a number of European and national designations. Special Protection Areas (SPAs) are designated under the EU Directive on the Conservation of Wild Birds (EC/79/409), “The Birds Directive”, as areas that are important for breeding, feeding, wintering or migration of rare and vulnerable bird species. There are 16 SPAs designated in Northern Ireland to date. Special Areas of Conservation (SACs) are designated in accordance with the Habitats Directive (92/43/EEC) for the conservation of certain habitats and species. There are 59 SACs designated in Northern Ireland to date. Northern Ireland has 49 habitats listed in Annex I of the Habitats Directive, of which 13 are considered to be priority habitats at a European level, and 18 species listed in Annex II of the Directive. There are 20 Ramsar sites in Northern Ireland, which are designated under the “Ramsar Convention”, which is an international treaty for the conservation and sustainable use of wetlands.

Areas of Special Scientific Interest (ASSI) are protected under the Environment (Northern Ireland) Order 2002. 394 ASSIs have been designated in Northern Ireland for the presence of flora or fauna of special scientific interest.

In addition, each council area in Northern Ireland reports on locally important sensitive or valued habitats through the production of Local Biodiversity Action Plans (LBAPs). There are 728 Sites of Local Nature Conservation Importance (SLNCI) and 50 statutory Nature Reserves.

Population & Human Health

According to NISRA in 2020[2], the total population in Northern Ireland was 1.90 million people and is predicted to increase to approximately 1.99 million individuals by 2043[3]. The population density of Northern Ireland in 2020 was 139.8 people per km^2, varying across the Local Government Districts, and with a more dispersed population in rural areas.

In 2017-2019, life expectancy at birth was 78.8 years for men and 82.6 for women[4]. Northern Ireland has an ageing population, with 16.9% aged over 65 years, and it is projected that the over 65 year population will be larger than the number of children (0-15 years) from mid-2028 onwards[5].

Geology, Soils & Land use

The geological landscape of Northern Ireland is remarkably varied considering its relatively small area of about 14,000km^2, and is a reflection of the diverse geology on which it has been shaped. Soil formation is equally varied, with 9 main soil types identified across Northern Ireland, as recognised by The World Reference Base map[6].

Land use in Northern Ireland is primarily composed of 'Pastures' (>7,600km^2), followed by 'Complex Cultivation Patterns' (1,438km^2) and 'Peat Bogs' (1,321km^2). Pastures, which cover >56% of land cover across Northern Ireland are located across the country, with the exception of upland areas such as the Mourne Mountains in the southeast, the Antrim Hills in the northeast, the Sperrins in the west and raised bog peatland areas in mid-Ulster. Complex cultivation patterns are generally located in the east of Northern Ireland, primarily surrounding Strangford Lough and peat bogs are generally located in western areas.

Water

The Water Framework Directive (WFD) supports the management of water resources on a catchment wide basis. All waterbodies are classified under the WFD according to their chemical, biological and hydromorphological status. The WFD aims to prevent deterioration and to enhance the status of aquatic ecosystems, promote sustainable water use and reduce pollution. It is implemented through River Basin Management Plans (RBMPs). Northern Ireland has three River Basin Districts (RBDs) for which separate RBMPs are produced: North Western RBD, Neagh Bann RBD and North Eastern RBD.

There are 496 WFD surface water bodies in Northern Ireland, comprising 450 rivers, 21 lakes and 25 transitional and coastal waters. There are also 75 groundwater bodies (66 bedrock and 9 superficial). The draft 3rd cycle RBMP for Northern Ireland 2021-2027 indicate that Northern Ireland will not achieve the objective to have 70% of its water bodies at 'good or better' status. Little improvement has occurred since 2015; at that time 37% of all water bodies were at 'good or better' status, compared to 38% in the latest assessment considering 2018 and 2020 classification updates. Pressure assessments undertaken have identified that the main pressures acting upon the water environment in Northern Ireland are nutrient pressures, relating primarily to agricultural activities and sewage-related problems.

Drinking Water Protected Areas (Surface Water), are designated, through the requirements of the WFD, where raw water is abstracted from rivers and reservoirs. Protection of raw water ensures that it will not be polluted, leading to a requirement for additional purification treatment. Within the three RBDs of Northern Ireland, there are a total of 26 surface waters and 65 groundwaters included as WFD Protected Areas.

Shellfish waters are also protected under the Water Framework Directive Protected Areas, for the protection of economically significant aquatic species (Shellfish Water Protected Areas). Under this designation, these

[2] https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-Bulletin.pdf

[3] https://www.nisra.gov.uk/statistics/births-deaths-and-marriages/registrar-general-annual-report

[4] https://www.health-ni.gov.uk/news/life-expectancy-northern-ireland-2017-19

[5] https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-Bulletin.pdf

[6] http://www.ukso.org/static-maps/soils-of-northern-ireland.html

Protected Areas are to be protected and improved to contribute to the high quality of shellfish products harvested for human consumption from licensed aquaculture beds. Within Northern Ireland, there are 10 sites designated as WFD Protected Areas for shellfish.

The Bathing Water Directive (Directive 2006/7/EC concerning the management of bathing water quality and repealing Directive 76/160/EEC) requires each member state to identify its most popular bathing waters for regular testing, and is implemented in Northern Ireland by 'The Quality of Bathing Water (Northern Ireland) Regulations 2013. There are a total of 26 bathing waters included as WFD Protected Areas.

Nutrient sensitive areas in Northern Ireland are those designated as sensitive under the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) and the Nitrates Directive (91/676/EEC). There are a total of 23 Urban Waste Water Treatment Directive sensitive areas in Northern Ireland.

Water-dependent protected areas in Northern Ireland are designated for the protection of habitats or species, where the maintenance or improvement of the status of water is an important factor in their protection. Northern Ireland has a total of 66 water-dependent European sites, which are designated under the Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland). There are also 9 groundwater-dependent terrestrial ecosystems (GWDTEs) in Northern Ireland.

The European Marine Strategy Framework Directive (MSFD) (2008/56/EC), implemented in Northern Ireland through the Marine Strategy Regulations 2010, requires action to be taken to achieve or maintain Good Environmental Status (GES) in marine waters within the marine strategy area by 2020. GES is defined in the Regulations as "the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations". The first UK assessment of Northern Ireland seas was published in 2012[7], and set objectives, targets and indicators for achieving GES; this was updated in 2019[8].

Air Quality & Climatic Factors

On the whole, air quality in Northern Ireland has improved significantly over the past few decades; in particular, concentrations of sulphur dioxide, originating from the combustion of coal and oil, has reduced. However, some pollutants are continuing to exceed air quality objectives. This has consequences on both human health and on some of our most important habitats that are sensitive to the effects of atmospheric pollutant deposition. Of particular relevance to the agriculture sector are the concentrations of ammonia gas, with agriculture recognised as the dominant source of ammonia emissions in Northern Ireland and worldwide.

Air quality is monitored regularly at 21 stations within Northern Ireland. At each of these locations, levels of carbon monoxide, nitrogen oxides, sulphur dioxide, particulates, ozone, benzene and polycyclic aromatic hydrocarbons are monitored, and measured with regard to EU Air Quality Directives and the 2007 UK Air Quality Strategy (AQS) objectives. The most significant air pollutants for Northern Ireland and their sources are the following:

- Nitrogen oxides (NO_x, including nitric oxide NO and nitrogen dioxide NO_2), arising from fuel combustion in transport and energy generation;
- Sulphur dioxide (SO_2), arising from combustion of fuels that contain sulphur, from power generation, industry and domestic solid fuel combustion;
- Particulate matter (PM_{10} and $PM_{2.5}$), arising from road transport and domestic solid fuel combustion;
- Ground-level ozone (O_3), arising from the interaction of various air pollutants with sunlight;

[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69632/pb13860-marine-strategy-part1-20121220.pdf

[8] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/921262/marine-strategy-part1-october19.pdf

- Ammonia (NH_3), arising from agricultural activities and handling of manure. NH_3 reacts with other pollutants (NO_x, S), producing fine particles of ammonium nitrate and ammonium sulphate; and
- Polycyclic aromatic hydrocarbons (PAHs), arising from incomplete combustion primarily from domestic sources.

The UK National Atmospheric Emission Inventory (NAEI) is the standard reference air emissions inventory for the UK, and includes emission estimates for England, Scotland, Wales and Northern Ireland. The latest report was published in September 2021, and details that most pollutant emission levels were lower in 2019 than they were in 2005. Ammonia emissions have increased since 2010 as a result of greater numbers of dairy cattle and associated manure management and spreading, as well as increase in other nitrogen-based (primarily urea-based and digestate) fertiliser use. Ammonia emissions were estimated to be 33kt in 2019, an overall increase of 7% since 2005. Inventory figures show that, in 2019, 12% of the total UK ammonia emissions came from Northern Ireland. This is disproportionate when compared to Northern Ireland's population (3% of the UK total) and land area (6% of the UK total) as a result of the importance of agriculture to Northern Ireland's economy. In 2019 it was estimated that 96.9% of all ammonia emissions in Northern Ireland came from the agriculture sector. Agriculture was also an important sector in the contribution of NMVOCs (45.7% of the NI total) and PM10 (16.1% of the NI total).

The UK has international obligations for ammonia reduction, as a signatory to the UN Gothenburg Protocol, which set a target of 8% ammonia reduction for the UK by 2020, from 2005 levels. This 8% target for the UK is also contained within the EU National Emissions reduction Commitments (NEC) Directive 2016. The significance of ammonia for the agriculture sector was recognised in 2017 with the addition of an Annex to the Sustainable Agricultural Land Management Strategy (SALMS) For Northern Ireland 2016, 'Making Ammonia Visible'. A draft ammonia strategy for Northern Ireland is also currently in production by DAERA.

The Northern Ireland Greenhouse Gas (GHG) Inventory includes data on GHG emissions in Northern Ireland, forming part of the UK GHG Inventory reported at an International level in line with UK commitments under the Kyoto Protocol. The Inventory is updated annually, the latest available covers the period 1990-2019[9].

In 2019, Northern Ireland accounted for 4.7% of the UK total GHG emissions, which is higher than its population share of 3%. Since the base year (1990), Northern Ireland's total GHG emissions have decreased by 17.9 per cent from 26.1 to 21.4 million tonnes of carbon dioxide equivalent ($MtCO_2e$), with a 1.4% decrease compared to 2018. Agriculture, transport and land use change sectors showed higher GHG emissions in 2019 than in the base year of reporting.

Material Assets

The term 'Material Assets' can be considered very broadly within the SEA process, encompassing for example infrastructure, settlements, transport and utilities. In the context of this SEA, 'Material Assets' predominantly focusses on the number and types of agricultural assets found in Northern Ireland, as it is considered that the most potential for positive or negative effects on material assets from implementation of the draft FAPP relates to these.

There were a total of 25,896 farms in Northern Ireland in 2020, covering an area of 1, 029,822 hectares[10]. This refers to all active farm businesses having at least a hectare of farmed land. Although this is an increase of 1,069 in the total number of farms from the previous year, this predominantly results from differences in sampling methodology, and the number of farms has shown a continuous downward trend from a total of 40,724 in 1981, decreasing by 10% in the 15 year period between 2004 and 2019. The area of land farmed, however, has remained relatively stable since 1981. Over three quarters of Northern Ireland farms were classed as very small in 2020 (20,329). Cattle and sheep represent the predominant farm type, with 79% of farms keeping some cattle, and 38% keeping some sheep.

There were a total of 51,301 farm workers in Northern Ireland in 2020, 77% of which were farmers, partners, directors or spouses, and the remaining 33% other farm workers. This represents a decrease of approximately 7.5% in the total farm workforce between 1981 and 2020, however the breakdown of total farm workers

[9] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/NI%20Greenhouse%20Gas%20Statistics%201990-2019_2.pdf

[10] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Agricultural%20Census%202020%20Publication.pdf

between farmers, directors, partners or spouses and all other farm workers (approximately 77% to 33%) has remained relatively stable since 2004. The gross output from farming in 2020 was estimated at £2.23 billion, an increase of 4.2% from 2019. The gross input to farming in 2020 was estimated at £1.55 billion, an increase of 0.1% from the previous year.

In addition, consideration has been given to water-related infrastructure in Northern Ireland, owing to the possibility of their operations being affected by implementation of the draft FAPP. There were 24 water treatment works in service with NI Water during 2020, serving 51 water supply zones (designated areas with a population of no more than 100,000). Population growth and development are placing increasing pressure on water treatment and supply and wastewater treatment, particularly in urban areas. There are currently c. 863,000 domestic, agricultural, commercial and business properties connected to the public water supply in Northern Ireland (around 99.9% of the total population). Annual population growth has been positive for the past 25 years in Northern Ireland, and the total population is predicted to increase from approximately 1.9 million in 2020 to approximately 1.99 million by 2043.

Cultural, Architectural & Archaeological Heritage

Northern Ireland is rich in cultural, archaeological and architectural heritage, with many important archaeological sites, monuments and heritage buildings which are afforded varying levels of protection under national legislation such as the National Monuments Acts (1930 to 2004) and the Planning and Development Act (2000). There are 51,783 recorded heritage assets and over 12,000 designated heritage assets within Northern Ireland that have been recorded by The Historic Environment Record of Northern Ireland (HERoNI).

There is also one UNESCO world heritage site in Northern Ireland; being the Giant's Causeway, designated for its unique geological heritage.

The HERoNI archive is still growing, with new assets added as new information is provided. Numerous previously unidentified heritage assets were reported under previous agri-environment policies and good farming practice initiatives.

Landscape & Visual Amenity

The current landscape of Northern Ireland is a product of land use changes and human interventions that have taken place in the *c.*9,000 years since the area was first settled. Although population growth in the late 20th and early 21st centuries expanded the extent of built-up areas, the Northern Ireland landscape remains predominantly rural, with agriculture the most prevailing land use[11].

There are eight Areas of Outstanding Natural Beauty (AONB) in Northern Ireland, designated for their distinctive landscape character and high scenic value. There are also eight Northern Ireland Environment Agency (NIEA) Country Parks, and 56 National Trust Sites within Northern Ireland.

The Nature Conservation and Amenity Lands Order (NI) 1985 (NALCO) is the current legislative basis for the protection of landscapes. The Northern Ireland Landscape Character Assessment 2000[12] (NILCA) subdivided the countryside into 130 Landscape Character Areas (LCAs), each based upon local patterns of geology, landform, land use, cultural and ecological features.

The Northern Ireland Regional Landscape Character Assessment (NIRLCA), developed in 2016, aimed to complement the NILCA by providing a regional framework upon which more detailed local studies could be based. This subdivided the countryside into 26 Regional Character Areas (RCAs), based upon information relating to people and place and the combinations of nature, culture and perception that contribute to local uniqueness.

Areas of High Scenic Value (AOHSV) and scenic views are designated in Local Development Plans to protect the setting of the urban area and other areas of particular landscape merit. Planning permissions may not be

[11] State of Environment Report 2013 (daera-ni.gov.uk)

[12] Landscape Character Assessment for Northern Ireland 2000

granted for development proposals that would be likely to have a significant negative effect on the quality, character and features of interest in Areas of High Scenic Value.

The main pressures on Landscape in Northern Ireland, according to the most recent State of the Environment report (2013), are development (including housing, industrial and recreational), infrastructure, extraction industries, agriculture and forestry, and tourism. Land cover and habitats have changed in the past few decades as a result of population increases, changes in household structure and employment patterns and agricultural restructuring.

Evolution of the Environment in the Absence of the FAPP

The evolution of the environment in the absence of the draft FAPP was assessed in this SEA Environmental Report. In the absence of the FAPP i.e. the Do Nothing Scenario there would be no change in the existing support policy for the agriculture sector in Northern Ireland, and no opportunity to tailor support arrangements to better meet the needs of the agriculture sector in Northern Ireland. The likely future impacts of this are provided by environmental topic.

Methodology and Consultation

This Environmental Report has been produced to assess the effects of implementing the various policy proposals outlined in the draft FAPP and to provide the environmental guidance to help create a more sustainable FAPP. In parallel to this, a Habitats Regulation Assessment (HRA) Report has been prepared to inform the decision-making process, in terms of the potential policy approaches to impact upon the integrity of any European sites in view of site conservation objectives.

Each of the proposed policies outlined in the draft FAPP have been assessed in the short, medium and long term for likely effects, the significance of the effects, and whether they are positive or negative effects against the SEA objectives. Other impacts that have been assessed for significance are secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the interrelationship of effects. The scenario of 'The Evolution of the Environment in the absence of the draft FAPP' has also been assessed in the same format. This will be considered the Do-Nothing Scenario.

SEA Screening consultation for the FAPP took place in September 2021. The SEA Screening Report was sent to DAERA (NIEA), as the statutory consultee for SEA in Northern Ireland. Owing to the potential for transboundary effects on the environment to arise from implementation of the FAPP, the statutory transboundary consultees in the Republic of Ireland were also provided with the SEA Screening Report, as follows:

- Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- Department of Agriculture, Food and the Marine (DAFM); and
- Department of Environment, Climate and Communications (DECC).

Scoping and scoping consultation for the draft FAPP took place from October - November 2021. The purpose of the Scoping Report was to provide sufficient information on the FAPP to enable the statutory consultee to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment and the consultation period proposed for the Environmental Reports.

Environmental Objectives, Targets and Indicators

Policy proposals have been assessed against a set of strategic environmental objectives (SEOs). These SEOs were developed in the context of broader environmental protection objectives set at both international and national level, and also took into account the context of potential for impacts associated with the draft FAPP. Each high-level SEO has been paired with a specific target(s), as well as indicator(s) that can be used to measure the progress towards achievement of these targets. The SEOs, Sub-Objectives, Indicators and

Targets used are given in **Table 1**. The assessment examined the likely significant impacts of the policy proposals comprising the draft FAPP, and how their implementation could contribute to achieving these SEOs.

Table 1 Strategic Environmental Objectives

Criteria	Objective		Sub-Objective	Indicators	Target
Biodiversity, Flora & Fauna	**1**	**A** Preserve, protect, maintain and, where possible, enhance internationally protected species and habitats.	Support International and National Environmental Designations for flora and fauna, and contribute to the protection and restoration of natural habitats and species.	• Conservation condition of designated habitats and species within European sites (SACs, SPAs, Ramsar sites).	• No negative change, or a positive change, in the conservation status of designated habitats and species within European sites.
		B Preserve, protect, maintain and, where possible, enhance national and local nature conservation sites.		• Status of designated habitats and species within national and local sites.	• No negative change, or a positive change, in the conservation status of designated habitats and species within national and local sites.
		C Preserve, protect, maintain and, where possible, enhance protected and priority species and habitats, or other known species of conservation concern, and increase the naturalness and connectivity of the countryside.		• Status of protected and priority habitats and species. • Naturalness and connectivity of the countryside.	• No negative change, or a positive change, in the status of protected or priority species and habitats outside of designated sites. • Improved naturalness and connectivity of the countryside.
Population & Human Health	**2**	**A** Preserve, protect, maintain and where possible enhance water used for drinking, bathing and food supply.	Support the provision of clean and safe water and food, and contribute towards a healthy population in the countryside.	• Status of drinking, bathing and shellfish water protected areas.	• No negative change, or a positive change, in the status of areas protected for drinking water, bathing water or shellfish production.
		B Support the production of a clean and safe food supply.		• Quality of animal products available for consumption.	• No negative change, or a positive change, in the quality of animal products.
		C Contribute towards a healthy population living in the countryside.		• Health statistics of the population.	• No negative change, or a positive change, in the health of the population living in the countryside.
Geology, Soils and Landuse	**3**	**A** Protect and enhance the function and quality of agricultural soils.	Protect soils from pollution and prevent degradation or loss of the soil resource, and protect and enhance soil quality.	• Soil health and nutrient levels, and quality of agricultural land.	• No negative change, or a positive change in soil health and land quality.
		B Protect against physical damage to, or loss, of the agricultural or natural soil resource.		• Soil resource within the agriculture sector.	• No loss of the agricultural or natural soil resource.
Water	**4**	**A** Protect water sources from pollution by	Protect water sources from	• WFD status of surface and	• No negative change, or a positive change, in the

		pollution by agricultural activities, and support the objectives of the Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD) and Floods Directive.		agricultural activities, and support the objectives of the WFD and MSFD.	groundwater bodies. • Status of NI seas, as reported for the MSFD.	status of surface water and groundwater bodies, and potential to contribute to the achievement of water body objectives under the WFD. • No deterioration in the status of NI seas, and potential to contribute to the achievement of Good Environmental Status (GES) under the MSFD.
			B	Protect against flood risk through agricultural activities.	• Flood risk status.	• No increase in flood risk or contribution to flood risk management.
Air	**5**	Avoid, prevent or reduce harmful effects on human health and the environment resulting from emissions to air.	**A**	Reduce impacts to air quality from agricultural emissions.	• Quantity and trends of air emissions attributable to the agricultural sector.	• Reductions in the quantity of emissions to air arising from the agricultural sector.
Climatic Factors	**6**	Reduce GHG emissions from the agricultural sector in line with national commitments.	**A**	Reduce GHG emissions from agriculture.	• Quantity and trends of GHG emissions attributable to the agricultural sector and land use change sector.	• Reduction in the quantity of GHG emissions arising from the agricultural sector and land use change sector.
Material Assets & Infrastructure	**7**	Support economic agricultural activities.	**A**	Support sustainable agricultural land use and improved land management practices.	• Agricultural outputs and productivity.	• Sustainable increase in agricultural productivity, i.e. a more efficient use of resources.
			B	Support the long term viability of farms.	• Agricultural sector income, costs and revenues.	• Decrease in the reliance of farm incomes on direct payments.
Cultural, Architectural & Archaeological Heritage	**8**	Protect, conserve and enhance International, National and Local Heritage Designations, and their settings.	**A**	Protect, conserve and enhance International, National and Local Heritage Designations, and their settings.	• Number, condition and setting of international, national and local heritage designations.	• No loss or negative change to the condition or setting of international, national and local heritage designations • Potential for protection and/or restoration of known or currently unknown heritage assets via the implementation of the policies
Landscape & Visual Amenity	**9**	Protect and enhance the character and quality of landscapes, riverscapes,	**A**	Protect and enhance the character and quality of landscape sand riverscapes, lakescapes and seascapes.	• Landscape/ Seascape Character Assessments and local views.	• No negative change, or a positive change, in visual amenity or landscape / seascape character.

		lakescapes and seascapes.				• Local Development Plan scenic views and Areas of High Scenic Value.

Alternatives

In 2018, DAERA, in conjunction with key food, farming and environmental stakeholders, identified four key desired outcomes that together constituted the long term vision for the Northern Ireland agricultural industry. DAERA undertook an engagement exercise on a draft framework setting out how policies could be developed to deliver these four outcomes. In total, there were 1,277 responses to this engagement exercise, of which 67 were from organisations/representative groups and 1,210 were from individuals.

Reflecting the responses received during that process, DAERA refined the identified outcomes and vision for the agricultural industry in Northern Ireland as follows.

1. An industry that pursues **increased productivity** in international terms as a means to sustained profitability, closing the productivity gap which has been opening up with other major suppliers.

2. An industry that is **environmentally sustainable** in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets. This outcome is an integral part of the new Green Growth Strategy and associated Climate Action Plan which will be the Department's initial route map to climate action, green jobs and a clean environment.

3. An industry that displays **improved resilience** to external shocks (such as market and currency volatility, extreme weather events, etc.) which are ever more frequent and to which the industry has become very exposed.

4. An industry which operates within an integrated, profitable, efficient, sustainable, competitive and an **effective functioning supply chain**, with clear transmission of market signals and an overriding focus on high quality food and the end consumer.

These outcomes are synergistic and improvement in one outcome can provide a positive effect on one or more of the other outcomes. For example, the reward of greater productivity is more efficient use of finite resources and a lower environmental footprint. Producing higher value products through product innovation can increase profit margins, resilience and environmental sustainability.

In seeking to deliver the above outcomes, DAERA noted the following additional requirements that must also be taken into account.

- Future agricultural policy and the intervention framework must not conflict with WTO obligations; and
- The framework should not give rise to unacceptable market distortions within the UK.

The **DAERA Food and Farming Group (FFG) Policy Programme Board** Meetings and Workshops took place to discuss and assess policy development and met regularly from November 2018 to January 2021**.** The FFG Policy Programme board consisted of FFG Deputy Secretary, Heads of Division within FFG as board members, Environment Marine and Fisheries Group (EMFG) Deputy Secretary, Heads of Division within EMFG as board members, the DAERA 14 workstream Policy leads and internal DAERA Agriculture and Environmental Experts. The FFG Policy Programme Board conducted single item meetings/deep dives to consider in detail the background, issues, direction of travel for individual workstreams. The purpose of the deep dives were to examine the work that has been undertaken, review progress to date, consider issues and explore where there are remaining gaps and to provide feedback to the policy team.

The DAERA Agricultural Policy Programme Board was established in January 2021 to replace the FFG Policy Programme Board with a stronger focus on the agriculture components of the previous board. The Agricultural Policy Programme Board acts as a forum for discussion for ongoing cross-cutting elements and

for decisions on strategic issues, policy proposals and eventual Scheme design before seeking formal agreement with the DAERA Minister. The board draws representatives at senior level across all workgroups within DAERA including NIEA/EMFG. The board meets every six weeks with workshops to focus on specific workstream policy development occurring between board meetings, Livestock and Meat Commission (LMC)/ Ulster Famers Union (UFU) and the Royal Society for the Protection of Birds (RSPB) have made representations at two of these workshops. There have also been workshops covering Climate Change, Rural Needs Policy, Peatlands Strategy, Ammonia and Biodiversity from colleagues in EMFG/NIEA ensuring the latest strategies and policies from other parts of the Department feed into future agriculture policy development. Focused discussions on individual workstream topics involving small teams help move policy development after wider scale input from workshops/board meetings.

Workstreams have engaged with experts outside DAERA to other administrations and a range of stakeholders regarding their individual work areas. The DAERA Agri Policy Stakeholder Group was established in June 2021 by DAERA to ensure that stakeholder views were understood and properly considered during the development of the DAERA Future Agricultural Policies, including environmental considerations. The group has met regularly since June, with meetings reviewing policy development in each workstream. The DAERA Agri Policy Stakeholder Group is composed of representatives of the main food, farming and environmental organisations.

Assessment and Conclusions

The policy proposals of the draft FAPP have been assessed in terms of their potential positive and negative effects, and the significance of these effects on the environment against the SEOs. The purpose of this is to predict and evaluate, as far as possible, the environmental effects of the FAPP, highlighting any significant environmental problems and / or benefits that are likely to arise from the implementation of the FAPP.

The purpose of this is to predict and evaluate, as far as is possible, the environmental effects of the draft FAPP, highlighting any environmental problems that are likely to arise from its implementation. Policy proposals have been assessed in the short, medium and long term for likely effects, the significance of the effects, and whether they are positive or negative effects. For the purposes of this assessment:

- Plus (+) will indicate a potential positive environmental effect;
- Minus (-) will indicate a potential negative environmental effect;
- Plus/minus (+/-) will indicate that both positive and negative environmental effects are likely or that, in the absence of further detail, the potential effects are unclear or uncertain. If a situation arises whereby positive effects out way negative effects, or *vice versa*, an additional + or – will be used (++/- or +/--);
- Zero (0) will indicate neutral or no effect;
- Short term – 0 – 2 years (Immediate);
- Medium term – 2 – 6 years (Normally the completion of a first cycle of Plan or Programme); and
- Long term – beyond 6 years (Normally the second cycle of a Plan or Programme and beyond).

The approach used for assessing the draft FAPP is an objective-led assessment. This is a strategic level assessment, as it is not possible or practicable for the baseline environment to be described and assessed in as much detail as could be done for a project-level Environmental Impact Assessment. Instead, the SEA approach is based on a system of *objectives*, *targets* and *indicators*, in order to rationalise information for assessment purposes.

Other impacts that are assessed for significance are indirect effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects. The scenario of “The Evolution of the Environment I the absence of the draft FAPP” will also be assessed in the same format. This is considered the Do-Nothing Scenario. All potential positive and negative effects will be presented individually, with a text description, and a summary table. **Table 2** provides a summary of the assessment of each high-level policy proposal, taking into account any conditions or design principles that have been outlined in the draft FAPP.

Table 2 Summary of the assessment of policy proposals against the SEOs

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
RM1	+/-	+/-	+/-	+/-	+/-	+/-	++/-	+/-	+/-
RM2	0	0	0	0	0	0	+	0	0
HSP1	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
HSP2	0	+	0	0	0	+	+	0	0
FNP1	+	++/-	+	+	+	+	++/-	+	+
FNP2	+	+	+	+	+	+	+	+	+
FNP3	+	+	+	+	+	+	+	0	+
FNP4	+	+	+	+	+	+	+	+	+
FCM1	+	0	+	+	+	+	++	+/-	+/-
FCM2	0	0	0	0	+	+	+	0	0
FCM3	0	0	0	0	+	+	+	0	0
FCM4	+/-	0	+/-	+/-	+	+	+	0	0
FCM5	+	0	+	+	+	+	+	0	0
FCM6	+	0	+	+	+	+	+	0	0
FCM7	+/-	0	+/-	+/-	+/-	+/-	+/-	+/-	+/-
FCM8	+	+	+	+	++/-	+	+	+	+
FCM9	+	+	+	+	+/-	+/-	+	0	0
IM1	+/-	+/-	+/-	+/-	+/-	+	+	+/-	+/-
KM1	+	+	+	+	+	+	+	+	+
GR1	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
SCM1	0	+	0	0	0	0	+	0	0
SCM2	0	+	0	0	0	0	+	0	0
SCM3	0	+	0	0	0	0	+	0	0
STL1	+	+	+	+	+	+	+	+	+
LGD1	0	0	0	0	0	0	0	0	0
LGD2	0	0	0	0	0	0	0	0	0
LGD3	0	0	0	0	0	0	0	0	0
LGD4	+/-	+	+/-	+/-	+/-	++/-	+	+/-	+/-
CA1	+/-	+/-	+/-	+/-	+/-	+/-	0	+/-	+/-
CA2	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-

CA3	+	+	+	+	+	+	0	+	+
MME1	0	0	0	0	0	0	0	0	0
H1	+/-	+/-	+/-	-	+/-	+/-	+	+/-	+/-
H2	+/-	+/-	+/-	-	+/-	+/-	+	+/-	+/-
H3	0	+	0	0	0	0	+	0	0
H4	0	+	0	0	0	0	+	0	0
H5	0	+	0	0	0	0	+	0	0
H6	0	+	0	0	0	0	+	0	0
H7	0	+	0	0	0	0	+	0	0
H8	0	+	0	0	0	0	+	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

In general, the draft FAPP seeks to support an agricultural industry that is more sustainable in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets, as an integral part of the Green Growth Strategy and associated Climate Action Plan. The draft FAPP promotes a more sustainable approach to agricultural policy, through the inclusion of separate workstreams that focus on aspects of the environment, as well as integration of environmental considerations and benefits across workstreams. All policies should be applied with due regard to the existing environmental setting and relevant legislation and guidance should be considered during the design and implementation of the policy proposals within the FAPP. This would ensure the effective implementation of these proposed policies, which have the potential for long term, positive effects on the wider environment.

The overarching potential for negative effects associated with implementation of the draft FAPP relates to the risk of failure to implement the proposed policies in a manner that is appropriate for realising the greatest benefits and for fully achieving the FAPP vision of greater sustainability of the agricultural sector in Northern Ireland. In order to mitigate against the potential risk of failure to fully meet the FAPP vision of a sustainable agricultural sector, it is imperative that during the next stages of policy development and implementation, policies and associated measures are applied in a manner that will best realise the full environmental potential of the policies.

Mitigation and Monitoring

Environmental mitigation measures have been recommended in order to avoid or minimise any identified potential negative impacts of implementing the FAPP. This mitigation is broken down into FAPP Specific, General Scheme and HRA mitigation, and aim to prevent, reduce and as fully as possible offset any significant negative effects on the environment due to the implementation of the policy proposals within the FAPP.

An environmental monitoring programme is also provided. Monitoring should be undertaken in conjunction with any proposed review of the FAPP, in advance of an update or second cycle, to enable monitoring outcomes to influence the FAPP development. This should identify at an early stage any unforeseen adverse effects, as well as any positive outcomes that are due to implementation of the FAPP.

Next Steps

Consultations on the draft FAPP, Environmental Report and HRA Report are anticipated to commence in December 2021 and run for 8 weeks. Following completion of the consultation period, all comments will be collated and the draft FAPP, SEA Environmental Report and HRA will be reviewed and revised as necessary. Provided there are no objections or comments that will significantly alter the draft FAPP, the final version of

the FAPP can be drafted and adopted. This is anticipated to be in spring 2022. Following release of the adopted FAPP, an SEA Statement will be drafted to summarise the process undertaken, and identify the manner by which environmental considerations and consultations were integrated into the final FAPP.

1 INTRODUCTION

1.1 Background

This Strategic Environmental Assessment (SEA) Environmental Report has been prepared in accordance with the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (S.R. 280/2004), which implements European Union Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment.

The purpose of this Environmental Report is to provide a formal and transparent assessment of the likely significant effects on the environment arising from implementation of the Future Agricultural Policy Proposals (FAPP) for Northern Ireland, including consideration of reasonable alternatives.

The SEA of the draft FAPP is being prepared on behalf of the Department of Agriculture, Environment and Rural Affairs (DAERA), who are the competent authority for the preparation and adoption of the FAPP.

1.2 Strategic Environmental Assessment

The SEA Directive requires that certain Plans and Programmes, prepared by statutory bodies, which are likely to have a significant impact on the environment, are subject to the SEA process. The SEA process is broadly comprised of the steps shown in **Figure 1-2**. These are given a summary description in **Table 1-1**.

Table 1-1 Summary Descriptions of Main Stages in SEA Process

Stage	Description	Status
Screening	Determines whether SEA is required for a Plan or Programme, in consultation with the designated statutory consultees.	Completed September 2021
Scoping	Determines the scope and level of detail of the assessment for the SEA, in consultation with the designated statutory consultees.	Completed November 2021
Environmental Assessment	Formal and transparent assessment of the likely significant effects on the environment arising from the implementation of the FAPP for Northern Ireland, including all reasonable alternatives. The output from this is an Environmental Report which must go on public display along with the draft FAPP.	Current Stage
SEA Statement	Summarises the process undertaken and identifies how environmental considerations and consultations have been integrated into the final FAPP.	Anticipated Q1 2022

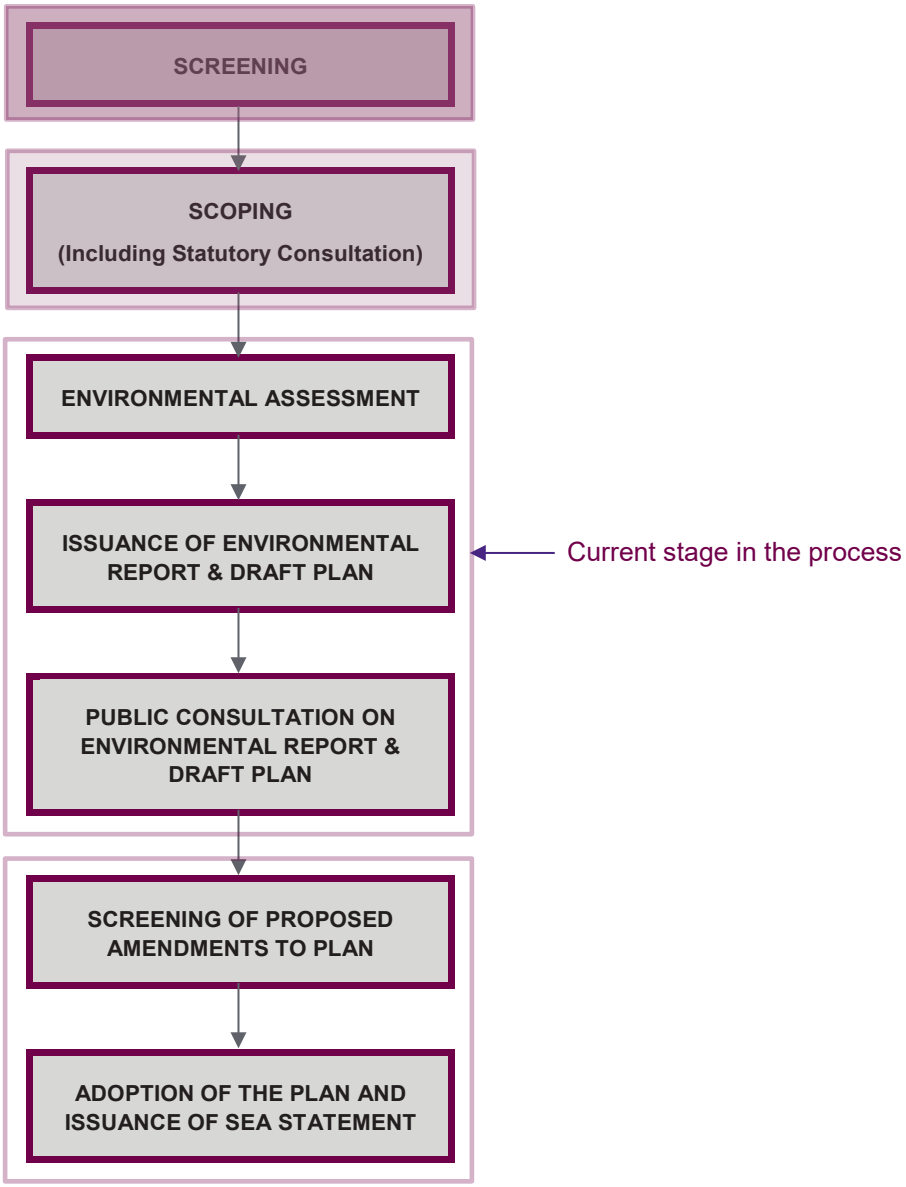

Figure 1-1 Overview of the SEA process

1.3 Screening for SEA

On behalf of DAERA, RPS carried out an SEA Screening in September 2021. The Screening Report concluded the following information about the draft FAPP:

- It is not clear at this stage whether the detailed policy proposals emerging from the future Agricultural Policy Framework Portfolio for Northern Ireland have the potential to set the framework for development consent of projects, as listed in Annexes I or II of the EIA Directive. However, DAERA intends to ensure that the strategic planning process includes full and proper consideration of the potential effects of the future policy proposals upon communities and the wider environment. DAERA acknowledges the potential for significant positive and / or negative effects of implementing the FAPP and believes that it is best environmental practice for them to undertake an SEA.

On this basis, DAERA concluded that it would complete an SEA of the draft FAPP. The SEA Screening Report was sent to DAERA (NIEA), as the statutory consultee for SEA in Northern Ireland. Owing to the potential for transboundary effects on the environment to arise from implementation of the draft FAPP, the statutory

transboundary consultees in the Republic of Ireland were also provided with the SEA Screening Report, as follows:

- Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- Department of Agriculture, Food and the Marine (DAFM); and
- Department of Environment, Climate and Communications (DECC).

Consultee responses to the SEA Screening can be found in **Appendix A** of this report.

1.4 Scoping for SEA

The SEA Scoping for the draft FAPP took place from October - November 2021. The purpose of the Scoping Report was to provide sufficient information on the FAPP to enable the consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology for assessment and the consultation period proposed for the Environmental Report.

The issuing of a draft Scoping Report to consultees is recommended as good practice and can inform stakeholders about the key environmental issues and the key elements of the Plan or Programme. In addition, the Scoping Report can be used as a tool to generate comments from stakeholders on the scope and approach of the SEA.

Table 1-2 was created to generate discussion during the scoping process and consultation in relation to the SEA receptors, and was subsequently amended following scoping responses. The responses received in relation to the Scoping for this SEA can be found in **Appendix B**.

Table 1-2 Potential Environmental Issues by SEA Topic

SEA Topic	Scoped In / Out	Potential Environmental Issues
Biodiversity, Flora & Fauna	**In**	• Potential for effects on protected areas, including those of international (SACs, SPAs, Ramsar Sites), national (ASSIs, NNRs) and local (SLNCIs) importance; • Potential for protection and enhancement of biodiversity at a national, regional and local level; • Potential for effects on protected or priority habitats and species; • Potential for effects on habitats sensitive to atmospheric pollution (e.g. peatlands); • Potential for habitat loss, fragmentation or deterioration (temporary or permanent); and • Potential for effects on water-dependent habitats and species (including effects on freshwater pearl mussel, salmonids, and other protected fish and shellfish species).
Population & Human Health	**In**	• Potential for effects on water quality (drinking and recreational); • Requirement to protect waterbodies identified for current / future drinking water abstractions; • Potential effects on food quality (commercial aquatic species); • Potential effects on air quality; and • Potential risks from biohazards.
Geology, Soils & Landuse	**In**	• Potential for effects on soil fertility and improving efficiency of nutrient use; • Potential for effects on nitrate and phosphate vulnerability of soils (and associated groundwater susceptibility); • Potential for effects on the vulnerability of land to erosion; • Potential for effects on soil compaction and poaching; • Potential influence of soil type on land use practices (e.g. fertiliser application); • Potential for effects on discharges to receiving aquatic sediments; and

		• Potential for effects on landuse within agricultural land holdings.
Water	**In**	• Potential for effects on the ecological status of WFD surface water bodies via changes in the levels of nutrient pollution and sedimentation; • Potential for effects on the status of WFD Protected Areas, including for water-dependent habitats and species, economically significant aquatic species, drinking water, recreation and nutrient sensitive areas; • Potential for effects on nutrient concentrations within freshwater and marine water bodies; • Potential for effects on groundwater quality, including the potential for microbial and chemical contamination of drinking water supplies; • Potential effects of topography and landuse practices to risk of nutrient sediment loss and subsequent water pollution; and • Potential for effects on flood risk.
Air Quality and Climatic Factors	**In**	• Potential for effects on Methane (CH_4) and nitrous oxide (N_2O) Greenhouse Gas emissions (GHG) emissions arising from agricultural activities; • Potential for effects on transboundary emissions (e.g. NH_3) arising from agricultural activities; • Potential for effects of air pollutants on sensitive habitats; • Potential for effects of air pollutants on human health; • Potential for effects on climate resilience; • Potential for improvement of efficiencies leading to a reduction in emissions; and • Potential for increase in carbon sequestration.
Material Assets	**In**	• Potential for effects on the productivity of agricultural land holdings; • Potential for effects on the financial viability of agricultural land holdings, including the level of reliance on financial support; • Potential for effects on water-related assets; and • Potential for effects on the status of water bodies used for drinking water, recreation and production of food.
Cultural, Architectural & Archaeological Heritage	**In**	• Potential for effects on archaeological and architectural features and their settings; • Potential for changes to historic landscape character, and • Potential for indirect effects on water based features and their settings via changes in water quality.
Landscape & Visual Amenity	**In**	• Potential for effects on areas of designated landscape quality and scenic views (i.e. in Local Development Plans); • Potential for effects on the general landscape and on riverscapes, lakescapes and seascapes; and • Potential for effects on the recreational or tourism value of water bodies.

1.5 SEA Guidance

Key guidance documents that have been used in the SEA for the FAPP are listed in **Appendix C** of this SEA Environmental Report.

1.6 Statutory Consultees for SEA

Under Article 6 of the SEA Directive, the competent authority (in this case DAERA) preparing the plan or programme is required to consult with specific "environmental authorities" (statutory consultees) within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report before the adoption of the plan or programme. As some of the policy proposals outlined in the draft FAPP may be implemented close to the border with the Republic of Ireland, and having regard to the potential cross-border nature of some measures, there is potential for transboundary impacts from

implementation of the FAPP. For this reason, there is a requirement to undertake transboundary consultations as part of this SEA process.

The statutory consultee established within the SEA legislation for Northern Ireland is:

- The Department of Agriculture, Environment and Rural Affairs (DAERA)

As DAERA is responsible for preparation of the FAPP, consultees will include all relevant units within the Department such as the Natural Environment Division, Drinking Water Inspectorate, Climate Change Unit, Marine and Fisheries Division, Marine Plan Team and Marine Conservation and Reporting Section. The Historic Environment Division of the Department for Communities (DfC), as the government authority on heritage, will also be consulted.

For the Republic of Ireland, the statutory consultees are established within the Irish national legislation, European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 [S.I. 435/2004] and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 [S.I. 436/2004], and their recent amendments of European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 [S.I. 200/2011] and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 [S.I. 201/2011], as being:

- Environmental Protection Agency (EPA);
- Department of Housing, Local Government and Heritage (DHLGH);
- Department of Agriculture, Food and the Marine (DAFM); and
- Department of Environment, Climate and Communications (DECC).

1.7 Appropriate Assessment

The Habitats Directive (Council Directive 92/43/EEC) on the conservation of natural habitats and of wild fauna and flora obliges Member States to designate, protect and conserve habitats and species of importance in a European Union context. Article 6(3) of the Habitats Directive requires that "*Any plan or project not directly connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives*." The Directive was transposed into Northern Ireland legislation through the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995. Any proposed plan or project that has potential to result in a likely significant effect on a designated European site will require an Appropriate Assessment (AA). Case law has determined that the likelihood need not be great, merely possible, and that the precautionary principle must apply as set out in European Commission Guidance and as required by CJEU case law (i.e. C 127/02 '*Waddenzee'*).

The output of this is a HRA Report, which has been prepared to influence the draft FAPP and to provide statutory consultees with information on the draft FAPP, the process undertaken for the HRA and to establish whether or not the draft FAPP is likely to have a significant negative effect upon the integrity of any European sites(s). The findings of the HRA have been integrated into this Environmental Report and subsequently into the FAPP.

2 DESCRIPTION OF THE FUTURE AGRICULTURAL POLICY PROPOSALS FOR NORTHERN IRELAND

2.1 Existing Agricultural Policy and financial support in Northern Ireland

The EU Common Agricultural Policy (CAP) has been significant in terms of its financial support in sustaining the agriculture industry in Northern Ireland. Direct financial support of €327 million per annum has been provided to farmers in Northern Ireland through Pillar 1 of the CAP, as decoupled support paid on a per hectare basis, supporting the economic viability of the industry and its competitive trading position. The income support provided by the CAP has represented a substantial contribution to the total income achieved within the industry, with direct CAP support accounting for 87% of the cumulative total income[13] of the Northern Ireland agricultural industry over the past five years. Some sectors of the industry, and the industry as a whole for two of these years, would have been in a position of financial loss in the absence of this financial support.

Leaving the EU provides the opportunity to redesign the agricultural support arrangements to better meet the needs of Northern Ireland. Agricultural support policy is a matter decided by the devolved administrations, and DAERA has an opportunity to develop the most appropriate approach for the agriculture sector of Northern Ireland moving forward. UK retained law and the Agriculture Act 2000 (Schedule 6) provides the primary powers for future schemes in Northern Ireland following the UK's exit from the EU. Primary powers are also contained in the Agriculture Act (Northern Ireland) 1949.

2.2 Development of the Future Agricultural Policy Proposals for Northern Ireland

2.2.1 Identification of Key Outcomes

The FAPP is being developed by DAERA to outline the future of agricultural policy and financial support in Northern Ireland following the UK's exit from the EU. In August 2021, DAERA published the Future Agricultural Policy Framework Portfolio for Northern Ireland[14], setting out the framework by which this would be achieved.

DAERA has identified four key desired outcomes that together constitute the long term vision for Northern Ireland's agricultural industry, as follows:

1) An industry that pursues **increased productivity** in international terms as a means to sustained profitability, closing the productivity gap which has been opening up with other major suppliers.
2) An industry that is **environmentally sustainable** in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity while making its fair contribution to achieving net zero carbon targets. This outcome is an integral part of the new Green Growth Strategy and associated Climate Action Plan which will be the Department's initial route map to climate action, green jobs and a clean environment.
3) An industry that displays **improved resilience** to external shocks (such as market and currency volatility, extreme weather events, etc.) which are ever more frequent and to which the industry has become very exposed.
4) An industry which operates within an integrated, profitable, efficient, sustainable, competitive and **responsive supply chain**, with clear transmission of market signals and an overriding focus on high quality food and the end consumer.

[13] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward

[14] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/21.22.086%20Future%20Agriculture%20Framework%20final%20V2.PDF

The future of agricultural support in Northern Ireland will be designed to deliver on these four key outcomes. They are synergistic, whereby improvement in one outcome has the potential for positive effects upon one or more of the other outcomes, and with the aim that improvement in one outcome should not come at the expense of detriment in others.

2.2.2 Identification of FAPP Workstreams

The draft FAPP has been established as an overarching strategic programme, to develop a portfolio of measures and cross cutting initiatives that can address the four key desired outcomes identified in the Future Agricultural Policy Framework Portfolio, and oversee the transition from existing schemes to new approaches and support systems for Northern Ireland. These comprise fourteen workstreams that have been established in order to collate evidence, identify gaps, and develop policy proposals and design principles. These workstreams are not standalone policy instruments, and may be implemented at different timescales.

The main components of the draft FAPP for the foreseeable future are eight main product workstreams, as follows:

1) Workstream 1 - Resilience Measure;
2) Workstream 2 - Headage Sustainability Package;
3) Workstream 3 - Farming for Nature Package;
4) Workstream 4 - Farming for Carbon;
5) Workstream 5 - Investment Measure;
6) Workstream 6 - Knowledge Measures;
7) Workstream 7 - Generational Renewal; and
8) Workstream 8 - Supply Chain Measures.

In addition, five cross-cutting initiatives have been identified, that aim to underpin achievement of the overall objectives, as follows:

9) Workstream 9 - Soil testing and LiDAR;
10) Workstream 10 - Livestock Genetics and Data;
11) Workstream 11 - Controls and Assurance;
12) Workstream 12 - Metrics, Monitoring and Evaluation; and
13) Workstream 13 – Environmental Assessments.

There is also one sectoral workstream, as follows:

14) Workstream 14 - Horticulture.

The draft FAPP presents the main issues identified for 13 of the 14 workstreams, and the policy proposals and design principles being developed within these, with the aim of addressing the desired key outcomes. Note workstream 13 Environmental Assessments comprises the environmental assessments to be undertaken for the draft FAPP; it does not outline any policy proposals and therefore will not be assessed in the SEA process.

2.3 Description of Policy Proposals

2.3.1 Workstream 1 – Resilience Measure

Workstream 1 outlines two main future policy proposals relating to resilience of the sector, as follows:

1. **Resilience Measure Policy Proposal 1:** Farm resilience will be addressed via a Resilience Measure: a relatively simple area-based resilience payment to provide a basic safety net, whilst also delivering environmental outcomes.

Conditions / Design Principles of the Policy Proposal

- All land-based agriculture and horticulture eligible;
- Payment will be area-based and use entitlements;
- All farmland, except for hard features will be eligible;

- Funding will be for 'Active Farmers', with removal of grass selling businesses / those maintaining land in GAEC as their sole activity;
- There will be progressive capping of payments above £60,000;
- The minimum claim size will increase to 10ha;
- Resilience support entitlements can be leased, transferred or sold; and
- Must meet Farm Sustainability Standards and environmental management actions including: soil testing and LiDAR; Nutrient Management Planning based on soil testing and LiDAR; recording of sire data to support the Livestock Genetics and Data programme.

2. **Resilience Measure Policy Proposal 2:** Farm resilience will be addressed via a Crisis Framework that will enable the Department to assess potential risks and determine the most appropriate intervention for a specific crisis.

Principles of the Policy Proposal

- A threshold at which Government action will be considered;
- Any required action will be targeted; and
- Any action will be temporary.

2.3.2 Workstream 2 – Headage Sustainability Package

Workstream 2 outlines two main future policy proposals relating to the support of suckler cow producers and the earlier slaughter of beef-bred and dairy-bred animals, as follows:

1. **Headage Sustainability Package Policy Proposal 1:** Support will be made available to suckler cows which meet the set out conditions.

Conditions / Design Principles of the Policy Proposal:

- Farm businesses with suckler cows will be eligible to apply.
- Payment quotas will be calculated on an individual farm level based on a historic reference period.
- A stocking density will not be applied under this measure at this stage but will be kept under review.
- Claimants to take management measures to reduce the age at first calving for suckler cows.
- Claimants to take management measures to reduce the calving interval for suckler cows.
- A retention period will apply for suckler cows being claimed.

2. **Headage Sustainability Package Policy Proposal 2:** Support will be made to clean beef animals slaughtered in accordance with a Beef Transformation Scheme.

Conditions / Design Principles of the Policy Proposal:

- Support under the Scheme will be confined to clean beef animals born and bred in NI and registered on the Animal and Plant Health Inspection Service (APHIS).
- Claimants to take management measures to reduce the age of clean beef animals at slaughter. A minimum age at slaughter is proposed, as is a potential tiered approach to the maximum age at slaughter.

2.3.3 Workstream 3 – Farming for Nature Package

Workstream 3 outlines the future policy proposals that aim to better deliver on environmental outcomes and create the right conditions to build an agricultural industry that is environmentally sustainable, as follows:

1. **Farming for Nature Package Policy Proposal 1:** A new Farming for Nature Package will be used to support farmers to make substantial contributions to environmental improvements and sustainability, while continuing to pursue increased productivity, improved resilience and operating within an effective functioning supply chain.

Conditions / Design Principles of the Policy Proposal:

- Schemes must be capable of delivering transformational change at a landscape level.
- Farm businesses receiving the Resilience Payment / other land managers will be eligible for schemes.
- A minimum land area of 3 ha is proposed for eligibility.
- Environmental payments will seek to recognise and reward public goods provided by farmers/land managers who achieve a verified level of environmental performance through delivery of identified outcomes. There will be no individual business cap on payments.
- Schemes will be outcome based.
- An appropriate time horizon will be adopted for schemes.
- Participants in schemes will be incentivised to work collaboratively.
- Scheme performance will be robustly monitored and evaluated.

2. **Farming for Nature Package Policy Proposal 2:** The initial focus of the Farming for Nature Package should be on reversing the trends in nature decline through retaining, maintaining, restoring and creating habitats that are important for species diversity and improving connectivity between habitat areas.

Initial consideration will be given to the following habitats/measures:

- Hedge creation and management plans;
- Restoration of dry stone walls and stone ditches;
- Maintenance and management of field margins;
- Management measures to encourage pollinator strips;
- Management of riparian buffer strips;
- Management of winter stubble and provision of wild bird cover;
- Planting and integration of native trees across the farmed landscape, including: tree plantations around livestock yards; Integration of trees within crop or livestock farming systems;
- Restoration or creation of species-rich grasslands;
- Ponds;
- Conversion of improved grasslands and croplands to herbal leys and ‘hospital fields’ for biodiversity; and
- Non-native species management.

3. **Farming for Nature Package Policy Proposal 3:** Conservation Management Plans for SACs will have a tailored approach, including innovative partnership delivery models and incentivisation of collective action within SACs.

4. **Farming for Nature Package Policy Proposal 4:** A series of ‘Test and Learn’ pilots will be developed, focused on the maintenance, restoration and creation of the habitats listed above in the farmed landscape.

2.3.4 Workstream 4 – Farming for Carbon

Workstream 4 outlines the initial policy proposals being considered to reduce carbon/GHG, as follows:

1. **Farming for Carbon Policy Proposal 1:** Reducing numbers of non-productive livestock, with released land used alternatively, e.g. managed for environmental outcomes, forestry and bioenergy feedstocks.

2. **Farming for Carbon Policy Proposal 2:** Development of a challenge fund model to test enteric methane reducing feed additives in Northern Ireland conditions and, if successful, and the market matures sufficiently, ensuring these additives are routinely incorporated in ruminant concentrate diets.

3. **Farming for Carbon Policy Proposal 3:** Directing genetic selection programmes to drive a reduction in the carbon footprint of ruminant livestock.

4. **Farming for Carbon Policy Proposal 4:** Use of urease inhibitor treated fertilisers to reduce N_2O emissions.

5. **Farming for Carbon Policy Proposal 5:** Encouragement of appropriate timing of slurry and fertiliser application practices to reduce N_2O emissions.

6. **Farming for Carbon Policy Proposal 6:** Soil management to optimise the growth of mixed species swards.

7. **Farming for Carbon Policy Proposal 7:** DAERA will engage with stakeholders on the design of possible schemes to incentivise the farming of carbon as a business enterprise.

8. **Farming for Carbon Policy Proposal 8:** A Scheme to encourage and facilitate the re-wetting and sustainable management of peatlands is likely to be co-developed with stakeholders under the umbrella of the Northern Ireland Peatland Strategy.

9. **Farming for Carbon Policy Proposal 9:** Potential development of biomethane and hydrogen circular economy initiatives.

Conditions / Design Principles of the Policy Proposal:

The following key principles are proposed for development of these measures:

- Scientifically and independently verifiable;
- Co-designed with industry stakeholders;
- Cognisant of the need to engage the upstream and downstream sectors to help drive improvements;
- Designed to encourage large scale uptake; and
- Complemented by appropriate, proportionate regulation.

2.3.5 Workstream 5 – Investment Measure

Workstream 5 outlines the future policy proposal relating to support for on-farm capital investment, as follows:

1. **Investment Measure Policy Proposal 1**: The following design principles will be considered for future capital support: evidence of market failure; measures to address causes of market failure; addressing key environmental and societal issues; alignment with DAERA policy objectives; appropriate type of support; realistic achievement of intended outcomes; measureable outcomes for public good; and careful scheme design.

2.3.6 Workstream 6 – Knowledge Measures

Workstream 6 outlines the future policy proposal relating to knowledge transfer and innovation, as follows:

1. **Knowledge Measures Policy Proposal 1:** DAERA proposes the development of a suite of knowledge transfer and innovation programmes.

Conditions / Design Principles of the Policy Proposal:

- Aligned with the Department's policy position and principles;
- Evidence-based and informed by the evaluation of current NIRDP Knowledge Transfer and Innovation schemes being delivered by CAFRE;
- Focused on delivery of an improvement of productivity, environmental sustainability, resilience and supply chain integration;
- Integrated to ensure other DAERA programmes/schemes have a strong knowledge and innovation link; and
- Effectively targeted.

2.3.7 Workstream 7 – Generational Renewal

Workstream 7 outlines the future policy proposal relating to generational renewal in the sector, as follows:

1. **Generational Renewal Policy Proposal 1:** DAERA proposes the development and delivery of a Generational Renewal Programme which comprises policy interventions around knowledge and incentives. This proposes a Succession Planning Facilitation Service.

The Succession Planning Facilitation Service would include:

- Development and delivery of a three phased programme;
- Education to ensure the successor has an appropriate level 3 qualification;
- Capacity building for the successor with a particular focus on leadership, technical, environmental and business training;
- Appropriate incentives when agreed actions / objectives are met;
- Access to support and guidance for future-proofing the business; and
- Links to other support services, particularly for the retiring farmer.

2.3.8 Workstream 8 – Supply Chain Measures

Workstream 8 outlines the future policy proposals relating to the supply chain, as follows:

1. **Supply Chain Measures Policy Proposal 1:** Improving information flow and transparency - helping to create the information infrastructure that drives transparency, confidence and the effective transmission of market signals amongst supply chain partners.

2. **Supply Chain Measures Policy Proposal 2:** Addressing Fragmentation **-** providing support, where needed, to help sectors address blockages to collaboration and co-operation between supply chain actors. Providing the tools (education, mechanisms to encourage co-operation, regulation) to help sectors improve supply chain integration and co-ordination.

3. **Supply Chain Measures Policy Proposal 3:** Using the supply chain to achieve better strategic outcomes **-** to identify, agree and align behind the achievement of strategic objectives, such as a sustainability agenda for Northern Ireland agri-food which is supported by all actors in the food chain and which creates a positive narrative for the industry as it responds to social and market drivers.

2.3.9 Workstream 9 - Soil testing and LiDAR

Workstream 9 outlines the future policy proposal relating to soil testing and LiDAR, as follows:

1. **Soil Testing and LiDAR Policy Proposal 1:** DAERA will run a Soil Nutrient Health Scheme (SNHS) to provide a baseline on soil nutrient health and carbon stocks and it will be a condition of the Resilience payment that farmers will participate in this Scheme when offered to them.

Conditions / Design Principles of the Policy Proposal:

- The Scheme will include Northern Ireland-wide soil sampling and analysis on farms and a LiDAR survey of Northern Ireland. The resulting data will be processed to produce field level nutrient and run-off maps and quantify the amount of carbon stored in soils and in above ground biomass.
- Baseline data collected has potential to inform, shape and monitor development of: future agricultural policy; a knowledge transfer tool relating to nutrient management and tree/hedge management; More precisely targeted spatially dependant environmental interventions; and a carbon baseline from which to inform future policy development.
- Data will be a resource for farmers to make informed management decisions which will benefit productivity.
- Data will facilitate improvements to the water environment.
- Data will assist the achievement of environmental sustainability, including the scope for agricultural land to contribute to the reduction of GHG emissions and increase carbon capture.

2.3.10 Workstream 10 - Livestock Genetics and Data

Workstream 10 outlines the future policy proposals relating to livestock genetics and data use, as follows:

1. **Livestock Genetics and Data Policy Proposal 1:** To support the industry-led ruminant genetics programme it is proposed that, within the Resilience Payment, there will be a requirement to register the sires of all calves born.

2. **Livestock Genetics and Data Policy Proposal 2:** To support the industry-led ruminant genetics programme it is proposed that, within the Headage Sustainability measure, there will be a future requirement to provide specified data from suckler cows (still to be agreed) to the ruminant genetics programme.

3. **Livestock Genetics and Data Policy Proposal 3:** To support the industry-led ruminant genetics programme it is proposed that knowledge transfer programmes are established.

4. **Livestock Genetics and Data Policy Proposal 4:** Provision of assistance to farm businesses to utilise the data coming from the livestock genetics and data programme to drive better economic and environmental performance from their ruminant enterprises.

2.3.11 Workstream 11 - Controls and Assurance

Workstream 11 outlines the future policy proposals relating to controls and assurance, as follows:

1. **Controls and Assurance Policy Proposal 1:** DAERA proposes to replace the current Cross Compliance system with the simplified 'Farm Sustainability Standards'.

2. **Controls and Assurance Policy Proposal 2:** DAERA is seeking to ensure that its penalty system for non-compliance with the new Farm Sustainability Standards is effective but fair.

3. **Controls and Assurance Policy Proposal 3:** DAERA proposes to make all agricultural land eligible for payment except for hard features (e.g. buildings, yards, laneways, etc.) under future area-based schemes.

2.3.12 Workstream 12 - Metrics, Monitoring and Evaluation

Workstream 12 outlines the future policy proposal relating to metrics, monitoring and evaluation of the programme, as follows:

1. **Metrics, Monitoring and Evaluation Policy Proposal 1:** The high-level overarching metrics proposed for the FAPP are: Net GHG emissions for Northern Ireland agriculture and Land Use Change and Forestry (LUCF); TFP for Northern Ireland Agriculture; Nitrogen and Phosphorus balances; Ammonia emissions from farming; Indicator species; Gross Value added from agriculture and food processing; and Net farm income derived from the market.

Conditions / Design Principles of the Policy Proposal:

- The overarching metrics have been selected to capture the four programme outcomes and provide a means to measure against those.
- Development of the metrics will include establishing baselines and trends and may also require benchmarking with other regions.
- Where possible existing metrics will be used but there is an expectation that new metrics might need to be developed where appropriate metrics do not exist.
- The initial high level crosscutting metrics reflect the four Programme outcomes, however there will be appropriate metrics developed within each workstream going forward with input required from each workstream lead.

2.3.13 Workstream 13 – Environmental Assessments

Workstream 13 comprises the environmental assessments to be undertaken for the draft FAPP, as follows:

- Rural needs considerations;
- Equality considerations;
- Regulatory Impact Assessment (RIA);
- Strategic Environmental Assessment (SEA); and
- Habitat Regulations Assessment (HRA).

This workstream does not outline any policy proposals, and therefore will not be subject to assessment within the SEA process.

2.3.14 Workstream 14 – Horticulture

Workstream 14 outlines the future policy proposals relating to the horticulture sector, as follows:

1. **Horticulture Policy Proposal 1:** A focus on production horticulture, defined as plant propagation and cultivation to produce food / edible crops, ornamental crops and other crops (i.e. those grown for use as pharmaceutical plant products or as plant based ingredients in processed foods).
2. **Horticulture Policy Proposal 2:** Developing programmes through a collective process involving key stakeholders, other government departments and social partners.
3. **Horticulture Policy Proposal 3:** Creating improved supply chain integration through incentivising collaboration and co-operation within the supply chain where fragmentation exists and scale is a supply barrier.
4. **Horticulture Policy Proposal 4:** Assisting in building collaborative partnerships to access Research and Development and Innovation that will benefit production horticulture growers from wherever this is available.
5. **Horticulture Policy Proposal 5:** Providing access to cutting-edge knowledge transfer and innovation support programmes to ensure those working in the industry have the required knowledge and skills to enable them to maximise market opportunities, and deliver the desired outcomes of the Framework.
6. **Horticulture Policy Proposal 6:** Facilitating learning from others through industry/supply chain visits and supporting clusters for shared/peer learning.
7. **Horticulture Policy Proposal 7:** Optimising precision of data used in decision making tools/models through data projects and incentivised high value data collation.
8. **Horticulture Policy Proposal 8:** Supporting businesses transition through knowledge and support for adoption of new technology.

2.4 Scope of the draft FAPP for Northern Ireland

2.4.1 Geographic Extent of the draft FAPP

The draft FAPP is a national level programme for agricultural policy in Northern Ireland. As such, the assessment will primarily focus on the implementation of policies at a national to regional scale, while also having careful regard to any likely significant environmental effects of a transboundary nature to receptors in the Republic of Ireland.

2.4.2 Temporal Extent of the draft FAPP

The draft FAPP is proposed to cover the period from 2023/24 onwards. It is proposed that the FAPP will be reviewed periodically.

3 BASELINE AND ENVIRONMENTAL ISSUES

In line with the SEA Directive, this section describes the environmental baseline for the draft FAPP area. This includes: a description of the state of the environment at present; a discussion of the key problems/issues currently being faced in the area; and a description of the expected evolution of the environment should the FAPP not be implemented, i.e. in the absence of the Programme.

The baseline description focuses in the first instance on Northern Ireland, however given the shared land boundary with the Republic of Ireland, there is potential for environmental effects on water quality, air quality, biodiversity etc. in the Republic of Ireland. As such, the baseline description also includes reference, where relevant, to conditions in the Republic of Ireland.

3.1 Current State of the Environment in Northern Ireland

Northern Ireland's most recent state of the environment review (2013)[15] found the situation to be variable. Air quality shows continuing improvement, while water quality has benefitted significantly from improved control of effluents, and rates of municipal waste recycling have been steadily increasing. Significant challenges remain, however, in reversing biodiversity declines and meeting EU objectives for water bodies, landscapes, habitats and heritage.

The main threats identified in the previous 2008 review, namely climate change, land use, and socio-economic growth, continue to create pressures on the environment in Northern Ireland. These key challenges are outlined below, and their relevance to the FAPP described in **Table 3-1:**

- Economic downturn – The most significant change since 2008 with regards to socio-economic growth has been the economic downturn, which has had impacts on housing, development, energy and resource use and on waste production. The 2008 recession has intensified the need to stimulate growth and to use our resources, such as agricultural lands more efficiently whilst protecting and enhancing our natural environment.
- Living within our limits – Living within our limits relates to the impact of ever-increasing populations on the environment in terms of food production, imports, energy use, and water security. There is an increasing realisation that living within our limits, both economically and environmentally, locally and globally, is now a major challenge.
- Sustainable rural land use – It has been identified that the marine environment, from biodiversity indicators and the status of our waters are under threat. The 2013 State of the Environment report[3] notes the relationship between rural land practices and the water environment, and identifies that a fully integrated approach to management of the land and water environment is needed.
- Climate change – Climate change remains an important issue for Northern Ireland and indeed globally. However recent legislation such as the UK Climate Change Act along with renewable energy policies and increasing energy costs are likely to contribute to already positive advancements.

[15] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

Table 3-1 State of the Environment Key Challenges and Relevance to the draft FAPP

Challenge	Relationship to the draft FAPP
Economic downturn	The agri-food sector includes agriculture, horticulture and food and drinks processing and is Northern Ireland's largest indigenous industry. The economic downturn in 2008 has intensified the need to stimulate growth and to use our resources, such as agricultural lands, more efficiently. As a result, the agri-food sector has continued to report increases in output during the economic downturn and has emerged as a sector with substantial potential for growth, as set out in the Executive Programme for Government 2011-2015. However, managing this growth in a sustainable way continues to be a key challenge for the environment. Improved efficiencies in the agri-food sector adds increasing pressure to the environment from GHG emissions, loss of natural habitats, the use of pesticides and, notably, increased emissions of nutrients into the surrounding environment. The policy proposals outlined in the draft FAPP have potential to significantly influence these factors.
Living within our limits	Ever increasing populations and demand for resources such as land, energy and food are putting pressure on the environment in a global context. The most recent 7th EU Environmental Action Programme 'Living well, within the limits of our planet' sets out the framework for environmental policy making in the EU. This highlights the realisation that the environment has limits, and that in order to manage and maintain ecosystem services and natural capital, there needs to be greater resource efficiency. Agricultural production efficiencies in Northern Ireland must continue to be made but in a sustainable way, with regard to finite resources and to more sustainable emissions. Policy proposals within the draft FAPP aim to make improvements in the efficiency of resource use, and in emissions attributable to the sector.
Sustainable rural land use	Increasing agricultural targets across Northern Ireland has potential to impact on rural landscapes, as changing agricultural practices put increasing pressure on soils through increased risk of erosion, accumulation or leaching of nutrients and changing levels of soil organic matter. Unsustainable rural land practices can also result in negative impacts to the water environment. Policy proposals within the draft FAPP aim to better manage agricultural land use practices, improve soil health and positively affect water quality in receiving environments.
Climate change	Climate change and greenhouse GHG remain an important global issue. Agricultural practices release large quantities of GHGs. In Northern Ireland, although GHG emissions have been decreasing in the period from 1990-2011, intensification of agricultural practices and changes in land use could see increases in emissions if not managed in a sustainable manner. Indeed, climate change is a global issue, and records since the start of the 20th century show that the climate of Northern Ireland is changing. Preparing and adapting to the effects of climate change is therefore a key priority for Northern Ireland. Proposed policies within the draft FAPP seek to implement more sustainable and efficient land and farming practices, and to reduce the contribution of emissions from the sector.

Following on from the key challenges identified, three key principles underpinning the way forward were also listed, and comprise the following:

- Working to achieve **resilient, diverse ecosystems** capable of providing vital services while absorbing pressures and responding to change;
- Valuing and **managing natural resources** to support economic and social prosperity; and
- Protecting the quality of life by **reducing pollution, protecting heritage** and promoting **sustainable land use**.

A summary of the relevant aspects of the current state of the environment in Northern Ireland, as presented in the most recent state of the environment review (2013), and taking into account the most recent Northern Ireland Environmental Statistics Report (2021)[16], has been provided in **Table 3-2.**

Table 3-2 Summary of Current State of the Environment in Northern Ireland

Theme	Key Findings
Air Quality	There are 18 air quality monitoring stations in Northern Ireland. Air quality in Northern Ireland has shown substantial improvement in recent years. The average annual mean concentration of NO_2 across Northern Ireland's urban background sites remained relatively stable between 2011 and 2016, varying between 20 and 23µg/m^3. However, since 2017 the average annual mean concentration of NO_2 has fallen below this level, and was 11.2µg/m^3 across Northern Ireland's urban background sites in 2020. The agriculture sector accounted for the majority of ammonia emissions in Northern Ireland in 2019. Other sources include transport, commercial and domestic combustion and industrial processes. Continued effort is required to reduce air pollution from key sources such as road transport and agriculture. In 2019, of the ammonia emissions from agriculture, 88% came from livestock, 8% from the application of fertilisers containing nitrogen and 4% from the application of other organic materials to land (sewage sludge and digestate). Emissions from livestock have increased by 6.9% since 2001 (from 26.1kt to 27.9kt in 2019). This compares with a 13.7% decrease for the UK as a whole over the same period. Continued effort is required to reduce air pollution from key sources such as road transport and agriculture.
Climate	Since the start of the 20th century records show that the climate in Northern Ireland is changing. In 2019, Northern Ireland's GHG emissions were estimated to be 21.4 $MtCO_2e$, a reduction of 17.9% since 1990. Agriculture, transport and residential were the largest contributing sectors to GHG emissions in Northern Ireland in 2019. The UK Climate Change Act commits the UK to reducing emissions by 100% by 2050 from 1990 baseline levels. In 2019, Northern Ireland's total GHG emissions accounted for 4.7% of the UK total, higher than its population share of 3%.
Water	The overall status of water bodies in Northern Ireland has not significantly changed from that recorded in 2012, but improvements have been identified in water utility discharges and drinking water quality. In 2019, there were 1,754 water incident reports made to the NIEA of which 53.6% were unsubstantiated. Long term seasonal trend analysis shows that the monthly trends in average nitrate concentrations in rivers in Northern Ireland were predominantly decreasing or stable over the 28-year period, 1992-2019, which may be attributed to the measures implemented through the Nitrates Action Programme (NAP).

[16] https://www.daera-ni.gov.uk/sites/files/publications/daera/ni-environmental-statistics-report-2021.pdf

Marine	The majority of Northern Ireland's 650 km of coastline is protected for its special interest, and a number of our coastal species and habitats are recognised as internationally important. Combined indicators for Soluble Reactive Phosphorus (SRP) in rivers and Winter Dissolved Inorganic Nitrogen (DIN) show no change in recent years. However, in January 2014, the Shellfish Waters Directive was subsumed into the Water Framework Directive (WFD), resulting in more stringent *E. coli* standards and a noticeable "drop" in the percentage of designated shellfish waters. Three out of nine designated shellfish water protected areas (SWPAs) complied with the WFD guideline *E. Coli* standard in Shellfish Flesh in 2020.
Land and Landscape	Agri-environment schemes encourage farmers and landowners to manage their land to benefit the environment. At the end of 2020, 47,700 hectares of land in Northern Ireland were under an agri-environment scheme agreement. In Northern Ireland, over 55% of forests and woodlands are state-owned or managed. The NI Environmental Statistics Report 2021, reported that in 2020/21, 283 hectares of new woodland (65 ha conifer and 218ha broadleaf) were planted, and part funded by the European Commission under the 2014 - 2020 Rural Development Programme.
Biodiversity	The Northern Ireland Environmental Statistics Report 2021 reported that in 2020/21, the area of terrestrial protected sites under favourable management in Northern Ireland was recorded as 304.04km^2, which has increased since 2015/16, when just 2.63km^2 were under favourable management. As well as this, between 1994 and 2019, the estimated total wild bird population has increased by 50%, however it should be noted that not all species populations are increasing. The total wetland bird population is estimated to be similar in 2018/19 to what it was in 1994/95.
Built Heritage	The key risks identified to archaeological resources come from agricultural land use and urban activities. In 2019/20, there were a total of 2,008 scheduled historic monuments protected under Article 3 of the Historic Monuments and Archaeological Objects (NI) Order 1995. Overall, there has been a 33% increase in the number of scheduled monuments since 2001/02, reflecting ongoing survey, designation and assessment. The figures provide an indication of this aspect of the rich cultural and built heritage of Northern Ireland, an increasingly important source of "soft power" and an important contributor to the Northern Ireland economy, through attracting tourism and filming.
Waste and Resources	Waste is produced by households, by industrial processes, by the construction and demolition industry, through commercial activities and agricultural practices and by public services and utilities. Waste can affect the environment through its visual impact or by emissions to the air, groundwater and surface water as well as the contamination of land. The Northern Ireland Environmental Statistics Report 2021 notes that The Local Authority Municipal Waste Management Statistics show that the amount of waste sent for energy recovery via incineration has grown exponentially since 2006-07, whilst the proportion of waste sent to landfill has more than halved in the same timescale. Recycling of waste is becoming much more common in Northern Ireland. The revised Northern Ireland Waste Management Strategy (Delivering Resource Efficiency, 2013) proposed to achieve a 50% recycling rate by 2020 for local authority collected municipal waste.

3.2 Current State of the Environment in the Republic of Ireland

A summary of the current assessment and outlook for the Republic of Ireland across five key environmental policy areas, as presented in the most recent State of the Environment report (Ireland's Environment 2020 – An Integrated Assessment[17]), has been provided in **Table 3-3.**

Table 3-3 Summary of Current State of the Environment in the Republic of Ireland

Policy Area	Overall Assessment
Climate	While there has been some progress on renewable energy and ambitious climate action and adaptation plans, the Republic of Ireland's failure to significantly reduce GHG emissions results in a 'very poor' current assessment. Meeting 2030 targets and the 2050 transition objective will require the full implementation of current policies and measures, and significant national investments.
Air	While overall air quality in the Republic of Ireland is good, there are localised issues with some pollutants (such as particulates) that have serious potential health impacts, resulting in an overall current assessment of 'moderate'. The Republic of Ireland is generally meeting EU air quality limits but not some WHO guideline values in places, and nitrogen oxides exceedance in 2019 is a warning about not being complacent in tackling air pollution. The Republic of Ireland is not on track to meet National Emission Ceilings Directive targets for ammonia, owing to emissions from agriculture. There has been mixed progress in reducing overall emissions from transport and energy. Overall, the Republic of Ireland's prospect of meeting targets and policy objectives is heavily dependent on the implementation of agreed national measures.
Nature	Overall current assessment is 'very poor'. Deteriorating trends dominate, especially for protected habitats. In the absence of far-reaching measures, the outlook is largely not on track for meeting policy objectives.
Water	Overall, current assessment is 'poor'. Trends are mixed, with serious declines in pristine river sites. In terms of outlook, significant challenges remain to achieving full compliance and meeting policy objectives.
Waste and Circular Economy	Overall current assessment is 'poor'. While the Republic of Ireland is meeting current targets, recycling rates for municipal waste and packaging have levelled off and in some cases declined. Waste generation remains high and is linked to economic activity, while circular use of material remains very low. Publication of new national waste policy is welcome. Achieving future EU targets and circular economy goals will be dependent on rigorous implementation of waste legislation, policy initiatives and measures.

The report identified the following key challenges for the next decade:

- Halt any further deterioration in our natural environment, while supporting our economy and accommodating our growing population.
- Accelerate action to decarbonise and green our economy and society, so achieving climate neutrality by 2050.
- Protect ourselves against the inevitable consequences of climate disruption.

[17] https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/irelands-environment-2020---an-assessment.php

- Start restoring the precious habitats and water bodies that we have lost.
- Leave space for nature as part of a new approach to biodiversity protection.
- Designate more of our marine area as protected areas.
- Protect air quality by switching to cleaner fuels and energy for transport and heating homes.
- Massively reduce our annual one million tonnes of food waste.
- Foster more sustainable agricultural production and land-use systems and management.
- Invest in essential water services infrastructure that protects drinking water supplies and eliminates discharges of raw sewage.
- Achieve greater efficiency in our production and consumption activities when using raw materials.
- Secure the improvements in our natural environment that we have made through regulation and investment.
- Integrate measures to protect against radon into our built environment.
- Leverage a growing public engagement with environmental issues.
- Act on the highlights identified in 'Ireland's Environment - An Integrated Assessment 2020'. Covering thematic, sectoral and integrated areas, these highlights outline the scale of the challenges to be tackled.

3.3 Environmental Characteristics

This section describes the environmental baseline for Northern Ireland, of relevance to the draft FAPP. The baseline has been divided by topic into the issues requiring assessment under SEA legislation. The purpose of this section is to demonstrate the level of baseline environmental information used when assessing the potential effects of implementing the draft FAPP. This baseline information forms the indicators which the policy proposals within the draft FAPP will have the potential to have an effect upon. Future variation in these indicators owing to implementation of the draft FAPP will be monitored as part of the FAPP and SEA review.

3.3.1 Biodiversity, Flora & Fauna

Biodiversity is the variety of all plants and animals, and the communities that they form. The conservation of biodiversity is important in its own right. Humans are also dependent on biodiversity for the provision of ecosystem services such as clean air and water, food and shelter, as well as for the health and amenity value that the natural environment can provide.

The importance of preserving biodiversity has increasingly been recognised from an international to a local level, and Northern Ireland has legal obligations under International and EU commitments and legislation. The UN Convention on Biological Diversity (1992) is an international legally-binding treaty with three main goals: conservation of biodiversity; sustainable use of biodiversity; and the fair and equitable sharing of the benefits arising from the use of genetic resources. It requires the development of national strategies for the conservation and sustainable use of biological diversity. The most recent biodiversity strategy for the EU (EU Biodiversity Strategy to 2030) was published in 2020. It aims to put Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet, and to build societies' resilience to future threats such as climate change impacts, forest fires, food insecurity and disease outbreaks. The Strategy contains specific commitments and actions to be delivered by 2030.

The most recent Biodiversity Strategy for Northern Ireland, "Valuing Nature", was published by DAERA in 2015 and covered the period up to 2020. This set out how Northern Ireland planned to meet its international obligations and local targets to protect biodiversity, and to ensure that the environment could continue to support the population and economy of Northern Ireland. Its overall mission was "To make progress towards halting overall biodiversity loss, establish an ecosystem approach and help business and society in general have a greater understanding of the benefits that nature can bring to everyday life in Northern Ireland".

The draft FAPP must also have regard for the Habitats Directive and the Birds Directive, as transposed through the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, which require that any plan or project not directly connected with or necessary to the management of a European site but likely to have a significant effect on such a site, must undergo an appropriate assessment in view of best scientific knowledge and in view of the conservation objectives of the site. The draft FAPP falls under this remit, and an Appropriate Assessment is being undertaken in parallel to the SEA process, to assess the potential implications of the FAPP for European Sites.

It is considered that the key issues associated with implementation of the draft FAPP and Biodiversity, Flora and Fauna comprise:

- Potential for effects on protected areas, including those of international (SACs, SPAs, Ramsar Sites), National (ASSIs, NNRs) and local (SLNCI) importance;
- Potential for protection and enhancement of biodiversity at a national, regional and local level;
- Potential for effects on protected and priority habitats and species;
- Potential for effects on habitats sensitive to atmospheric pollution (e.g. peatlands);
- Potential for habitat loss, fragmentation or deterioration (temporary or permanent); and
- Potential for effects on water-dependent habitats and species (including effects on freshwater pearl mussel, salmonids, and other protected fish and shellfish species).

3.3.1.1 Designated Sites

3.3.1.1.1 Overview of Designated Sites

There are a wide variety of natural habitats and species within Northern Ireland. The NIEA has compiled a list of those habitats and species considered to be priority, on the basis of their listing as a UK Priority Habitat[18] / Species[19] or importance in an all-Ireland context, and current downward trends; the most recent lists comprise 51 Northern Ireland Priority Habitats, and 481 species.

Sites have been designated in order to provide protection to those habitats and species considered to be of particular conservation value. These include features whose conservation is considered to be of importance at a European level, for which 59 Special Areas of Conservation (SACs), 16 Special Protection Areas (SPAs), and 20 Ramsar Sites have been designated to date. Northern Ireland has 49 habitats listed in Annex I of the Habitats Directive, of which 13 are considered to be priority habitats at a European level, and 18 species listed in Annex II of the Directive.

At a National level, 394 Areas of Special Scientific Interest (ASSIs) and 50 statutory Nature Reserves have been designated to provide protection to features considered to be of national importance, while 728 sites have been designated for their importance at a more local level. These designated sites in Northern Ireland are detailed in **Table 3-4** and their locations shown in **Figure 3-1.**

[18] https://www.daera-ni.gov.uk/publications/northern-ireland-list-priority-habitats

[19] https://www.daera-ni.gov.uk/articles/northern-ireland-priority-species

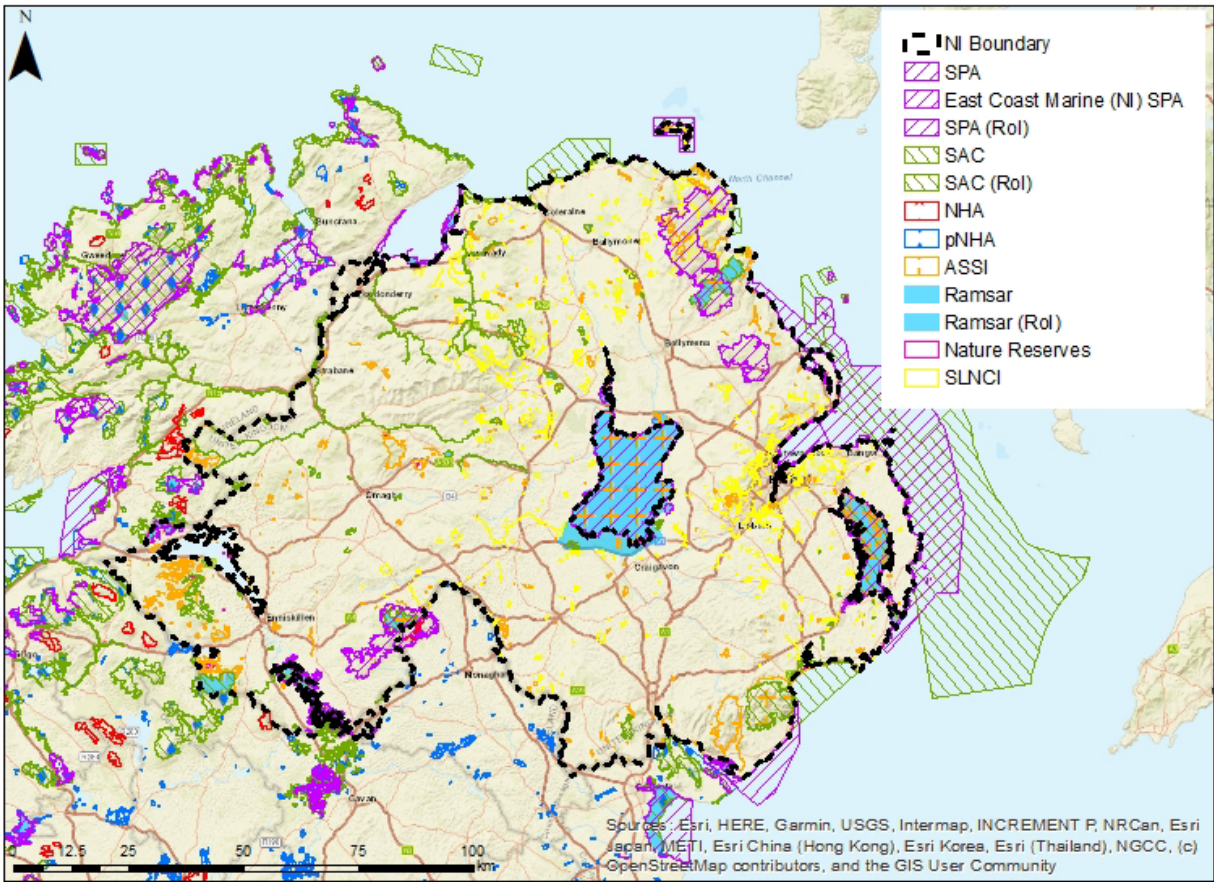

Figure 3-1 Designated sites across Northern Ireland and the border regions with the Republic of Ireland

Sites have also been designated for nature conservation within the Republic of Ireland. Some sites within the Republic of Ireland extend into Northern Ireland, and others are in close proximity; there is therefore potential for transboundary effects on these sites from implementation of the draft FAPP. There are 94 SACs, 46 SPAs, 36 Natural Heritage Areas (NHAs) and 249 proposed Natural Heritage Areas (pNHAs) in the Republic of Ireland within 15km of the border with Northern Ireland, as shown in **Figure 3-1.**

Table 3-4 Number and type of sites designated for conservation of Biodiversity, Flora and Fauna in NI

Site Designation	Description	Number
Special Areas of Conservation (SACs)	Existing SACs in Northern Ireland were designated in accordance with the Habitats Directive (92/43/EEC) for the conservation of certain habitats and species while SPAs were designated under the EU Directive on the Conservation of Wild Birds (EC/79/409), "The Birds Directive", as areas that are important for breeding, feeding, wintering or migration of rare and vulnerable bird species. Together these formed part of the Natura 2000 network of protected sites. Following the UK's exit from the EU, there is now a UK National Site Network of European sites, comprising existing designated sites and any further sites designated under the Habitats Regulations. SACs and SPAs in the Republic of Ireland remain part of the Natura 2000 site network.	59
Special Protection Areas (SPAs)		16
Ramsar Sites	Ramsar sites are designated under the "Ramsar Convention" (Ramsar Convention on Wetlands of International Importance	20

	especially as Waterfowl Habitat, Iran 1971), an international treaty for the conservation and sustainable use of wetlands.	
Areas of Special Scientific Interest (ASSIs)	Areas of Special Scientific Interest (ASSI) are protected under the Environment (Northern Ireland) Order 2002. This requires the NIEA to designate land as an ASSI that it considers to be of special scientific interest, owing to the flora or fauna present, or the presence of geological features	394
National Nature Reserves	Statutory Nature Reserves are areas of importance for flora, fauna, geological or other special features for conservation purposes and to provide the opportunity for research. They are designated under the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985.	50
Sites of Local Nature Conservation Importance (SLNCIs)	Each council area in Northern Ireland reports on locally important sensitive or valued habitats through the production of Local Biodiversity Action Plans (LBAPs). These Plans outline the areas of importance for natural heritage reasons within the council area, guiding development policy and potential enhancement of local biodiversity. These are known as SLNCIs.	728

3.3.1.1.2 Status and Trends for Sites Designated at a European Level

Article 17 of the Habitats Directive requires that, every six years, all EU Member States report on the implementation of the Directive, including on the conservation status of habitats and species (informally known as the Article 17 report). The 4th UK Habitats Directive Report was submitted to the European Commission in August 2019, and included a General Implementation Report, Habitat Reports and Species Reports. These outlined any changes in designated habitats and species, for the UK as a whole, in the period 2013-2018[20].

The status of designated habitats, as summarised from the 2019 reports is as follows:

- For 6 habitats, the overall conservation status was “Favourable”;
- For 8 habitats, the overall conservation status was “Inadequate”;
- For 62 habitats, the overall conservation status was “Bad”; and
- For 1 habitat, the overall conservation status was “Unknown”.

Of these, 22 habitats showed improvement in overall conservation status, 29 habitats showed no change, 22 habitats showed a decline, and 4 were uncertain in comparison with the results of the 3rd UK Habitats Directive Report. Northern Ireland’s supporting documentation for the conservation status assessment of each habitat was examined to gain insight into which of these included pressures or threats that related to agricultural activities. Of the 48 habitats for which specific supporting documentation for Northern Ireland was available, 44 assessments included at least one pressure or threat relating to agricultural activities. These included activities relating to water pollution and degradation, air pollution, and land use including grazing practices, fertiliser application or land drainage.

The status of designated species, as summarised from the 2019 reports is as follows:

- For 33 species, the overall conservation status was “Favourable”;
- For 24 species, the overall conservation status was “Inadequate”;
- For 16 species, the overall conservation status was “Bad”; and

[20] https://jncc.gov.uk/our-work/article-17-habitats-directive-report-2019-habitats/

- For 20 species, the overall conservation status was “Unknown”.

Of these, 9 species showed improvement in overall conservation status, 47 showed no change, 12 showed decline and 25 were uncertain in comparison with the results of the 3rd UK Habitats Directive Report. Northern Ireland’s supporting documentation for the conservation status assessment of each species was examined; of the 26 species for which specific supporting documentation for Northern Ireland was available, 24 assessments included at least one pressure or threat relating to agricultural activities. These included activities relating to agricultural land management practices (including grazing practices, removal of small structures used by bat species, and pest control methods), pollution of surface, ground or marine waters, and air pollution arising from mixed sources.

Article 12 of the Birds Directive requires that, every six years, all EU Member States report on the implementation of the Directive. The 11th UK Report for Article 12 of the EU Birds Directive was submitted to the European Commission in October 2019. The report format includes both a General Report on the implementation of the Directive (Annex A), and a Bird Species Status and Trends Report containing individual assessments for all relevant bird species (Annex B).

Following the UK’s exit from the EU, reporting to the European Commission will no longer be required, however DAERA will report periodically every 6 years following exit from the EU. The first of these reports is due in 2026.

3.3.1.1.3 Status and Trends for Sites Designated at a National Level

Northern Ireland launched its first State of the Environment Report in 2008, containing 30 indicators that were designed to assist future comparison and measurement of the changing environment. The last full State of the Environment Report for Northern Ireland was published in 2013 and, in the interim period, the NIEA has published annually a Northern Ireland Environmental Statistics Report, providing annual reports on a range of environmental indicators. The most recent report is for 2021[21], and Section 5 provides key information regarding the current status of biodiversity indicators in Northern Ireland.

Monitoring of the condition of features within ASSIs for the six year rolling period ending March 2020 indicated that:

- 61% of features were in a Favourable condition; and
- 36% of features were in an Unfavourable condition.

When this is partitioned into the biological and earth science features assessed, 54% of biological features were in favourable condition, compared to 97% of earth science features in favourable condition, reflecting the greater pressures on the natural environment.

These results remain very similar to the previous 10 years of reporting. NIEA is aiming to achieve favourable condition for a much higher proportion of the ASSI network, and there is now a focus on improving the overall condition of sites towards “favourable conservation status (FCS)” through effective land management to support recovery of the special features within the site. The Environmental Statistics Report 2021 states that, in 2020/2021, the area of terrestrial protected sites under favourable management in NI was 304.04km^2, a significant increase since the baseline year for reporting (2015/2016) when just 2.63km^2 of terrestrial sites were under favourable management. This is due to the implementation of various environmental management agreements such as the Environmental Farming Scheme (EFS).

The area of marine protected sites under favourable management in 2019/20 was recorded as 115km^2, which has increased since the baseline year for Programme for Government (PfG) reporting (2015/16) when 83.62km^2 of marine protected sites were under favourable management. The focus between 2018 and 2022 is on bringing the protected area network into favourable management, through identification and introduction of necessary management measures for marine protected areas.

[21] https://www.daera-ni.gov.uk/publications/northern-ireland-environmental-statistics-report-2021

3.3.1.2 Water-Dependent Habitats and Species at Risk of Water Pollution

The WFD (2000/60/EC), transposed in Northern Ireland through The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017, required Member States to develop a Register of Protected Areas comprising lands that have been designated as requiring special protection under specific Community legislation for protection of surface water or groundwater, or for conservation of habitats and/or species that depend upon water. These components, which had to be established for each River Basin District (RBD), are outlined in Annex IV of the WFD, and include sites that are used for water abstraction, those designated for salmonids, those designated for bathing, those designated for shellfish production, nutrient sensitive areas, and those designated "for the conservation of habitats and species directly depending on water". The Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 ensure that the WFD (as transposed) and the various supporting pieces of water legislation continue to operate in Northern Ireland after 1 January 2021.

3.3.1.2.1 Water-dependent European Sites

Where a European site (SAC or SPA) lies within a water body, the WFD status objectives apply in addition to the requirement to maintain the site at favourable conservation status or restore it to that status. **Table 3-5** details the surface water-dependent European sites within the North Eastern, North Western and Neagh Bann RBDs. For the draft 3rd cycle RBMP 2021-2027[22], a total of 27 water-dependent European sites were identified for the North Western RBD. Of these, 81% are currently in unfavourable, and for 30% of sites this is due, at least in part, to pressures from the water environment. In the Neagh Bann RBD there were 24 water-dependent European sites; of these 75% are currently in unfavourable condition, and for 25% this relates to water pressures. A total of 25 water-dependent European sites were identified for the North Eastern RBD, of which 56% are currently in unfavourable condition, with 12% of sites due to water pressures.

For Northern Ireland as a whole, 71% of water-dependent European sites are currently in unfavourable conservation condition (i.e. failing to meet their conservation objectives), however these failures relate to pressures from the water environment in 23% of sites.

Table 3-5 Surface water-dependent European Sites in unfavourable condition owing to pressures from the water environment.

	NWRBD		NBRBD		NERBD		Northern Ireland	
	No.	%	No.	%	No.	%	No.	%
Number of sites	27	100	24	100	25	100	66*	100
Number of sites in unfavourable condition	22	81	18	75	14	56	47	71
Number of sites in unfavourable condition due to pressures from the water environment	8	30	6	25	3	12	15	23

*Note: some protected sites straddle more than one RBD, hence the NI total does not equal the sum of the RBDs.

Northern Ireland's Article 17 supporting documentation for the conservation status assessment of features at these sites not meeting conservation objectives was examined in order to elucidate any pressures or threats specified as relating to water pollution from agricultural activities. In many cases, agricultural or mixed source

[22] https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF

pollution, as well as drainage and abstractions for agricultural purposes, were listed as pressures or threats of high importance for these habitats or species, as shown in **Table 3-6.**

Table 3-6 Article 17 Assessment of water-related pressures or threats from agriculture

Feature(s) not meeting conservation objectives	NI Article 17 Assessment of Water-Related Pressures or Threats
Transition Mires and quaking bogs	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water or agriculture**; Drainage for use as agricultural land**.
Alkaline fens	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water or agriculture**; Drainage for use as agricultural land**.
Active raised bogs	Drainage for use as agricultural land**
Degraded raised bogs	
Blanket bogs	
Humid dune slacks;	Agricultural activities generating diffuse pollution to surface or ground waters**; Active abstractions from groundwater, surface water or mixed water for agriculture**.
Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*,;	Agricultural activities generating diffuse pollution and point source pollution to surface or ground waters*; Active abstractions from groundwater, surface water or mixed water for agriculture**; Drainage for use as agricultural land**.
Turloughs	Agricultural activities generating point source pollution and diffuse source pollution to surface or groundwaters*.
Water course *Ranunculion fluitantis* and *Callitricho-Batrachion*	Mixed source pollution to surface and ground waters (limnic and terrestrial)**.
White-clawed crayfish	
Mesotrophic lough	Mixed source pollution to surface and ground waters (limnic and terrestrial)*.
Marl lakes	
Alluvial forests	
Eutrophic standing waters	
Freshwater Pearl Mussel	Agricultural activities generating diffuse pollution to surface or ground waters**; Mixed source pollution to surface and ground waters (limnic and terrestrial)**.
Fixed dunes with herbaceous vegetation	None listed.
Marsh fritillary butterfly;	
Petalwort	

*High ranking pressure; **Medium ranking pressure

3.3.1.2.2 Freshwater Pearl Mussel

The freshwater pearl mussel, *Margaritifera margaritifera*, is a large bivalve mollusc that lives in the bed of rivers and streams. It is highly sensitive to changes in water quality, particularly concerning nutrient pollution and sediment loading. In Northern Ireland, the species formerly occurred widely in several catchments, with past records existing for 11 rivers from which no recent records have been obtained. Freshwater pearl mussel populations are now only found in 6 rivers in Northern Ireland (**Figure 3-2**), the Owenkillew River, Cladagh / Swanlibar River, upper Ballinderry River, Owenreagh River and Tempo River. The Owenkillew, Cladagh / Swanlibar and Upper Ballinderry Rivers are designated as SACs, while the Owenreagh and Tempo Rivers are designated as ASSIs.

A Species Action Plan for freshwater pearl mussel in Northern Ireland was published in 2005[23], which outlined the status of populations at that time, factors contributing to loss or decline of the species, and both current and proposed actions to protect the species. This indicated that the species had undergone a large decline in absolute numbers and range but, in at least three rivers, over one million individuals remained. However, populations were characterised by an ageing cohort, with little or no recent recruitment.

Article 17 reporting for the UK as a whole, in the period 2013-2018 indicates that freshwater pearl mussel is currently at 'Unfavourable-Bad' conservation status[24]. Northern Ireland's supporting documentation for the conservation status assessment of the species[25] states that the area and quality of occupied/unoccupied habitat is not sufficient to maintain the species at Favourable Conservation Status, and that the lack of juvenile recruitment and an ageing population is expected to lead to the future extinction of the species from Northern Ireland, unless a significant improvement of their habitat conditions occurs.

Owing to the sensitivity of the species, pressures and threats relating to water quality are of great importance. The following are listed as pressures / threats of high ranking importance for the species in Northern Ireland:

- Agricultural activities generating diffuse pollution to surface or ground waters;
- Forestry activities generating pollution to surface or ground waters;
- Mixed source pollution to surface and ground waters (limnic and terrestrial);
- Modification of hydrological flow; and
- Physical alternation of water bodies.

3.3.1.2.3 Areas Designated to Protect Economically Significant Aquatic Species

Shellfish water protected areas (**Figure 3-2**) are areas designated for the protection of shellfish growth and production. Good water quality within these areas is important for the production of high quality shellfish. Both the Shellfish Directive (79/923/EEC) and Freshwater Fish Directive (78/659/EEC) were revoked in 2013, and subsumed into the WFD. Areas previously designated under these Directives are now areas designated for the protection of economically significant aquatic species under the WFD, and listed on the Protected Areas register. Further information on the current status of shellfish water protected areas is given in Section 3.3.2 Population and Human Health.

Within the North Eastern RBD, 662km of rivers, 5.5km^2 of canals and 2km^2 of lakes are designated for fish[26]. In the North Western RBD, there are 1681km of rivers and 149km^2 of lakes designated for fish[27]. In the Neagh

[23] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/Natural-plan-species-action-freshwater-pearl-mussel.pdf

[24] https://jncc.gov.uk/our-work/article-17-habitats-directive-report-2019-habitats/

[25] https://jncc.gov.uk/jncc-assets/Art17/S1029-NI-Habitats-Directive-Art17-2019.pdf

[26] https://www.daera-ni.gov.uk/publications/north-eastern-river-basin-management-plan-2015-2021

[27] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/water-report-north-western-river-basin-plan-2015.pdf

Bann RBD, there are 1936km of rivers, 43km of canals and 292km^2 of lakes designated for fish[28]. In Northern Ireland as a whole, 20 lakes and 413 rivers have been designated as salmonid waters (**Figure 3-2**).

In addition to designated species, fish species in general can be significantly affected by changes in water quality and sedimentation, particularly in spawning and nursery areas, as well as by changes in the hydrology of surface water bodies, including those that may affect the passage of migratory species.

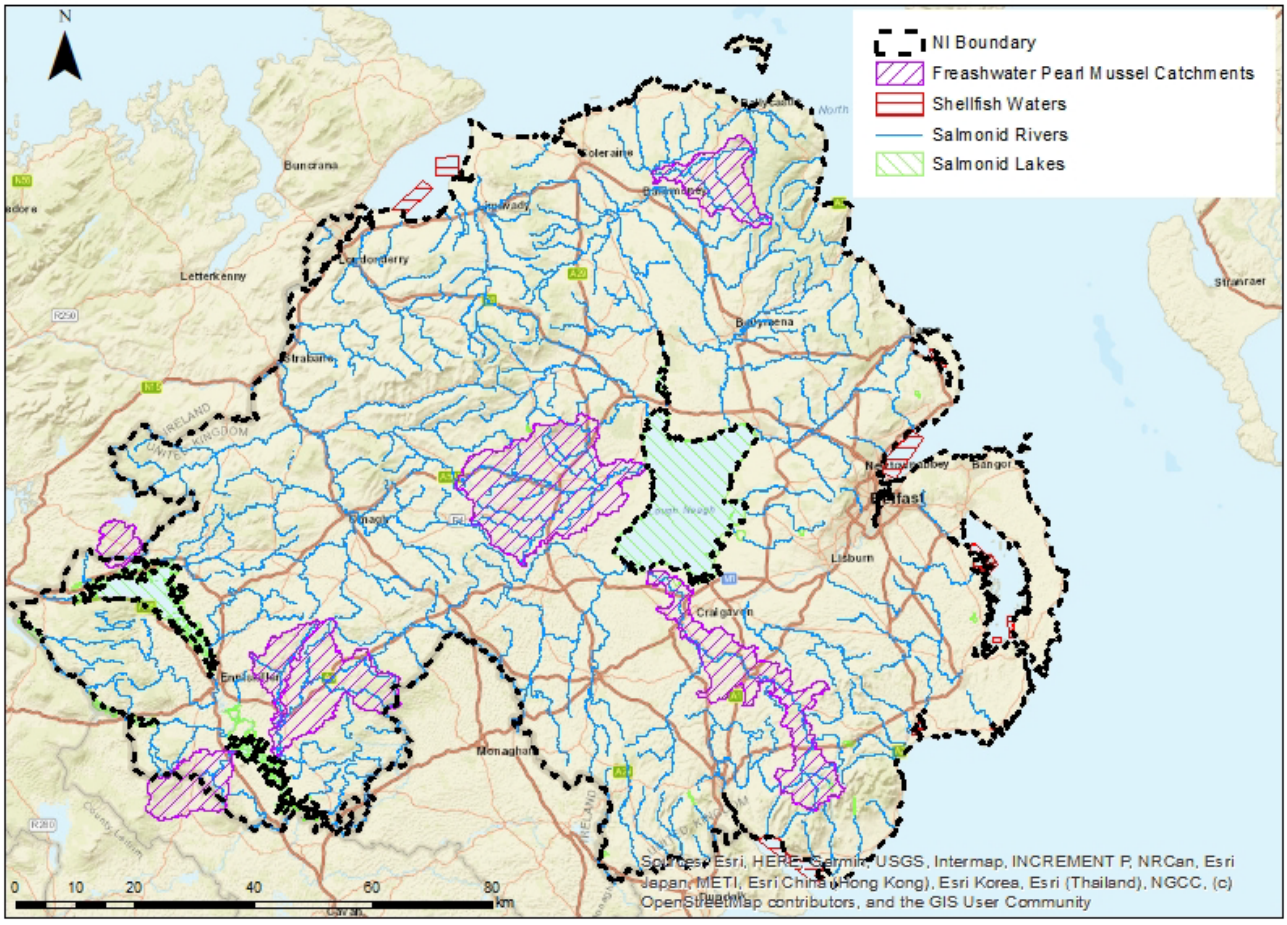

Figure 3-2 Designated Freshwater Pearl Mussel sites, Shellfish Waters and Salmonid waters across Northern Ireland

3.3.1.3 Habitats Sensitive to Atmospheric Pollution

Discussion of designated habitats that are sensitive to atmospheric pollution, and their current status is given in Section 3.3.5 Air Quality and Climatic Factors.

[28] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/water-report-neagh-bann-river-basin-plan-2015.pdf

3.3.1.4 Summary of Existing Pressures and Issues for Biodiversity, Flora and Fauna in Northern Ireland

Despite an increase in actions to halt biodiversity loss, many elements of biodiversity in Northern Ireland are continuing to show declines[29]. Impacts of human activities, particularly land use change associated with agriculture and development, pollution and fisheries (particularly in the marine environment) are key pressures affecting biodiversity in Northern Ireland. Invasive non-native species are also a significant threat to native biodiversity. Development such as housing and infrastructure associated with population growth has contributed to a loss of terrestrial and freshwater habitats, with over 40,000 hectares of countryside lost through urban development since the 1950s. Land use change to support agricultural practices has included land reclamation, drainage, increased production and stocking rates, and subsequent impacts on water and air quality.

Priority habitats, and particularly grassland habitats, in Northern Ireland have shown an overall decline since 2000, while a significant number of priority species such as breeding waders are also showing declines[14]. The latest UK Article 17 reporting for habitats and species protected at a European level found that only 6% of habitats and 35% of species are currently at a favourable conservation condition, and that 22 habitats and 12 species showed a decline in condition since the previous reporting period. Of the habitats and species for which condition assessments specific to Northern Ireland were available, 92% of both included at least one pressure/threat that related to agriculture, including land management practices, water pollution and air pollution. Monitoring of features within nationally protected sites has shown that just 55% of biological features are in a favourable condition.

Implementation of the draft FAPP, and policy proposals therein, has the potential to lead to positive or negative effects on biodiversity in Northern Ireland alone, or in combination with, these existing pressures. There is potential for positive or negative effects on habitats and species at a local, regional or national level, through both direct and indirect pathways. This includes the potential for positive or negative effects on the condition of habitats and species protected at a national and international level. Policies that make changes to land management within agricultural land holdings have potential implications on regional habitat connectivity. Owing to the recognised importance of the contribution of the agriculture sector to nutrient pollution of water bodies and emissions to air, there is also significant potential for positive or negative effects of policy proposals within the draft FAPP on biodiversity that may be affected via these pathways, i.e. water-dependent habitats and species, or habitats and species sensitive to atmospheric pollutants.

3.3.2 Population & Human Health

Population and human health considers the presence and wellbeing of people, and their activities and use of receiving environments. Population size, growth predictions and distribution within an area can indicate both the potential pressures that people may exert on resources and infrastructure, and the potential to which they may be exposed to pollution or other risks. Health of a population can be negatively affected through a number of direct and indirect pathways, the most common of which, and of most relevance to the draft FAPP, being through emissions to water and air.

[29] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

It is considered that the key issues associated with implementation of the draft FAPP and Population and Human Health comprise:

- Potential for effects on water quality (drinking and recreational);
- Requirement to protect water bodies identified for current / future drinking water abstractions;
- Potential effects on food quality (commercial aquatic species);
- Potential effects on air quality; and
- Potential risks from biohazards.

3.3.2.1 Population Demographics for Northern Ireland

The total population of Northern Ireland in 2020 was approximately 1.90 million people[30], and is predicted to increase to approximately 1.99 million individuals by 2043[31]. Population growth has been positive for the past 25 years, and over the decade from mid-2010 to mid-2020 increased at an annual growth rate of 0.5%. The period from mid-2019 to mid-2020 showed the lowest level in population growth in over 20 years, at 0.1%, influenced by the COVID-19 pandemic and the EU Exit and their effects on the death rate and net migration[14].

The population density of Northern Ireland in 2020 was 139.8 people per km^2, varying across the Local Government Districts, and with a more dispersed population in rural areas. Rural populations in Northern Ireland are defined by their distance to Belfast, as the largest urban centre, as this tends to govern the type of rural land use that occurs as well as access to urban employment and to various services. The population of Northern Ireland estimated to be living in urban and rural areas in 2019 is shown in **Table 3-7.**

Table 3-7 Northern Ireland population in Urban and Rural Areas, 2019

Urban / Rural	No. People	% of total
Urban	1,128,725	60%
Rural <= 60 mins from Belfast	432,334	23%
Rural > 60 mins from Belfast	244,687	13%
Mixed urban / rural	87,945	5%

In 2017-2019, life expectancy at birth was 78.8 years for men and 82.6 for women living in Northern Ireland[32], an increase from 69 and 76, respectively, since the base reporting period of 1980-1982. Northern Ireland has an ageing population, with 16.9% aged over 65 years, and it is projected that the over 65 year population will be larger than the number of children (0-15 years) from mid-2028 onwards[33]. The primary causes of death for

[30] https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-Bulletin.pdf

[31] https://www.nisra.gov.uk/statistics/births-deaths-and-marriages/registrar-general-annual-report

[32] https://www.health-ni.gov.uk/news/life-expectancy-northern-ireland-2017-19

[33] https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/MYE20-Bulletin.pdf

people in Northern Ireland in 2019 were cancer (28.4%, most commonly in the lung) and circulatory (23.4%), followed by respiratory (12.5%), Alzheimer's / dementias (12.3%) and other causes (17.5%)[34].

3.3.2.2 Air Pollution and Health Risk

Good air quality is essential for human health and wellbeing. Air pollution generally, and particularly that arising from the transport sector, is recognised as a significant health burden in terms of illness and premature death. Nitrogen dioxide (NO_2) belongs to a group of gaseous air pollutants that are produced by road traffic and other forms of fossil fuel combustion. This can be a lung irritant, and can lower resistance to respiratory infections such as influenza; frequent or continuous exposure to high concentrations can result in increased incidence of acute respiratory illness in children[35]. Particulate matter in the atmosphere that has a diameter of ≤10 microns (PM_{10}) originate from both natural and man-made sources; in urban locations the majority of particulate matter in the air originates from road transport and fossil fuel combustion. Fine particles can cause lung inflammation, and can exacerbate symptoms of heart and lung disease, as well as potentially transmitting carcinogenic compounds.

Agriculture is a significant source of the greenhouse gas methane, as well as air pollutant emissions of particulate matter and reduced nitrogen. The contribution of the agricultural sector to air pollution in Northern Ireland is detailed further in Section 3.3.5. Ammonia can react with fumes from traffic and industry to produce particulates. A recent study in the journal Nature[36] that singled out the various outdoor pollution sources and estimated the number of premature deaths caused by each, found that agricultural emissions of ammonia were responsible for a fifth of all global premature deaths related to air pollution and were the largest cause of air pollution deaths in the eastern US, Japan and Europe.

3.3.2.3 Water Pollution and Health Risk

3.3.2.3.1 Drinking Water Quality

The availability of a clean water supply is essential for the general health of the population of Northern Ireland. **Figure 3-3** illustrates waterbodies designated for drinking water across Northern Ireland. Contaminants that can have an negative effect on human health arise from biological sources (e.g. *Cryptosporidium*, verotoxigenic *E. coli* [VTEC]) and also from chemical sources (e.g. from pesticides, herbicides, fertiliser, heavy metals, total trihalomethanes [THMs], pharmaceuticals).

Incidents of water pollution are investigated by NIEA; in 2019, there were 1,754 water pollution incidents, of which 53.6% were confirmed as having an impact on the receiving water quality, 17% of these as medium or high severity of impact[37]. The total number of confirmed incidences in 2019 was 39% lower than the annual average recorded in the period 2001-2003. Farming accounted for the greatest proportion of incidences in 2019 (36.5%), followed by industry (17.4%), other (17.1%), domestic (16%), Northern Ireland Water Limited (NI Water) (10.7%) and transport (2.3%).

In Northern Ireland, over 99% of the population receive their drinking water from NI Water, with the remainder served by private water supplies. Quality compliance of drinking water is assessed against the EU Directive on Drinking Water Quality 98/83/EC, as enacted nationally through the Water Supply (Water Quality) Regulations (NI) 2017 and the Private Water Supplies Regulations (NI) 2017.

Drinking Water Protected Areas

Drinking Water Protected Areas (DWPAs) are designated under Article 8 of The Water Environment (WFD) Regulations (NI) 2017, with the aim of protecting the safety of drinking water supplies and reducing the need for additional treatments. There are 26 surface water DWPAs and 65 groundwater DWPAs in Northern Ireland.

[34] https://www.nisra.gov.uk/statistics/births-deaths-and-marriages/registrar-general-annual-report

[35] https://www.daera-ni.gov.uk/publications/northern-ireland-environmental-statistics-report-2020

[36] https://www.nature.com/articles/nature15371

[37] https://www.daera-ni.gov.uk/sites/files/publications/daera/ni-environmental-statistics-report-2021.pdf

Surface water DWPAs are related to the surface water catchments that provide a supply of freshwater to the intakes of the public drinking water supplier NI Water. The draft 3rd cycle RBMP for Northern Ireland updates the status of DWPAs, as summarised in **Table 3-8.** This indicates that 92% of groundwater DWPAs are currently at good status, and 8% at poor status. For surface water DWPAs, 57.7% of sites (15 out of 26) at least one parameter that exceeded the drinking water standard in the raw (i.e. pre-treatment by NI Water) water intake during the 2nd cycle.

Table 3-8 Summary of the status of DWPAs in Northern Ireland

	NWRBD		NBRBD		NERBD		Northern Ireland	
	No.	%	No.	%	No.	%	No.	%
Total groundwater DWPA	42	100	13	100	10	100	65	100
Groundwater DWPA at good status	41	98	11	85	8	80	60	92
Groundwater DWPA at poor status	1	2	2	15	2	20	5	8
Total Surface water DWPA	10	100	8	100	8	100	26	100
Surface water DWPA passing	4	40	1	12.5	6	75	11	42.3
Surface water DWPA failing for at least one parameter	6	60	7	875	2	25	15	57.7

Quality of Public Water Supplies

Approximately 863,000 domestic, agricultural, commercial and business properties in Northern Ireland are currently connected to the public water supply, equating to *c*.99.9% of the total population. The overall drinking water compliance of public water supplies in 2020 was consistently high at 99.94%[38], a slight increase from that reported in 2019 (99.90%). There were 59 tests that failed to meet the required standard. Surrogate compliance level at consumer's taps (measured through zonal sampling in 2020) was also high at 99.91%, however 9 of the 43 regulatory parameters did not achieve full compliance; nickel, aluminium, iron, *Clostridium perfringens*, *Enterococci*, taste, odour, coliform bacteria, and pesticides – individual (MCPA).

Microbiological contaminants are the most important parameters in terms of their implications for human health. A breach of compliance with microbiological standards can indicate a failure in the water treatment process, or breach in integrity of the water supply. Microbiological compliance at consumer's taps was 99.94% in 2020; *Coliform* bacteria were detected in four samples, and *Clostridium perfringens* and *Enterococci* both detected in one sample each. NI Water reported 38 water quality events in 2020, one categorised as Major, three as Serious, 24 as Significant, three as Minor and seven as Not Significant. The Major event related to the impact of the Covid-19 pandemic on NI Water, and ensuring that regulatory monitoring was fulfilled as far as possible. Of the three serious events, one related to chlorinous taste and odour following overdosing of chlorine at Fofanny Water Treatment Works (WTW), one to very high network demand in May / June 2020 and the other one to discoloured water following an issue at High Tober Service Reservoir. Nineteen of the 24 Significant events reported related to ten water treatment works and were primarily related to difficulties with the treatment process or a lack of effective treatment relating to aluminium, Cryptosporidium, individual

[38] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Drinking%20Water%20Quality%20in%20Northern%20Ireland%2C%202020%20-%20FINAL.PDF

pesticides (MCPA), iron, odour and taste, and turbidity contraventions. When a water quality event occurs, NI Water must implement mitigations, which should reduce the likelihood of significant future events.

Quality of Private Water Supplies

Less than 1% of the Northern Ireland population receive water from a private supply for domestic purposes, however many people are exposed to these sources through their use in commercial activities and public buildings[15]. The Drinking Water Inspectorate (DWI) monitored 175 sites in their private water supply sampling programme in 2020. Overall compliance of samples with water quality standards was 99.24% in 2020, a slight decrease from 2019 (99.29%); regulatory requirements were not achieved on 114 occasions for 21 water quality parameters: *Coliform* bacteria, *Enterococci*, *E. coli*, *Clostridium perfringens*, Hydrogen ion (pH), Manganese, Sodium, Iron, Nickel, Boron, Turbidity, Copper, Lead, Sulphate, total Trihalomethanes (THMs), Mercury, Nitrite, Fluoride, Chloride, Individual Pesticides (total Atrazine, Metribuzin and Phenanthrene), and Radon. Full compliance was achieved for only 64% of the private water supplies tested in 2020; of the 63 sites that did not comply with the regulatory standards, 33% did not comply with microbiological standards, 54% with chemical standards, and 13% with both microbiological and chemical standards.

The presence of micro-organisms in a private water supply is indicative of contamination of the water at source or within the distribution system. The presence of *E.coli* or *enterococci* bacteria indicates faecal contamination of the water supply, which can be a public health risk; faecal contaminants were found in twelve private water supplies in 2020. Three pesticide contraventions were detected at private supplies in 2020, one each for Altrazine, Phenanthrene and Metribuzin. The DWI investigates all contraventions at private water supplies, with subsequent actions dependent on the severity of the failure and level of risk.

3.3.2.3.2 Economically Significant Aquatic Species Protected Areas (Shellfish Areas)

Shellfish water protected areas (SWPAs) are areas designated for the protection of shellfish growth and production. Good water quality within these areas is important for the production of high quality shellfish. The Shellfish Directive (79/923/EEC) was revoked in 2013, and subsumed into the WFD under Regulation 9 of the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. Areas previously designated under this Directive are now areas designated for the protection of economically significant aquatic species under the WFD, and listed on the Protected Areas register. All SWPAs must be managed to ensure that they meet ecological and chemical objectives under the WFD. They must also meet at least Class B status classification by the Food Standards Agency (FSA) under the Food Hygiene Regulations, to ensure that the quality of shellfish harvested are sufficient to protect public health. SWPAs must also make progress to meet a WFD microbiological guideline standard of ≥75%of samples containing ≤230 *E.coli* in the shellfish flesh and intervalvular liquid[39].

There are currently 10 shellfish water protected areas in Northern Ireland (**Figure 3-2**), as detailed in **Table 3-9.** Shellfish Action Plans have been established for these sites, and will be next reviewed in 2021 in line with the third river basin cycle under the WFD. SWPAs are managed by DAERA's Marine and Fisheries Division to ensure no deterioration in water quality, and that progress is made towards compliance with guideline standards. **Table 3-9** outlines the most recent status of these sites, as given in the 2019 Shellfish Action Plans[40]. A total of 2 out of 9 (22%) designated shellfish waters complied with the guideline *E.coli* standard in 2019[41]. Only one site has consistently met the guideline standard over the past six years, while four sites have met the guideline standard at least once, and four sites have not met this standard in any year. The draft 3rd cycle RBMP for 2021-2027 indicates the status of surface water bodies associated with these sites; according to the surface water classification for 2018, three surface water bodies had 'good' surface water status, while seven were at 'moderate' or 'moderate ecological potential' status.

[39] https://www.legislation.gov.uk/nisr/2015/351/contents/made

[40] https://www.daera-ni.gov.uk/publications/shellfish-action-plans-2019

[41] https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF

Table 3-9 Location and Status of Shellfish Water Protected Areas in Northern Ireland

Site Name	WFD Status 2018	WFD Target 2021	FSA Classification 2018	WFD *E.Coli* Guideline 2018
Larne Lough	Moderate	Good	B	Did not meet guideline
Belfast Lough	Moderate	Good	B/C	Did not meet guideline
Strangford Lough – Paddy's Point and Reagh Bay	Moderate	Good	B	Did not meet guideline
Strangford Lough – Skate Rock	Moderate	Good	A	Met guideline
Strangford Lough – Marlfield Bay	Moderate	Good	N/P	N/A
Killough Harbour	Good	Good	B	Did not meet guideline
Dundrum Bay	Moderate	Good	B/C*	Did not meet guideline
Lough Foyle, Longfield Bank	Good	Good	B	Did not meet guideline
Lough Foyle, Balls Point	Good	Good	B	Did not meet guideline
Carlingford Lough	Moderate	Good	B**	Met guideline

*B Status for Inner North Mussels & C Status for Inner South Mussels
**B Status for all sites in Carlingford Lough with the exception of a B/C Status at Narrow Water Wild Fishery (seasonal classification)

3.3.2.3.3 Bathing Water Protected Areas

The Bathing Water Directive (Directive 2006/7/EC concerning the management of bathing water quality and repealing Directive 76/160/EEC) requires each member state to identify its most popular bathing waters for regular testing in order to ensure that a minimum quality standard is reached, and is implemented in Northern Ireland by 'The Quality of Bathing Water (Northern Ireland) Regulations 2013. There are 26 designated bathing waters in Northern Ireland (**Figure 3-3**), as detailed in **Table 3-10**. These are monitored weekly from May to September, and classified into one of four categories:

- Excellent;
- Good;
- Satisfactory; or
- Temporary advice issued against bathing.

Classifications are based on the presence of *E.coli* in water samples. Individual sample results below 250 *E.coli* (EC)/100ml and 100 Intestinal Enterococci (IE)/100ml are typical of an 'Excellent' classification. Results above these values, and up to 500 EC/100ml and 200 IE/100ml are typical of a 'Good' or 'Sufficient' classification. When *E.coli* levels exceed 1250/100ml, temporary advice against bathing is issued. The most recent assessment of bathing water quality compliance at these sites classified 17 as 'Excellent' quality, five

as 'Good' quality, and four as 'Sufficient' quality for bathing[42]. According to the draft 3rd cycle RBMP, over the assessment period of 2014-2019, 25 of the 26 bathing water sites consistently met the minimum standard (sufficient). Of these, 10 sites consistently met the 'excellent' standard, seven sites consistently met 'excellent' or 'good' standard, and five sites consistently met 'good' or 'sufficient' standard. One site, Ballyholme, consistently met the 'sufficient' standard over this period. Investigations by DAERA has shown that this site is situated in a complex catchment, vulnerable to pressures from agricultural run-off and overflows from the WWT network. No bathing water sites in Northern Ireland have failed to reach the minimum standard of 'sufficient' during the assessment period.

Table 3-10 Location and Status of Bathing Water Sites in Northern Ireland

Bathing Water	2020 Compliance Level
Magilligan (Benone)	Excellent
Magilligan (Downhill)	Excellent
Castlerock	Excellent
Portstewart	Excellent
Portrush (Mill) West	Excellent
Portrush (Whiterocks)	Excellent
Portballintrae	Excellent
Helen's Bay	Excellent
Crawfordsburn	Excellent
Groomsport	Excellent
Millisle	Excellent
Cloughey	Excellent
Tyrella	Excellent
Murlough Co Down	Excellent
Cranfield (Cranfield Bay)	Excellent
Kilclief	Excellent
Ballyhornan	Excellent
Portrush (Curran) East	Good
Ballycastle	Good
Browns Bay	Good
Ballygally	Good
Ballywalter	Good
Waterfoot	Sufficient
Carnlough	Sufficient
Ballyholme	Sufficient
Newcastle	Sufficient

[42] https://www.daera-ni.gov.uk/articles/bathing-water-quality

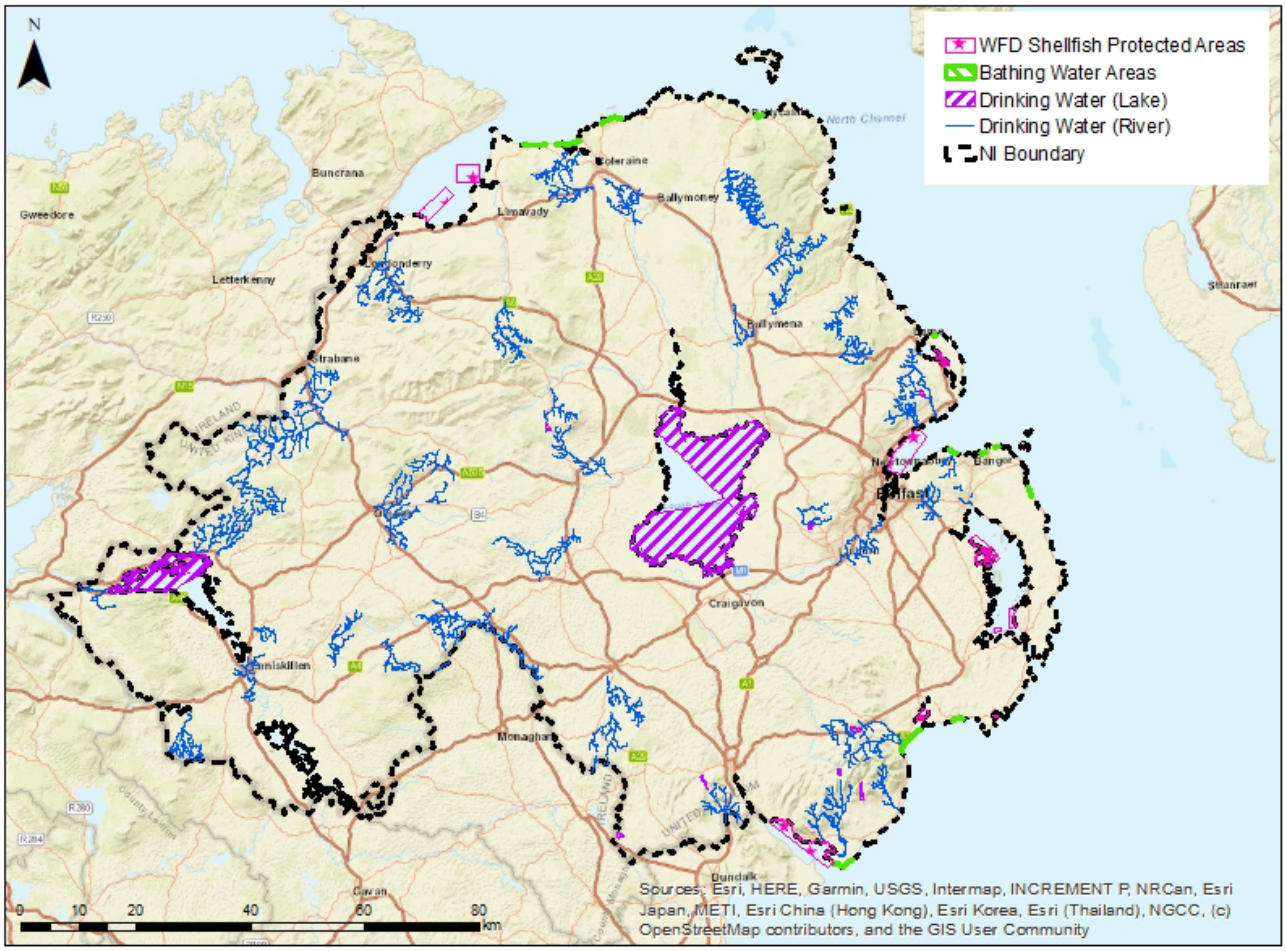

Figure 3-3 WFD Protected waterbodies across Northern Ireland

3.3.2.4 Summary of Existing Pressures and Issues for Population and Human Health in Northern Ireland

According to the current State of the Environment report (2013), air and water quality pose little overall risk to public health in Northern Ireland[43]. Risks from radioactivity exposure are also considered very low and, while the health impacts of hazardous chemicals are not fully known, recent legislation regulating chemical supply and use ensures increased safeguarding of the population from health risks. The report considers noise to be an emerging environment and health issue, as well as the effects of climate change, depletion of stratospheric ozone, biodiversity loss and land degradation.

Implementation of the draft FAPP, and policy proposals therein, has the potential to lead to positive or negative effects on air and water quality alone, or in combination with, these existing pressures. While air and water quality are not implicated as serious public health risks in Northern Ireland as a whole, on a more local level there may be implications on health through effects on drinking water or food quality, or to recreational water-based resources such as bathing waters. Policy proposals within the draft FAPP also have the potential to contribute to positive or negative consequences of climate change, through GHG production, and to biodiversity loss, with implications for human health and wellbeing.

[43] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

3.3.3 Geology, Soils & Landuse

Soils are a non-renewable resource, which provide vital ecosystem services such as: filtration and transformation of nutrients; storage of carbon; regulating flows and storing surface water; providing habitats and supporting biodiversity and food production. Depending on their condition and land use, soils may be degraded, disturbed or lost through activities which result in compaction, poaching, erosion, sediment loss or changes in fertility. Nitrates generally pass through well-drained soils such as brown-earth soils and can reach groundwater through locally and regionally important aquifers where the nutrient can be transported long distances, whereas in these well-drained soils, phosphate typically becomes bound up in soil minerals. Poorly draining and waterlogged soils, such as organic soils or gley-type soils, cause increased surface run-off and phosphorous concentrations and siltation issues.

It is considered that the key issues associated with implementation of the draft FAPP and Geology, Soils and Land use comprise:

- Potential for effects on soil fertility and improving efficiency of nutrient use;
- Potential for effects on nitrate and phosphate vulnerability of soils (and associated groundwater susceptibility);
- Potential for effects on the vulnerability of land to erosion;
- Potential for effects on soil compaction and poaching;
- Potential influence of soil type on land use practices (e.g. fertiliser application);
- Potential for effects on discharges to receiving aquatic sediments; and
- Potential for effects on landuse within agricultural holdings.

3.3.3.1 Geology of Northern Ireland

3.3.3.1.1 Bedrock Geology

The geological landscape of Northern Ireland is remarkably varied considering its relatively small area of about 14,000km^2, and is a reflection of the diverse geology on which it has been shaped. Northern Ireland has widespread geological deposits of relatively recent origin, known as superficial deposits, which formed during the last 2-3 million years of the Earths' history, spanning the Ice Ages and Interglacial periods. By far the most abundant of these are glacial sediments, made of mixtures of clay, silt, sand and gravel that were laid down by the repeated growth and decay of former ice-sheets. Other sediments continue to form in lakes, rivers, estuaries and coastlines, whilst on high ground raised bogs of peat have steadily accumulated[44].

Below the superficial deposits, or with just a cover of soil where such deposits are absent, are older rocks which geologists broadly split into two distinct types: sedimentary bedrock and basement bedrock. Sedimentary bedrock geology consists of younger sequences, including limestones, sandstones and clays and older sequences, including sandstones, siltstones and mudstones. Basement geology (which underlies the sediment geology) consists of rocks which formed from the solidification of molten rock below volcanoes (igneous rocks) and sediments or intrusions which have changed as a result of high temperatures and pressures (metamorphic rocks).

At a high level, the bedrock geology of Northern Ireland (**Figure 3-4**) can be separated into four contrasting areas from oldest to youngest:

- The Sperrin Mountains in Londonderry and Tyrone contain the oldest basement rocks (Neoproterozoic);
- The Down-Longford area to the southeast is composed of basement rocks (Rhuddanian);
- The Lakelands in the southwest are predominantly a combination of various Palaeozoic sedimentary bedrock; and

[44] https://www.bgs.ac.uk/download/regional-geological-summaries-northern-ireland/

- The Antrim Hills in the northeast contain the youngest sedimentary bedrock (Paleocene).

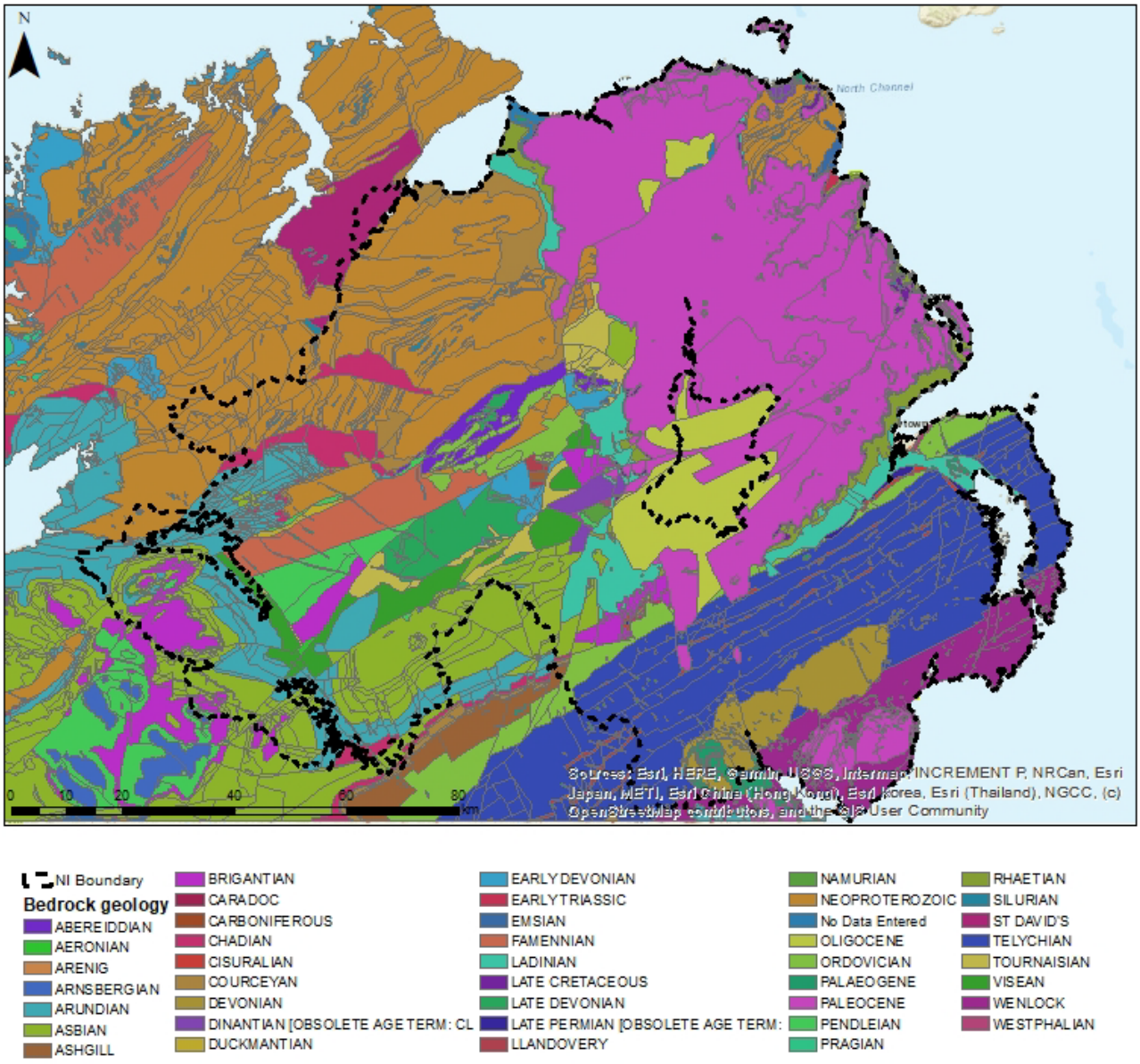

Figure 3-4 Bedrock geology mapping across Northern Ireland by age

This correlates with groundwater aquifers, as Northern Ireland contains four major aquifers (**Figure 3-5**). Three of these are layers within the younger sedimentary rocks of the Antrim Plateau, while the other is within the older sedimentary rocks in the southwest. There are no major aquifers in the northwest or the southeast, given that basement bedrock are the primary features in these areas.

3.3.3.1.2 Hydrogeology and Groundwater Vulnerability

Basement rocks, such as those found in The Sperrin Mountains and in the Down-Longford terrane, do not usually provide a water source except where intensely fractured and weathered near the surface, and so the nature of the rock types most commonly found is such that they generally represent only poorly to moderately productive aquifers.

As previously noted, there are four major aquifers across Northern Ireland, one of which is located within the older sedimentary bedrock in the southwest Lakelands (Enniskillen) and the remaining three within the younger

sedimentary bedrock, typically found in the north and northeast. Across Northern Ireland there are a total of 6 classes of aquifer, which are identified in **Table 3-11** and **Figure 3-5**.

Table 3-11 Aquifer classification of bedrock in Northern Ireland

Aquifer Category	Symbol	Typical Rock Units/ Formations
High productivity Fracture Flow	Bh (f)	Certain Carboniferous basal formations
High Productivity Fracture/Intergranular Flow	Bh (I-f)	Permo-Triassic Sandstones
High Productivity Fracture flow with karstic element	Bh (f-k)	Carboniferous Darty Limestone with Knockmore Limestone Member (in places) Carboniferous Ballyshannon Limestone Formation Ulster White Limestone Formation (Chalk)
Moderate Productivity Fracture Flow	Bm (f)	Palaeogene Basalts Certain Carboniferous Dinatian Sandstones
Limited Productivity Fracture Flow	BI (f)	Ordovician/Silurian strata Dalradian strata Devonian strata Granites and Intrusives
Poor Productivity Fracture Flow	Bp (f)	Lough Neagh Clay Group Mercia Mudstone Group Waterloo Mudstone Formation

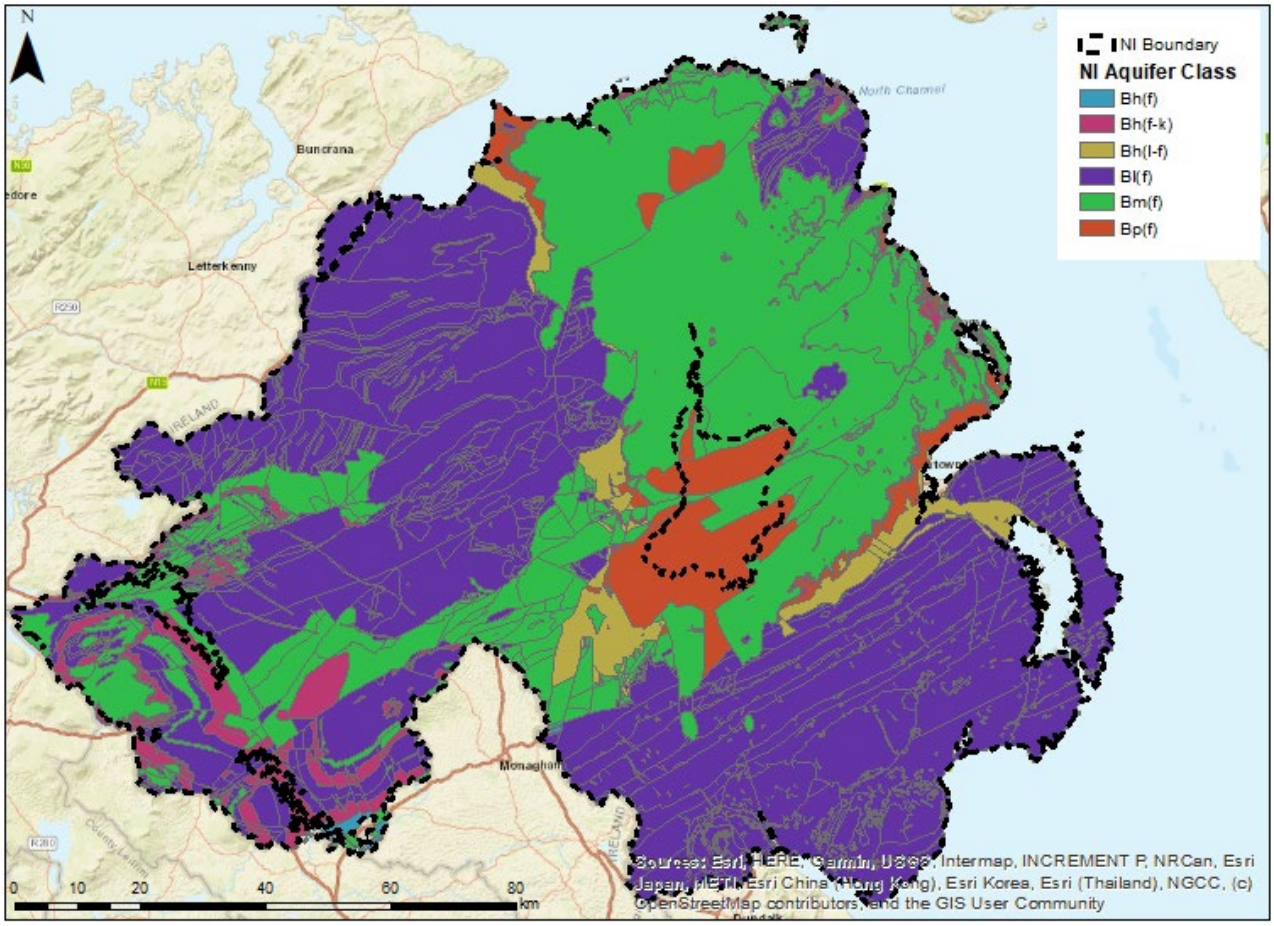

Figure 3-5 Aquifer classification across Northern Ireland

The tendency and likelihood for general contaminants to reach the water table after introduction at the ground surface is termed groundwater vulnerability. This vulnerability is therefore a combination of land use and aquifer classification. Where the soil and unsaturated zone are highly permeable, water can readily flow from the surface to the water-table and the aquifer is vulnerable. However, if the unsaturated zone and soil is clay rich, recharge is reduced, and the aquifer is less vulnerable.

Figure 3-6 indicates the groundwater vulnerability mapping across Northern Ireland. In general, the areas of highest groundwater vulnerability are those with bedrock outcrops present, or where glacial sand and gravels are present, particularly in areas of higher elevation such as the Antrim Hills, Mourne Mountains and Sperrin Mountains. In general, areas of lowest vulnerability are those located at a lower elevation, which contain low permeability deposits such as till (Diamicton).

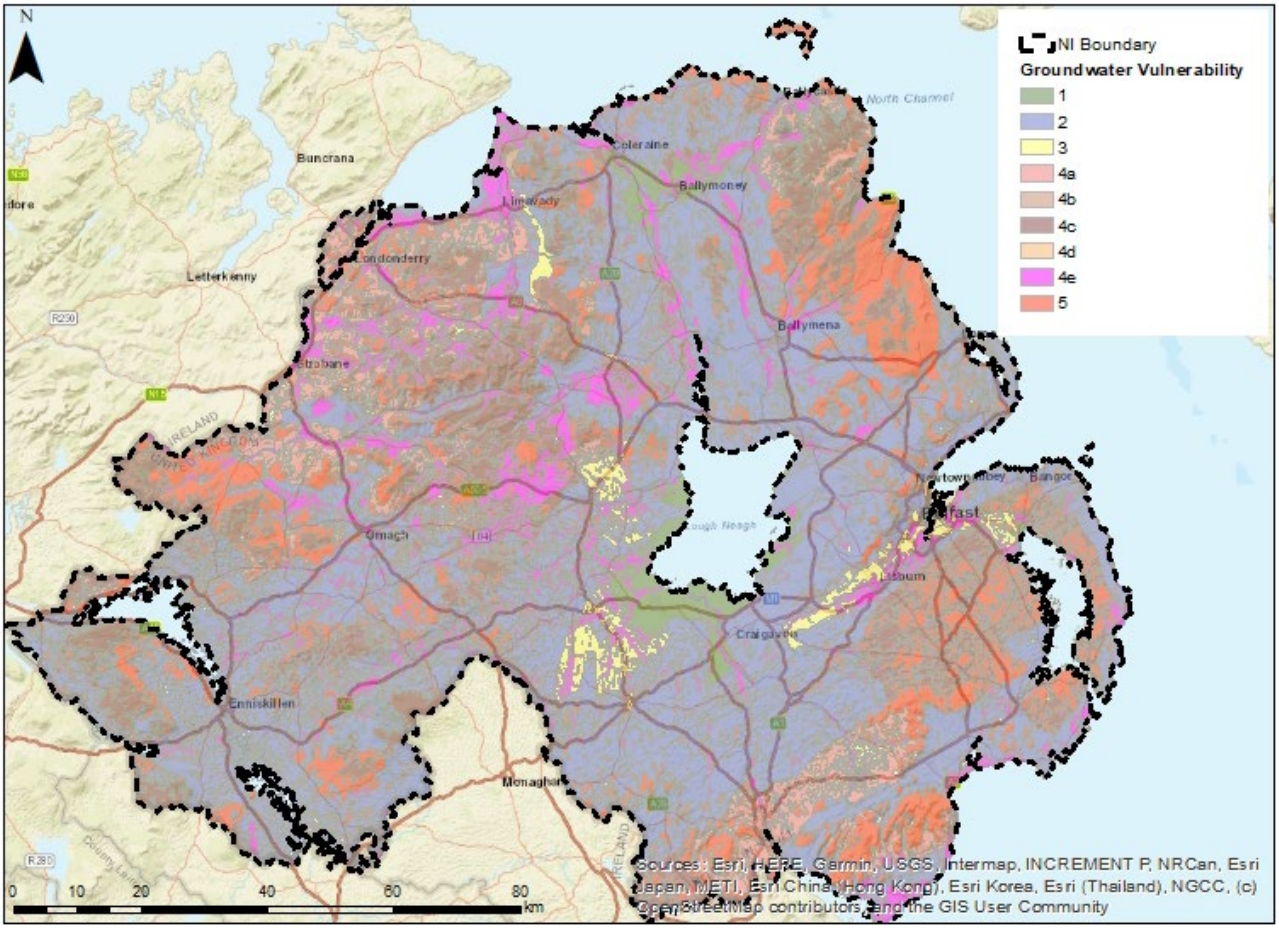

Figure 3-6 Groundwater Vulnerability mapping across Northern Ireland

3.3.3.2 Soil Types in Northern Ireland

A General Soil Map of Northern Ireland has been produced by the Agri-food and Biosciences Institute (AFBI)[45]. This map identifies 9 main soil types across Northern Ireland, as recognised by The World Reference Base map. These soils and their general occurrence are identified in **Table 3-12.**

Table 3-12 AFBI World Reference Base soil types across Northern Ireland

AFBI World Reference Base	General occurrence across Northern Ireland
Arenosols (sandy-textured soils that lack any significant soil profile development)	Located in coastal areas such as Murlough in County Down and Portrush in County Antrim
Cambisols (soil in the beginning of soil formation)	Most prevalent in the southeast, around County Down
Fluvisols (genetically young soil in alluvial deposits)	Generally, widely dispersed across Northern Ireland in small pockets

[45] http://www.ukso.org/static-maps/soils-of-northern-ireland.html

Gleysols (wetland soils, which in the natural state are continuously water-saturated within 50 cm of the surface, for long periods of time)	Generally, occur in small, isolated pockets across Northern Ireland
Histosols (soil consisting primarily of organic materials)	Generally present in the northwest, around the Sperrin Mountains and in the Antrim Hills
Leptosols (shallow soils with minimal development, formed typically on hard rock or highly calcareous materials)	Generally, most prevalent in the southeast, around the Mourne Mountains and surrounding Strangford Lough
Podzols (soils with an ash-grey subsurface horizon, bleached by organic acids, on top of a dark accumulation horizon with brown or black illuviated humus and/or reddish iron compounds)	Most prevalent in the southeast and west
Stagnosols (soil with strong mottling of the soil profile due to redox processes caused by stagnating surface water)	Most abundant soil type, which is present across Northern Ireland but most dominant in the south and southwest
Urban (soil material having a non-agricultural, man-made surface layer more than 50 cm thick)	Mostly present around the Greater Belfast, Bangor and Lisburn urban areas.

Contaminants generally pass through high permeability, well-drained soils, such as Leptosols, Cambisols, Fluvisols etc., and can reach groundwater through locally and regionally important aquifers where they can be transported long distances. On the other hand, poorly draining and waterlogged soils, such as organic soils (peats), Stagnosols or Gleysols, cause increased surface run-off and siltation issues which can impact on downstream surface waterbodies. Stagnosols are the most abundant soil type across Northern Ireland in areas of lower elevation.

3.3.3.3 Nutrient Balance of Farms in Northern Ireland

Figure 3-7 and **Figure 3-8** below indicate historical nutrient balance trends for Northern Ireland from 1970-2019. This information has been extracted from the DAERA Statistical Review of Northern Ireland Agriculture[46]. Total inputs are the sum of those inputs from both fertilisers and feedstuff, outputs are animal production outputs such as beef, eggs, milk, sheep meat, poultry etc. and the balance data indicate the difference between the inputs and outputs.

[46] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202019%20final.pdf

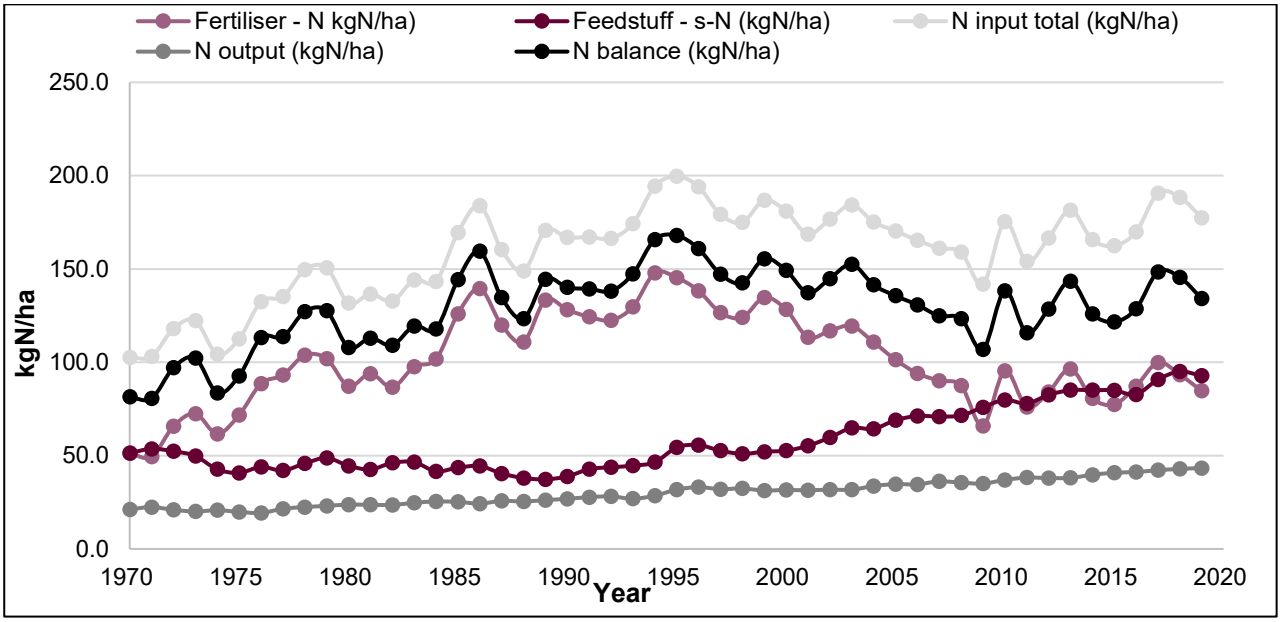

Figure 3-7 Annual nitrate concentration balances from 1970-2019 (at 17% protein)

In general, **Figure 3-7** indicates that the input data, and therefore balance data, follow a similar trend to fertiliser input figures, rather than feedstuffs. From 1972 to 2008, fertilisers contributed to much higher concentrations of nitrates than feedstuffs, however since 2008, contributions from both have remained similar. This coincides with the first Nitrates Action Programme Regulations, which became effective in 2007. **Figure 3-7** indicates that the total nitrates input generally increased from 1970, with a peak of 200 kgN/ha in 1995. After 1995, this began to decrease, however since 2008 has remained at similar levels, with peaks of 175 kgN/ha in 2010, 182 kgN/ha in 2013, 191 kgN/ha in 2017 and 188 kgN/ha in 2018. This trend follows the input from fertilisers, while nitrates from feedstuffs have generally increased slowly from their lowest level of 37 kgN/ha in 1989 to a peak of 95 kgN/ha in 2018. In general, nitrate outputs, which are those outputs from animal production, have been increasing slowly every year, with some exceptions, such as a small decrease in 1976 and 1993.

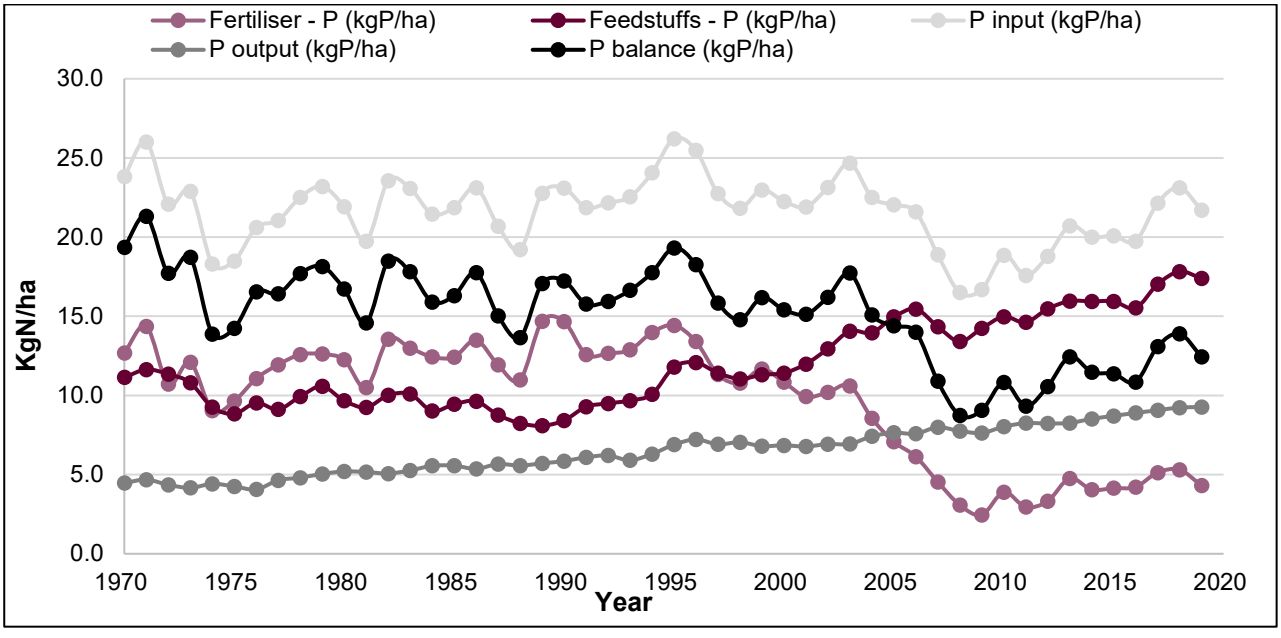

Figure 3-8 Annual phosphate concentration balances from 1970-2019

In general, **Figure 3-8** indicates that from 1970 to 1975, phosphate contributions from fertilisers and feedstuffs were similar, however from 1975 to 1997, inputs from fertilisers had become higher than from feedstuffs. Since 2003, phosphate contributions from fertilisers have decreased, while contributions from feedstuffs have increased to approximately 3 times higher than fertilisers. When comparing total phosphate inputs, which is the sum of inputs from fertilisers and feedstuffs, **Figure 3-8** indicates that total phosphate inputs decreased from their peak of 26 kgP/ha in 1971 for four years then began to increase after 1975. From 1975, phosphate inputs generally remained around 23 kgP/ha, with multiple peaks and troughs. Phosphate outputs, which are from animal production outputs, have generally increased steadily since 1970.

3.3.3.4 Landuse in Northern Ireland

Landuse in Northern Ireland, as identified within the Corine Dataset, is shown in **Figure 3-9** and summarised in **Table 3-13,** which indicates that landuse across Northern Ireland is primarily composed of 'Pastures' (>7,600km^2), followed by 'Complex Cultivation Patterns' (1,438km^2) and 'Peat Bogs' (1,321km^2). Pastures, which cover >56% of land cover across Northern Ireland are located across the country, with the exception of upland areas such as the Mourne Mountains in the southeast, the Antrim Hills in the Northeast, the Sperrins in the west and raised bog peatland areas in mid-Ulster. Complex cultivation patterns are generally located in the east of Northern Ireland, primarily surrounding Strangford Lough and peat bogs are generally located in western areas. These lowland, coastal areas, particularly along the east and north coasts may also be susceptible to coastal erosion and the climatic effects of sea level changes.

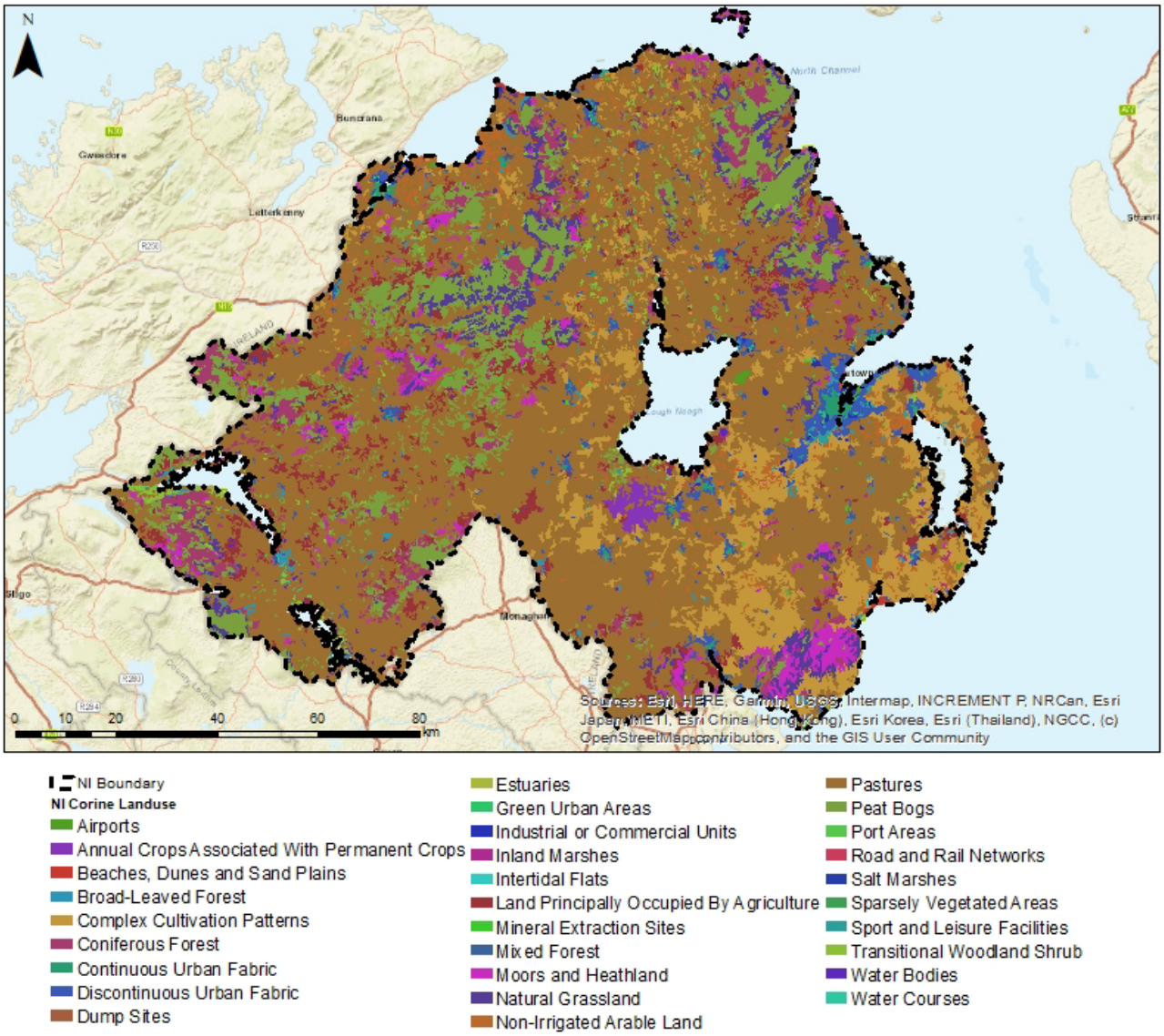

Figure 3-9 Corine land use mapping across Northern Ireland

Approximately 78% of the total Northern Ireland land area (1.35 million hectares) is used for agriculture, including common rough grazing. Most farmland in Northern Ireland is under grass, in fact only 2,951 farms (12%) have arable or horticultural crops. In 2019[47], cattle were present on 19,919 farms (80%), sheep on 9,921 farms (40%) and cattle and/or sheep on 23,282 farms (94%). In addition, pigs and/ or poultry (for commercial purposes) were present on 4.6% of farms.

Table 3-13 Dominant Land Cover Types within Northern Ireland

Land Cover Class	Total Land Cover (km²)	% of Total
Pastures	7,624	56
Complex Cultivation Patterns	1,438	11
Peat Bogs	1,321	10

[47] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202019%20final.pdf

Land Principally Occupied by Agriculture	620	5
Natural Grassland	532	4
Coniferous Forest	521	4
Moors and Heathland	325	2
Non-Irrigated Arable Land	323	2

3.3.3.5 Agricultural Critical Risk Areas

Agricultural Critical Risk Areas have been identified by DAERA, based on activities that have been classed as arable horticulture or improved grassland by the CEH land cover map 2007[48], which is carried out on land parcels scored against a matrix of risk factors and the 2015 status of WFD enrichment indicators. These risk factors have the potential to contribute to in-stream biological, chemical and physiochemical impact. In order to calculate these Agricultural Critical Risk Areas, a modelling application SciMAP was applied with a 5m DTM to produce sediment source and deposition areas as well as identifying significant hydrological links to the river network. Each risk factor has been assigned a relative weighting from 0 – 1, dependant on its contribution to the overall risk. These weightings have been used as multipliers for a three-category risk index, 1 - 3 relating to banding of risk factor variables into increasing risk. The scores are then totalled to provide an overall risk for each land parcel. These scores across Northern Ireland, are shown in **Figure 3-10**.

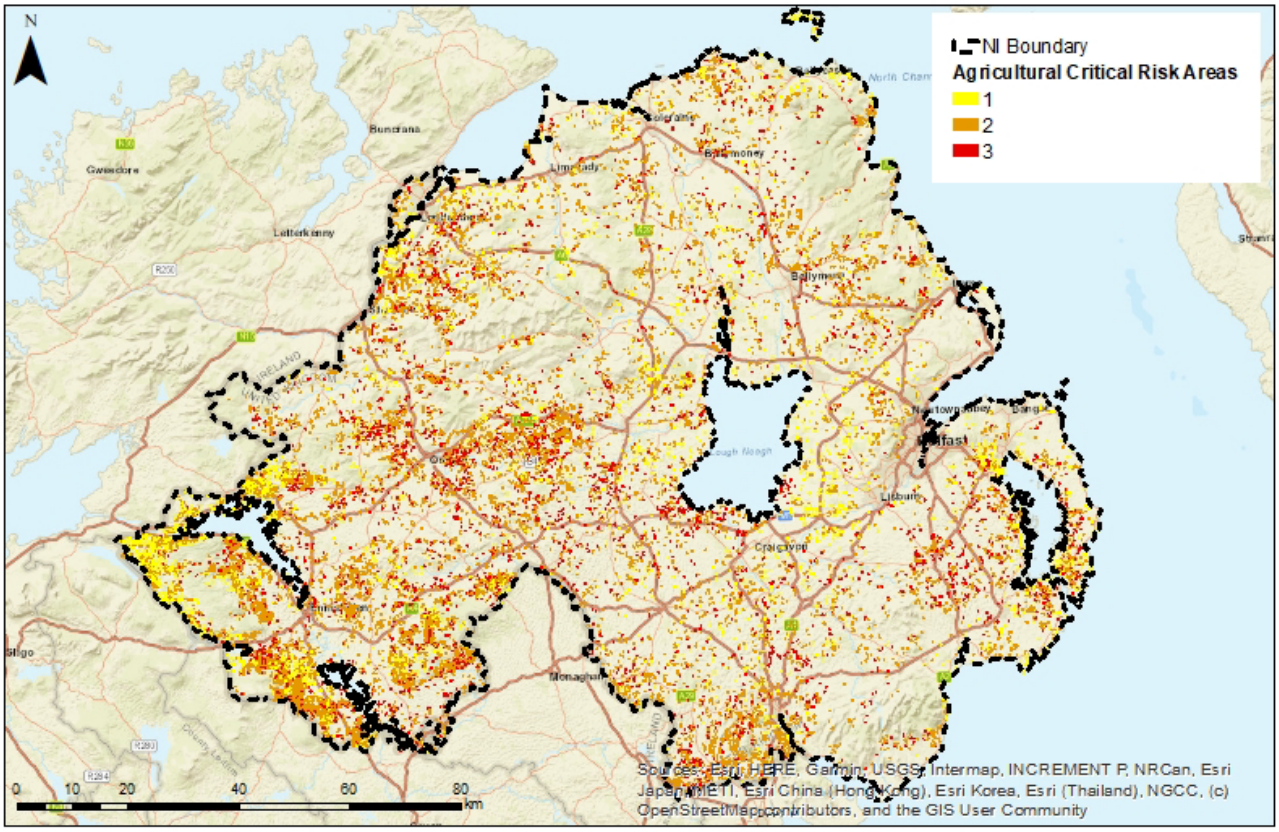

Figure 3-10 Agricultural Critical Risk Areas across Northern Ireland

[48] https://www.ceh.ac.uk/services/land-cover-map-2007

Figure 3-10 illustrates Agricultural Critical Risk Areas where 1 (yellow) is the lowest risk and 3 (red) is the highest risk. There are 6,937 highest risk areas, which cover an area of 7,744ha, 24,578 moderate risk areas which cover 24,814ha, and 6,874 lower risk areas which cover 8,667ha. In general, the Agricultural Critical Risk Areas are more prevalent within the west of Northern Ireland, and along the east of Strangford Lough. The identified Agricultural Critical Risk Areas can also be further assessed to determine if the areas are hydrologically connected to any waterbodies, which could therefore impact on downstream water quality. Out of the 38,389 Agricultural Critical Risk Areas identified, 26,600 have a hydrological connection, 6,483 (7,471ha) of which are highest risk areas, 17,840 (19,857ha) are moderate risk and 5,273 (7,385ha) are lower risk areas.

This mapping information of Agricultural Critical Risk Areas is used to identify areas of highest risk which are therefore used in the risk selection process for cross-compliance inspections.

3.3.3.6 Sustainable Land Management

The Sustainable Agricultural Land Management Strategy (SALMS) for Northern Ireland was established in 2014 with the aim of outlining how the Agri-Food Strategy Boards' targets would be achieved in a way which improved farm incomes and environmental performance simultaneously. The SALMS report was published in 2016, within which improving the health of Northern Ireland's agricultural soils was the central focus. The report sets out a series of key features for sustainable land management:

- Achieving sustainable profits per hectare;
- Good nutrient management leading to greater utilisation of higher quality grass and silage;
- Production of more diverse swards with greater proportions of legumes to help extend the grazing season while improving soil structure, carbon and biology;
- Properly located woody riparian strips in overland flow pathways to reduce nutrient and sediment loss to waterways to improve biological water quality;
- Woody biofiltration blocks, placed downhill of farmyards and at discharges to septic tanks to capture "grey water" and reduce the risk of nutrient leakage;
- Appropriate agro forestry planting on grassland farms to extend the grazing season while improving biodiversity and carbon sequestration and providing renewable fuel;
- Woodland barriers between farms to improve biosecurity and herd health while increasing biodiversity and carbon sequestration; and
- Strategic planting of trees around intensive livestock units to reduce ammonia drift resulting in nitrogen deposition on sensitive environmental sites.

Through adherence to these features of sustainable land management, there is anticipated to be improved nutrient management.

Agri-environmental schemes are currently managed in Northern Ireland under the Rural Development Programme (RDP). In 2015, 305,000 ha (approximately 29% of NI farmland) had been managed under agri-environment scheme agreements. In 2016, the area of agricultural land managed through these schemes decreased by 85% to 46,000 ha (approximately 4-5% of NI farmland), however this was due to the expiration in 2016 of those remaining 10 year agreements from the older agri-environment schemes. In 2017 DAERA subsequently launched a new agri-environment scheme, known as the Environmental Farming Scheme (EFS). This is a voluntary, 5 year scheme under the NI RDP 2014-2020, which is part financed by the EU. At the end of 2020, there were three tranches of the EFS, with 47,700 ha being managed through 4,700 agreements; this comprises 3,891 wider agreements covering 4,683 ha, and 774 higher level agreements (primarily for environmentally designated sites or priority habitats and species) covering 43,035 ha[49].

[49] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2021.pdf

3.3.3.7 Summary of Existing Pressures and Issues for Geology, Soils and Landuse in Northern Ireland

Existing pressures and issues for geology across Northern Ireland relate to the presence of permeable sedimentary bedrock or where the occurrence of fracture flows results in highly productive aquifers, such as those in the northeast Antrim Hills and southwest Fermanagh Lakelands. Where these areas are overlain by freely draining soils, contaminants may be leached into groundwater or into nearby waterbodies and therefore may be transported considerable distances from their source. In general, the areas of highest groundwater vulnerability are those with bedrock outcrops present, or where glacial sand and gravels are present, particularly in areas of higher elevation such as the Antrim Hills, Mourne Mountains and Sperrin Mountains.

In poorly draining or waterlogged soils, contaminants can be mobilised during runoff and erosion and, as such, streams, lakes and other waterbodies in the vicinity of the source are at highest risk. This is particularly important, given that Stagnosols (which are given their name due to stagnating surface water) are the most abundant soil type across Northern Ireland, particularly in areas of lower elevation.

At present, only 47,700 ha of agricultural land was managed under the 5-year agri-environment scheme agreements which is only 4-5% of NI farmland, yet 38,389 ha of agricultural land has been identified as Critical Risk Areas. There is significant potential for positive or negative effects on soils and land use within agricultural land holdings from policy proposals within the draft FAPP that relate to changes in land management.

3.3.4 Water

Water is essential for the maintenance of biodiversity, supports the population through the provision of drinking water and supports many of our core activities[50]. Although there have been improvements in drinking water quality and water utility discharge quality, and a decrease in incidents of water pollution, the most recent status of WFD surface water bodies in Northern Ireland (2021) highlights that only 38% are currently at least at a good status[51]. Pressure assessments have identified that two significant pressure sources related to nutrients are preventing the achievement of good status for water bodies: agricultural activities and sewage-related problems.

An excessive supply of nutrients to water bodies, particularly nitrogen and phosphorus, can lead to eutrophication, whereby these elevated concentrations result in accelerated growth of plants and algae. This reduces oxygen levels in the system, which can cause a loss of sensitive species and impact upon the ecological status of the water body. Elevated nutrient concentrations, arising from both point (e.g. sewage discharges) and diffuse (e.g. agricultural run-off) anthropogenic sources, represent the most significant threat to water quality in Northern Ireland. In freshwaters, phosphorus is usually the limiting nutrient for plant and algal growth, whereas in marine waters nitrogen is generally the limiting nutrient. Water quality can also be adversely affected through the addition of hazardous substances such as pesticides and heavy metals, specific pollutants and microbial contamination.

[50] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

[51] https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF

It is considered that the key issues associated with implementation of the draft FAPP and water comprise:

- Potential for effects on the ecological status of WFD surface water bodies via changes in the levels of nutrient pollution and sedimentation;
- Potential for effects on the status of WFD Protected Areas, including for water-dependent habitats and species, economically significant aquatic species, drinking water, recreation and nutrient sensitive areas;
- Potential for effects on nutrient concentrations within freshwater and marine water bodies;
- Potential for effects on groundwater quality, including the potential for microbial and chemical contamination of drinking water supplies;
- Potential effects of topography and land use practices to risk of nutrient and sediment loss and subsequent water pollution;
- Potential for effects on flood risk.

3.3.4.1 Water Framework Directive Surface Water Bodies

The EU Water Framework Directive (WFD) (2000/60/EC), transposed in Northern Ireland through 'The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017' the "WFD Regulations", established a new legal framework for the protection, improvement and sustainable use of rivers, lakes, transitional waters, coastal waters and groundwater across Europe. This was undertaken in order to prevent deterioration and to enhance the status of aquatic ecosystems, promote sustainable water use and reduce pollution. The WFD is implemented through River Basin Management Plans (RBMPs). Northern Ireland has three River Basin Districts (RBDs): North Western RBD, Neagh Bann RBD and North Eastern RBD. The Water (Amendment) (EU Exit) Regulations 2019 ensure that the WFD (as transposed) and the supporting pieces of water legislation continue to operate in Northern Ireland following the UK's exit from the European Union in January 2021; as the preparation and implementation of a RBMP is a key part of the implementation of the WFD Regulations, this process will continue within Northern Ireland.

The WFD Regulations require the production and implementation of a RBMP for Northern Ireland in six yearly cycles. The most recent is the draft third cycle RBMP (2021), which runs from 2021-2027. This classifies the status of all WFD surface water bodies according to chemical, biological and hydromorphological parameters, providing an overall status of either 'High', 'Good', 'Moderate', 'Poor' or 'Bad' for each surface water body (if the surface water bodies have been designated as artificial or heavily modified, they are classified using ecological 'potential' rather than ecological 'status'). 'Water Bodies' are the basic management units for reporting and assessing compliance with the environmental objectives of the WFD Regulations. There are 496 WFD surface water bodies in Northern Ireland, comprising 450 rivers, 21 lakes and 25 transitional and coastal waters.

There are 75 WFD groundwater bodies in Northern Ireland (66 bedrock and 9 superficial), comprised of 45 in the North Western RBD, 14 in the North Eastern RBD and 16 in the Neagh Bann RBD. Under the WFD, groundwater bodies are classified as 'good' or 'poor' status for quantitative and chemical status, and overall good status requires that both the quantitative and chemical status are good.

The WFD Regulations set a requirement to meet 'Good Status' in all water bodies by 2015, with the exception of water bodies where this was not achievable for reasons of technical feasibility or disproportionate costs. The second cycle RBMPs aimed to prevent the deterioration of water bodies and to protect, enhance and restore them, with the aim of achieving at least 'Good' status (or 'Good Ecological Potential') in 70% of surface water bodies by 2021.

The third cycle RBMP for Northern Ireland 2021-2027 will identify those water bodies which can be classified as being at 'good or better' status and set objectives and a programme of measures for the next six year cycle to help improve those water bodies which are classified as below 'good' status. This is currently at a draft stage, and an updated classification for water bodies for 2021 will be published in the final RBMP. In the interim period, WFD water body classifications were updated mid-cycle (2018) for rivers, transitional and coastal water bodies, while classifications for lakes and groundwater bodies were updated in 2020. **Figure 3-11** illustrates

the current (2018) status of WFD surface water bodies (i.e. river, lake, transitional and coastal water bodies), and **Figure 3-12** the current (2020) status of groundwater bodies within Northern Ireland.

Table 3-14 compares the number and percentage of waterbodies within the North Eastern, Neagh Bann and North Western RBDs at 'good or better' status in 2015 and 2018 (2020 for lakes and groundwater bodies). This indicates the following:

- River status - In 2018, 31.3% of Northern Ireland's river water bodies were classified as 'good or better' status, compared to 32.7% in 2015 (based on 450 river water bodies);
- Marine status – In 2018, 40% (10 out of 25) of transitional and coastal water bodies in Northern Ireland were classified at 'good or better' status, compared to 36% (9 water bodies) in 2015;
- Lake status - The assessment of lake water quality in Northern Ireland is based on 21 lakes with a surface area of >50ha. In 2020, 4.8% (1 lake) was classified as 'Good or better' status, compared to 23.8% (5 lakes) in 2015; and
- Groundwater status- In 2020, 84% of groundwater bodies were classified as at overall good status, compared to 65.3% in 2015.

The results of the draft third cycle RBMP classification mean that Northern Ireland will not achieve the objective to have 70% of its water bodies at 'good or better' status. Little improvement has occurred since 2015; at that time 37% of all water bodies were at 'good or better' status, compared to 38% in the latest assessment considering 2018 and 2020 classification updates. Pressure assessments undertaken have identified that the main pressures acting upon the water environment in Northern Ireland are nutrient pressures, relating primarily to agricultural activities and sewage-related problems.

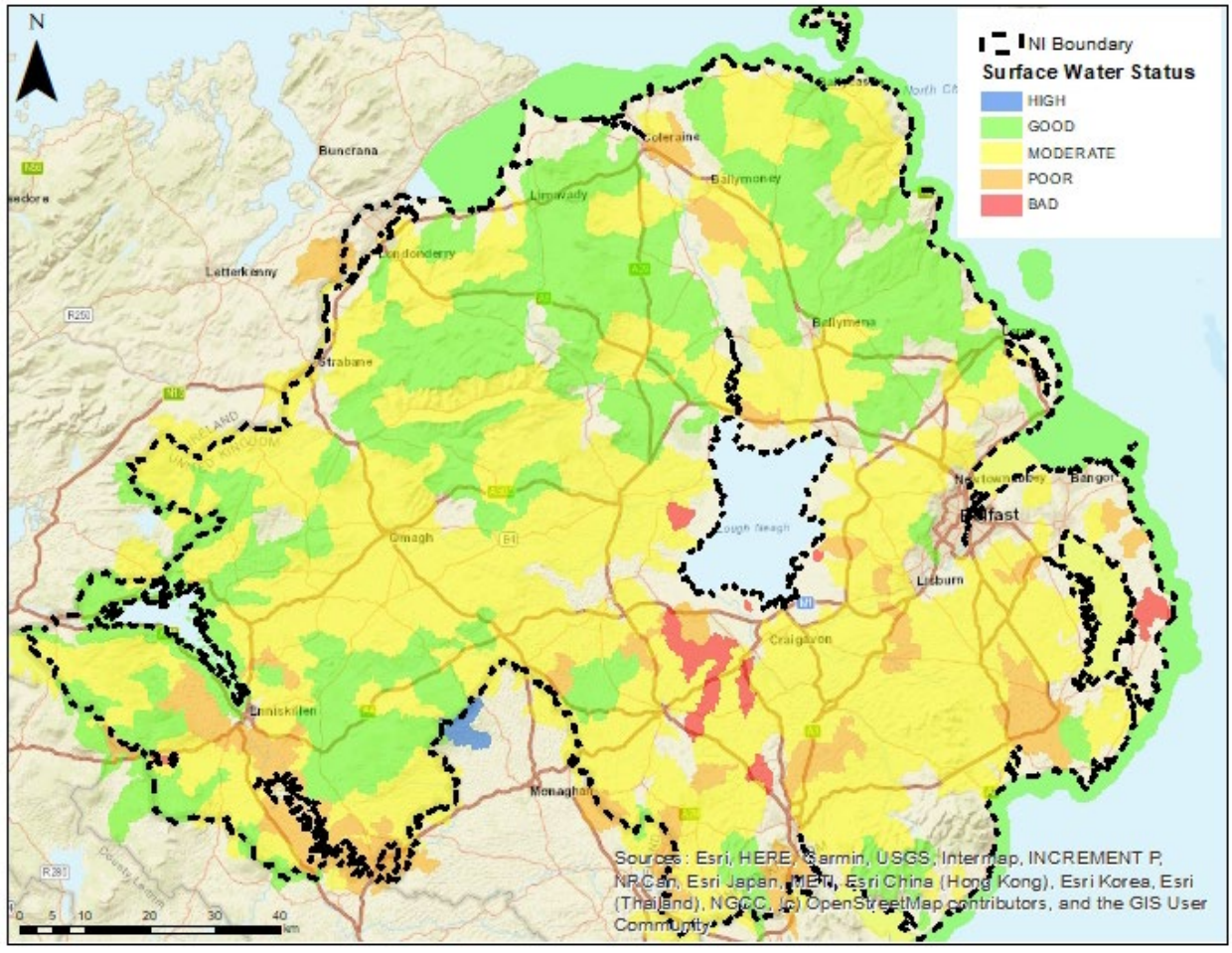

Figure 3-11 WFD Surface Water Ecological Status 2018

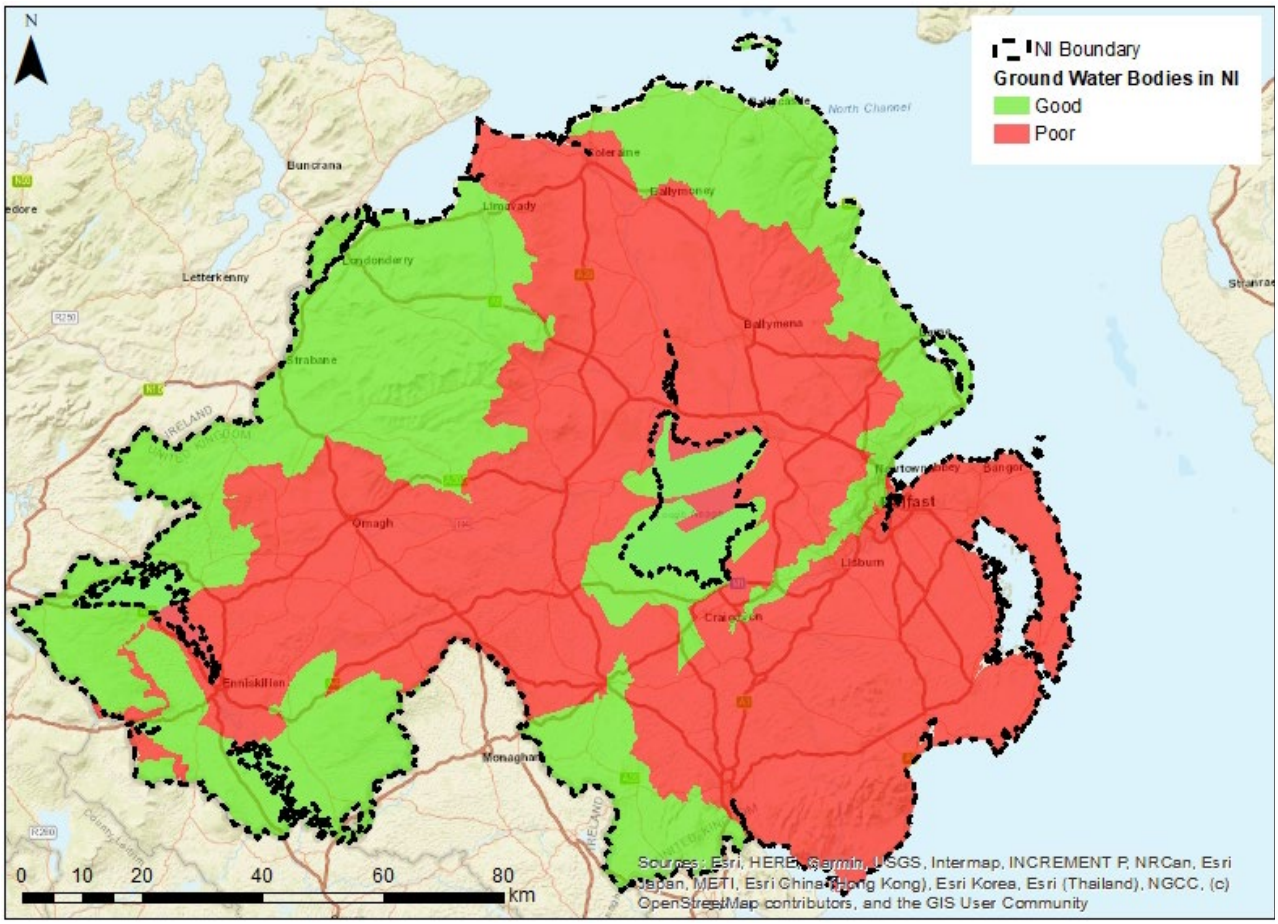

Figure 3-12 WFD status of groundwater bodies in Northern Ireland 2015

Table 3-14 Comparison of WFD Water Bodies at 'Good or Better' Status for 2015 and 2018

	No. in NW IRBD	No. in NB IRBD	No. in NE RBD	Northern Ireland	
				No.	%
Rivers 2015	75	54	18	147	33
Rivers 2018	68	56	17	141	31
Transitional & coastal 2015	1	1	7	9	36
Transitional & coastal 2018	1	2	7	10	40
Lakes 2015	2	2	1	5	24
Lakes 2020	1	0	0	1	5
Groundwater 2015	37	6	6	49	65
Groundwater 2020	41	12	10	63	84

All water bodies 2015	115	63	32	210	37
All water bodies 2018/2020	111	70	34	215	38

3.3.4.2 Water Framework Directive Protected Areas

The WFD Regulations required the establishment of a register of protected areas for Northern Ireland, for water bodies or parts thereof that require additional water quality protection owing to their importance to people or wildlife. This is outlined in Article 10 of the WFD Regulations.

The register comprises the following protected areas:

a) A drinking water protected area; and

b) An area or body of water requiring special protection in accordance with any EU instrument protecting surface water, groundwater or conservation of habitats and species, including:

(i) Areas designated for the protection of economically significant aquatic species (including shellfish water protected areas);

(ii) Bodies of water designated as recreational waters;

(iii) Nutrient-sensitive areas; and

(iv) Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection.

The WFD protected areas in Northern Ireland are summarised in **Table 3-15**.

Table 3-15 WFD Register of Protected Areas

WFD Protected Area Type		North Eastern RBD	North Western IRBD	Neagh Bann IRBD	Total Number
Drinking Water Protected Areas	Surface water	8	10	8	26
	Groundwater	10	42	13	65
Shellfish Water Protected Areas		7	2	1	10
Bathing Waters		22	3	1	26
Urban Waste Water Sensitive Areas		16	4	3	23
Water Dependent Protected Areas		25	27	24	66*
Groundwater-dependent terrestrial ecosystems		2	5	2	9

*Note: some protected sites straddle more than one RBD, hence the NI total does not equal the sum of the RBDs.

Drinking water protected areas are waters used for the abstraction of drinking water, including surface waters and groundwaters; within the three RBDs of Northern Ireland, there are a total of 26 surface waters and 65 groundwaters included as WFD Protected Areas.

Economically significant aquatic species protected areas are designed to protect aquatic species that are of economic importance, including designated shellfish waters; within the three RBDs of Northern Ireland, there are 10 sites designated as WFD Protected Areas for shellfish.

Bathing water protected areas are those identified under the Bathing Waters Directive (2006/7/EC); within the three RBDs of Northern Ireland, there are a total of 26 bathing waters included as WFD Protected Areas.

Nutrient sensitive areas in Northern Ireland are those designated as sensitive under the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) and the Nitrates Directive (91/676/EEC); within the three RBDs of Northern Ireland, there are a total of 23 Urban Waste Water Treatment Directive sensitive areas. These are areas where more stringent treatment is required to prevent surface water becoming eutrophic, to prevent exceedance of the nitrates drinking water standard, and to meet the requirements of other Regulations, such as those for bathing waters. A review of sensitive areas is required by the UWWTD every four years. In the 2015 review, existing sensitive areas in the three RBDS were reviewed, and the Castletown catchment and Newry transitional waters were designated within the Neagh Bann RBD. No individual areas have been designated as nutrient sensitive WFD Protected Areas under the Nitrates Directive, rather a total territory approach has been adopted for Northern Ireland.

Water-dependent protected areas in Northern Ireland are designated for the protection of habitats or species, where the maintenance or improvement of the status of water is an important factor in their protection. Northern Ireland has a total of 66 water-dependent European sites, which are designated under the Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland).

There are also 9 groundwater-dependent terrestrial ecosystems (GWDTEs) in Northern Ireland. Under the WFD these are assessed as part of the groundwater chemical and quantitative status. In the draft third cycle RBMP 2021-2027, all 9 sites have been classified as at ‘good status’ in terms of the impact of groundwater quality or quantity on their conditions.

3.3.4.3 Marine Strategy Framework Directive

The European Marine Strategy Framework Directive (MSFD) (2008/56/EC), implemented in Northern Ireland through the Marine Strategy Regulations 2010, requires action to be taken to achieve or maintain Good Environmental Status (GES) in marine waters within the marine strategy area by 2020. GES is defined in the Regulations as “the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations”.

The Marine Strategy Regulations required the production of a marine Strategy for UK waters, coordinated across the four UK Administrations. The Strategy aims to help in the delivery of international obligations and commitments such as those under the UN Convention on the Law of the SEA (UNCLOS), UN Sustainable Development Goal 14, OSPAR Strategy and Convention on Biological Diversity. The Strategy applies an ecosystem –based approach to the management of human activities, and considers the following 11 quality descriptors:

- D1 – Biological diversity (cetaceans, seals, birds, fish, pelagic habitats and benthic habitats);
- D2 – Non-indigenous species;
- D3 – Commercially-exploited fish and shellfish;
- D4 - Food webs (cetaceans seals, birds, fish and pelagic habitats);
- D5 – Eutrophication;
- D6 – Sea-floor integrity (benthic habitats);
- D7 – Hydrographical conditions;
- D8 – Contaminants;
- D9 – Contaminants in fish and other seafood;

- D10 - Marine litter; and
- D11 – Underwater noise.

The UK Marine Strategy comprises three parts, to be updated every six years: assessment, monitoring programmes and a programme of measures. The first UK assessment of our seas was published in 2012[52], and set objectives, targets and indicators for achieving GES; this was updated in 2019[53], and the status of descriptors for the UK is summarised in **Table 3-16**.

Table 3-16 UK Assessment of Environmental Status for the MSFD

Descriptor	GES Achieved	Trend	Description
D1 & D4 Cetaceans	Partially	Stable/mixed	Achievement of GES uncertain. Status of coastal bottlenose dolphin & minke whale consistent with GES in the Greater North Sea, but uncertain elsewhere.
D1 & D4 Seals	Partially	Improving	GES achieved for grey seals. Harbour seals have not achieved GES in the Greater North Sea; in the Celtic Sea, significant increase in West Scotland but status uncertain in other areas.
D1 & D4 Birds	No	Declining	GES achieved for non-breeding waterbirds in the Greater North Sea but not the Celtic Sea. Breeding seabirds have not achieved GES.
D1 & D4 Fish	No	Improving	GES not yet achieved in the Greater North Sea or Celtic Seas; demersal fish communities recovering from past over-exploitation.
D1 & D4 Pelagic Habitats	Partially	Stable/mixed	Achievement of GES uncertain; prevailing environmental conditions likely driving changes in plankton communities but influence of human activities not certain.
D1 & D6 Benthic habitats	No	Stable/mixed	GES achievement uncertain for intertidal & soft sediment habitats; for soft sediments, the level of physical damage consistent with GES in waters west of the Celtic Seas but not in the Celtic Seas or the Greater North Sea. GES not achieved for sublittoral rock and biogenic habitats.
D2 Non-indigenous species (NIS)	No	Stable/mixed	GES not achieved, but ability to detect new NNIS has improved.
D3 Commercial fish	No	Improving	GES achieved for some commercially exploited fish. In 2015, 53% of marine fish (quota) stocks fished below maximum sustainable yield (MSY), and has increased significantly since 1990. Most national shellfish stocks have not achieved GES, or their status is uncertain.

[52] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69632/pb13860-marine-strategy-part1-20121220.pdf

[53] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/921262/marine-strategy-part1-october19.pdf

D4 Food webs	Partially	Improving	Achievement of GES is uncertain, components of the marine food web are changing but it is not clear how they are affecting each other.
D5 Eutrophication	Yes	Stable/mixed	GES largely achieved. A small number of problems remain in coastal and estuarine waters, representing 0.03% of the UK EEZ and 0.41% of estuarine and coastal waters.
D7 Hydrographical conditions	Yes	Stable/mixed	GES continuing to be achieved.
D8 Contaminants	Yes	Improving	GES largely achieved. Highly persistent legacy chemicals cause of new failures, mainly in coastal waters close to polluted sources.
D9 Contaminants in seafood	Yes	Improving	GES achieved, high level of compliance with agreed safety levels.
D10 Marine litter	No	Stable/mixed	Beach litter levels in the Celtic Seas largely stable, while levels in the Greater North Sea have slightly increased.
D11 Underwater noise	Partially	Stable/mixed	Achievement of GES is uncertain, but research and monitoring programmes are improving understanding.

The NI State of the Seas Report[54] details Northern Ireland's input to the 2012 UK assessments, and highlights the issues that are specific to Northern Ireland. This includes chapters on marine biodiversity, invasive alien species, fisheries and aquaculture, marine food webs, eutrophication, seabed integrity, hydrographical conditions, contaminants, contaminants in biota, litter, energy and underwater noise, maritime archaeology, bathing water quality, and ports and harbour. The status of these descriptors in Northern Ireland is summarised below:

- **Marine biodiversity –** many of the NI marine species and habitats are considered to be in a good state, however some important marine habitats have been damaged by mobile fishing gear (in Strangford Lough, Rathlin Island and the Skerries). Greater protection will be achieved through the designation of Marine Protected Areas under the Northern Ireland Marine Bill.
- **Invasive alien species –** recognised as second (after habitat destruction) in the threat they pose to biodiversity. Several invasive alien species identified in NI coastal waters, including plants (Japanese wireweed and common cord grass) and animals (leathery sea squirt, slipper limpet, Pacific oyster, *Didemnum vexillum*, bamboo worm and Japanese skeleton shrimp). Non-commercial boating and commercial shipping are considered to pose a significant risk of introduction and spreading. Aquaculture and boating have historically been associated with spread in NI coastal waters.
- **Fisheries and aquaculture –** Irish Sea cod is suffering reduced reproductive capacity and is being harvested unsustainably; sole is at risk of unsustainable harvesting. There has been a sharp reduction in whiting abundance. In the Irish Sea, haddock spawning biomass and herring biomass has recently increased, and the plaice stock is being harvested sustainably. Angel shark is severely depleted and spurdog is depleted, but lesser spotted dogfish and nursehound are stable or increasing. The common skate is severely depleted, but thornback ray and blonde ray are stable or increasing and cuckoo ray is widespread and abundant. The survival of wild salmon at sea has significantly declined in recent years. The WFD has classified estuarine fish communities of the Foyle/Faughan as 'high', the Bann and Newry as 'good' and the Roe, Lagan and Connswater as 'moderate' status. The Dublin Bay prawn stock in the western Irish Sea is being harvested sustainably. The main aquaculture shellfish species in Northern Ireland are blue mussels, pacific oysters, and king scallops.
- **Marine food webs –** The MSFD descriptor concerns the flow of energy and matter between plants and animals and the interactions between species. Abundance of key species in the Irish Sea is closely

[54] https://www.daera-ni.gov.uk/publications/state-seas-report

linked to the seasonal cycle of water movement and the plankton production season. Integration of monitoring programmes and further modelling studies, as well as an awareness of the role played by zooplankton, are needed to gain further information on the status of food webs in Northern Ireland.

- **Eutrophication –** The trophic status of inshore and coastal waters has been monitored over the last 20 years by NIEA and AFBI. Inputs of nitrogen and phosphorus from human sources has generally declined over the last 10 years, however there is evidence of eutrophication in small areas that have restricted water movement, in the brackish and estuarine waters of inner Belfast Lough, tidal Lagan Estuary, north end of Strangford Lough and the Quoile Pondage. Long term monitoring of Irish Sea open marine waters by AFBI show that they are not eutrophic.
- **Seabed integrity –** The seabed around Northern Ireland has approximately equal areas of mixed coarse sediment, sand and mud. Mixed coarse areas are not subject to the same pressures as other areas and integrity is relatively high. Sandy areas are under more pressure; these may be in poorer condition but generally have high recovery rates. The most significant pressure on seabed integrity is fishing activity; this is concentrated on muddy seabeds for Dublin Bay prawn, and integrity is likely to be lower than in coarser substrata. Some aspects of seabed integrity in the sea loughs are low. Further information and assessment is considered necessary for more accurate assessment.
- **Hydrographical conditions –** Coastal defence structures have altered a substantial proportion of the Northern Ireland coastline, estimated at 100 km. This is particularly the case on soft coastlines. An accurate baseline of coastal defences is necessary, and a strategic approach to shoreline management, taking into account appropriate responses to climate change.
- **Contaminants –** Key sites show significant reductions in heavy metal contamination in sediments; less information is available for newer contaminants that can accumulate in sediments. Effects from tributyl tin (TBT) pollution has significantly declined. Inputs and concentrations of contaminants in seawater have decreased in recent years through control of their use, and are generally below UK EQS limits.
- **Contaminants in biota –** Shellfish flesh is monitored to protect human health; biotoxin levels in shellfish infrequently exceed thresholds for safe consumption, and closure of shellfish areas for this reason are uncommon. Abundance of phytoplankon species that produce biotoxins is low in NI coastal waters, and does not appear to be increasing. Blue mussel in Belfast Lough (Victoria Channel) show a decline in the level of industrial discharges of heavy metals.
- **Litter-** Marine litter is present in significant quantities and does not appear to be reducing, the main forms being plastics and packaging. It is considered that this issue can only be effectively dealt with at source.
- **Underwater noise –** Underwater noise is important for communication by marine mammals and fish. Insufficient data exists for a quantitative assessment of underwater noise in Northern Ireland or the UK, and more information is needed to better understand impacts of noise on these biota.

3.3.4.4 DAERA Water Quality Monitoring

DAERA has responsibility for monitoring water quality of surface waters (rivers, lakes, transitional and coastal marine waters) and groundwaters across Northern Ireland. The Northern Ireland Environmental Statistics Report provides annual reporting on a range of environmental indicators, updating the State of the Environment Report for Northern Ireland, as published in 2013. The most recent report is for 2021[55], and Section 4 provides key information regarding the current status of water in Northern Ireland. Information on the status and trends of water bodies in Northern Ireland is also provided in the 'Report on the State of Implementation of the Nitrates Directive in the United Kingdom (Northern Ireland) 2016-2019', produced in accordance with the requirements of Article 10 of the Nitrates Directive (DAERA in prep. July 2020).

Coverage of the surface freshwater monitoring network aims to fulfil all monitoring requirements under various EU Directives such as the WFD and Nitrates Directive. The number of sites monitored differs between reporting

[55] https://www.daera-ni.gov.uk/sites/files/publications/daera/ni-environmental-statistics-report-2021.pdf

periods; changes were implemented in 2015 through better targeting and adoption of a risk-based monitoring approach.

Nitrate concentrations were measured at 622 surface freshwater monitoring stations across Northern Ireland in the period 2008-2011, at 337 stations in the period 2012-2015, and at 534 stations in the 2016-2019 period. The 2021 Statistics Report outlines trends in nitrate for surface waters in Northern Ireland, based on monitoring requirements of the Nitrates Directive. The mandatory standard for nitrate (NO_3) is 50 mg/l, while there is a guide standard for surface waters whereby 90% of samples should be <25 mg/l. For the period 2000-2011, >99% of sites had an annual mean concentration <25 mg NO_3/l, while all monitored rivers had an annual mean concentration <25 mg NO_3/l for the period 2012-2016, and 99.8% of sites in 2019. According to long term seasonal trend analysis for the 28-year period 1992-2019, monthly trends in average NO_3 concentrations in Northern Ireland's rivers have predominantly been decreasing or stable. The Statistics Report suggests that this may be attributable to measures that have been implemented since the introduction of the Nitrates Action Programme. However, it has also been recognised that a strong contributing factor to the decreasing long term trend is the initial high nitrate levels in the early 1990s, from which there has been a gradual decrease. When looking at the data from 2016, the percentage of waterbodies showing an increasing long term trend went from 4.6% in 2016 to 9.8% in 2020, which is masked when looking at the data over the long term.

NIEA monitored Soluble Reactive Phosphorus (SRP) concentrations at 568 surface freshwater stations across Northern Ireland in 2008-2011 and at 391 surface freshwater stations in 2012-2015. During the 2016-2019 reporting period 534 sites were monitored. Overall changes between the current and previous reporting period indicate that the majority (73.8 %) of river sites experienced a decrease or stabilisation in WFD SRP classification status; 26 % of sites exhibited a weak increase in SRP between the two reporting periods as they deteriorated by one class, while one site exhibited a strong increase in SRP between the two reporting periods as it deteriorated by 2 classes from High to Moderate.

SRP is a plant nutrient that, when present in excess amounts in rivers, can lead to accelerated growth of plants and algae, and negative effects on water quality. Secondary impacts can include reduced dissolved oxygen levels caused by the overnight respiration of higher aquatic plants or macrophytes which can have a negative impact on fish. SRP is an indicator in the PfG framework. In the baseline monitoring year (2015), the SRP concentration was 0.059 mg/l, and a change of +/-0.01 mg/l is used to indicate change against this baseline. The average 2020 SRP concentration in 93 surveillance rivers was 0.067 mg/l, considered as no change from the baseline for PfG reporting requirements. According to the Statistics Report, there has been a reduction in phosphorus originating from agricultural activities since the introduction of the Phosphorus (Use in Agriculture) Regulations (NI) in 2006, in combination with improvements in the treatment of domestic wastewater, however recent years have seen a marginal increase in SRP levels in surveillance rivers, which consistently remain above the low of 0.047 mg/l reported in 2012.

Eutrophication in transitional, coastal, and marine waters is assessed following the Common Procedure for the Identification of the Eutrophication Status of the Maritime Area of the OSPAR Convention (OSPAR 97/15/1, Annex 24) and selected quality elements monitored under the WFD. The OSPAR Comprehensive Procedure includes a set of assessment parameters relating to nutrient enrichment (e.g. dissolved inorganic nitrogen (DIN)). Although the WFD does not specifically define eutrophication, many of the parameters under the OSPAR Comprehensive Procedure are included as quality elements within the WFD. The trophic status of transitional and coastal waters was assessed using the results of the 2018 WFD interim water body classification. Based on the results of the 2018 WFD classification results, the trophic status of transitional and coastal waters indicated that 58% of water bodies were high or good status, 25% were moderate status, and 17% were either poor or bad status. The assessment also showed that eutrophication did not appear to be an issue in coastal waters; all coastal water bodies were either good or high status. All water bodies that were classified as moderate or worse were either transitional (estuarine) waters or nearshore sea loughs.

Levels of winter Dissolved Inorganic Nitrogen (DIN), comprising nitrate, nitrite and ammonia have been monitored at 24 marine water bodies in Northern Ireland since 2012. Excess concentrations of nutrients in marine waters can lead to eutrophication, and local imbalances of phytoplankton (planktonic blooms) and macroalgae, with nitrogen the most important nutrient in limiting marine algal growth. Nutrient concentrations are highest in the winter in temperate regions, when higher rainfall levels lead to greater agricultural run-off. Winter DIN is an indicator in the PfG framework. In the baseline monitoring year (2015), the winter DIN concentration was 26.45 µM, and a change of +/-3 µM is used to indicate change against this baseline. Winter DIN levels were relatively stable between 2012 and 2018, with a sharp rise in levels recorded in 2019. In 2020

the mean winter DIN value fell to 26.2 µM, which is considered to be no change since the baseline year for PfG reporting.

Groundwater quality in Northern Ireland is assessed in accordance with NIEA's groundwater monitoring programme through the collection of groundwater water samples from boreholes, wells and springs that are mostly owned and operated by third parties. Hence, NIEA rely mostly on third party owned groundwater boreholes and the co-operation of land/property owners to continue sampling from their groundwater sources for chemical monitoring and analysis. This means that the groundwater monitoring network can change due to businesses closing or changing their groundwater usage and in addition datasets available for trend assessments can be small. Monitored average nitrate concentrations for the current reporting period 2016–2019 in groundwater in Northern Ireland were generally low. Results show that of the 56 sites, 54 had an annual average of less than 25 mg/l NO_3, one site had an annual average value less than 50 mg/l NO_3, and one site has consistently been greater than 50 mg/l NO_3 for the past 8 years.

3.3.4.5 DAERA Risk Mapping

DAERA has prepared a risk mapping tool, which takes into account WFD waterbodies that are at increased risk of pollution from agricultural land holdings. This tool is used in the risk-based selection process for cross-compliance inspections of farms. The use of this approach for the protection of water bodies is further discussed in Section 3.3.3.5.

3.3.4.6 Flood Risk in Northern Ireland

The Floods Directive (2007/60/EC), implemented in Northern Ireland through 'The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009' and amendments, the "Floods Directive Regulations" requires the establishment of a framework for the assessment and management of flood risk, with the aim of reducing the negative consequences of flooding on human health, the environment, cultural heritage and economic activity. This works on a six-year cycle of flood risk assessment, prioritisation, updated flood mapping and planning for flooding. As part of the second cycle of flood risk management planning, the NIFRA 2018[56] reviewed the situation regarding flood risk within Northern Ireland. It identified that the main sources of flooding within Northern Ireland are rivers (fluvial flooding), the sea (coastal flooding), and overland surface water flows (pluvial flooding). In total, the NIFRA 2018 identified that approximately 45,000 properties, comprising 5% of the total in Northern Ireland, are at risk from flooding from these sources. Owing to the large number of rivers within Northern Ireland, there is a significant degree of fluvial flood risk, particularly in relation to large rivers. Fluvial flooding occurs when the channel capacity of rivers is exceeded, and water overtops the river banks and flows across the natural floodplain of the river. The impact of fluvial flooding is significantly greater within urban and suburban areas, in part due to the density of receptors and the impact of land use upon drainage patterns. Significant risk of surface water (pluvial) and coastal flooding also exists throughout Northern Ireland. Significant coastal flooding is relatively rare in Northern Ireland, but can potentially cause major damage in low lying areas, with effects of saltwater inundation causing long term economic and environmental damage. Pluvial flooding results from rainfall that has not reached, or has overwhelmed, man-made drainage systems, and leads to overland flows and ponding within low-lying areas. It can be exacerbated by the extensive areas of hard, impermeable surfaces that are frequently present within urban areas. The manner by which agricultural land is managed can influence the potential for flooding, both within those areas, and also in downstream catchments.

The NIFRA 2018 identified twelve Areas of Potential Significant Flood Risk (APSFR). The names of these areas, along with the RBD in which they are located are listed in **Table 3-17**, and they are shown in **Figure 3-13**. The Northern Ireland Flood Risk Management Plan 2021-2027 is the second cycle Plan for Northern Ireland. It focuses on planning for measures to manage flood risk in these twelve APSFR.

[56] https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/northern-ireland-flood-risk-assessment-report-2018-updated-may2019.pdf

Table 3-17 Areas of Potential Significant Flood Risk in Northern Ireland

APSFR Name	River Basin District
Belfast	North Eastern RBD
Londonderry	North Western IRBD
Newry	Neagh Bann IRBD
Lurgan	Neagh Bann IRBD
Glengormley and Mallusk	Neagh Bann IRBD
Larne	North Eastern RBD
Bangor	North Eastern RBD
Portadown and Craigavon	Neagh Bann IRBD
Omagh	North Western IRBD
Newtownabbey	North Eastern RBD
Carrickfergus	North Eastern RBD
Ballymena	Neagh Bann IRBD

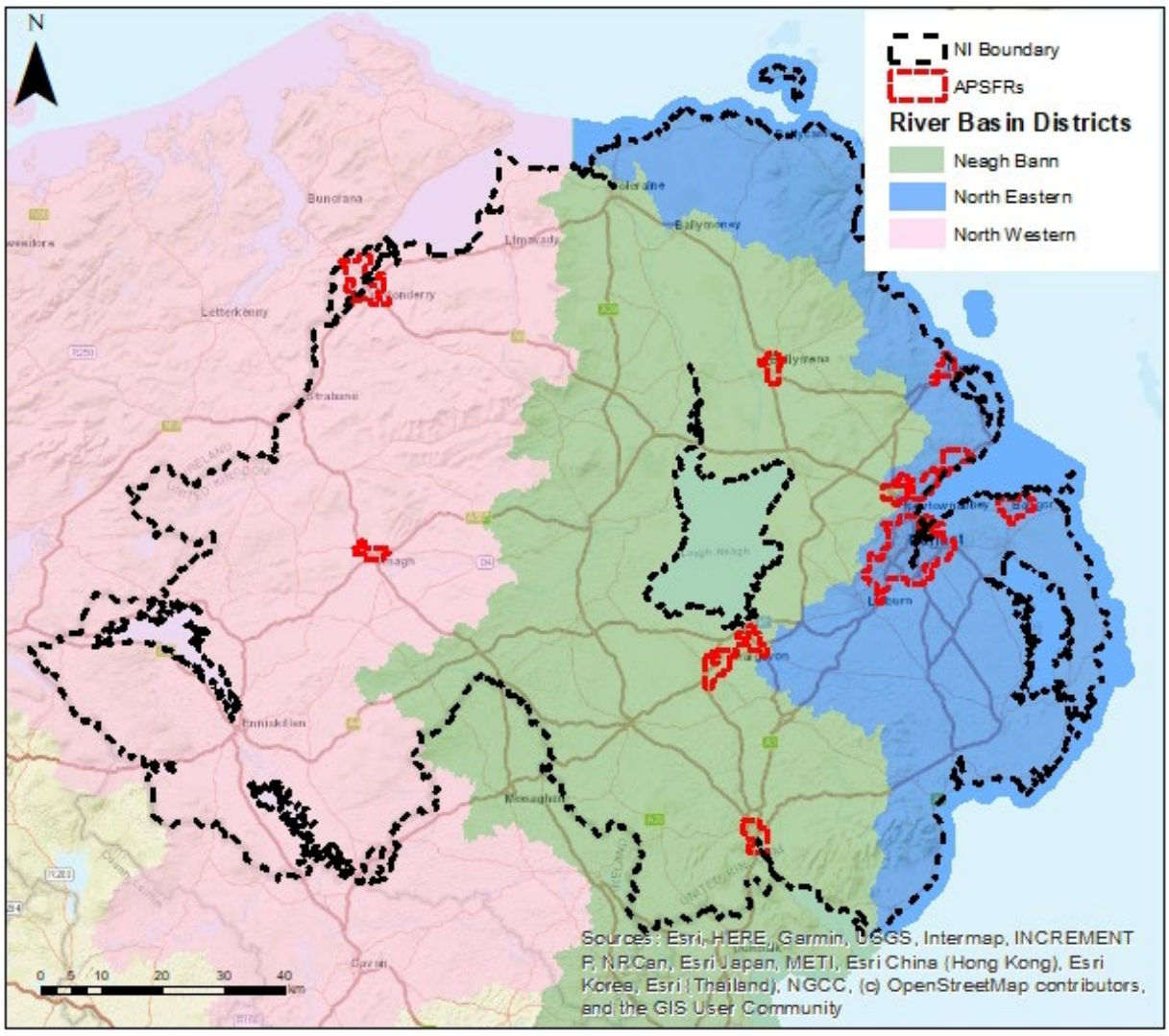

Figure 3-13 Location of Areas of Potential Significant Flood Risk in Northern Ireland

3.3.4.7 Summary of Existing Pressures and Issues for Water in Northern Ireland

The most recent State of the environment report for Northern Ireland states that industry, power generation, agriculture and forestry, development, transport and infrastructure pressures all potentially impact on Northern Ireland's water environment[57]. Under the WFD, pressures on the quality of the water environment have been assessed according to two types, as follows:

- Point source pollution pressures on water quality – e.g. effluent discharges arising from industry and WWTWs; sewer overflows during heavy rainfall events; and
- Diffuse source pollution pressures on water quality – e.g. contaminated surface run-off from roads, construction sites, fuel storage areas; septic tank discharges; acid and nutrient deposition from the air; run-off of pesticides, soils and nutrients from agriculture and forestry, and migration of these to groundwaters and surface waters.

Abstractions and impoundments of water for drinking water supply, industry, agriculture, recreation, and hydropower can lead to pressures on water quantity and flow, and can exacerbate existing water quality issues. The introduction and spread of invasive non-native species, including aquatic plants such as Floating Pennywort and Curly Waterweed, can impact upon native aquatic biodiversity, and can negatively affect water-based recreational activities. The risk of flooding following heavy rainfall events can be increased by land management practices that influence water storage potential and run-off, such as in urban areas where impermeable surfaces are common. Flood events can also lead to increased run-off of sediments and pollutants from agricultural lands, with consequences for receiving water quality, while land management practices can have a significant influence on flood risk in downstream areas.

Implementation of the draft FAPP, and policy proposals therein, has the potential to lead to positive or negative effects on the quality of water bodies in Northern Ireland alone, or in combination with, these existing pressures. There is potential for positive or negative effects on the ecological status and chemical status of surface water bodies, including rivers, lakes, coastal and marine bodies, from nutrient and sediment pollution, including areas protected under the WFD for water-dependent habitats and species, food supply of aquatic species, drinking water supply and use for recreation. There is also potential for positive or negative effects on flood risk within, and downstream of agricultural land.

3.3.5 Air Quality & Climatic Factors

Good air quality is vital for human health and wellbeing, for our climate, habitats and built environment. Air pollution is the result of a range of substances that are introduced into the atmosphere from a variety of different sources. On the whole, air quality in Northern Ireland has improved significantly over the past few decades; in particular, concentrations of sulphur dioxide, originating from the combustion of coal and oil, has reduced. However, some pollutants are continuing to exceed air quality objectives. This has consequences on both human health and on some of our most important habitats that are sensitive to the effects of atmospheric pollutant deposition. Of particular relevance to the agriculture sector are the concentrations of ammonia gas, with agriculture recognised as the dominant source of ammonia emissions in Northern Ireland and worldwide.

The UK has international obligations for ammonia reduction, as a signatory to the UN Gothenburg Protocol, which has set a target of 8% ammonia reduction for the UK by 2020, from 2005 levels. This 8% target for the UK is also contained within the EU National Emissions reduction Commitments (NEC) Directive 2016. The SALMS 2016, described in Section 3.3.3.6 Sustainable Land Management, is a strategic land management policy document with the aim of outlining how the ambitions put forward could be achieved in such a way as to improve farm incomes and environmental performance simultaneously. The significance of ammonia for the agriculture sector was recognised in 2017 with the addition of an Annex to the SALMS 'Making Ammonia Visible'[58] outlining policy for agriculture in Northern Ireland in relation to ammonia. The overarching aim is to

[57] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

[58] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

"satisfy the joint need of bringing ammonia emissions from agriculture down, while allowing Priority Habitats to recover". A draft ammonia strategy for Northern Ireland is also currently in production by DAERA.

Climate change represents one of the most important threats to our environment, and to our economy, and projections indicate that hotter, drier summers and warmer wetter winters will occur over the next century as a result of climate change. The Paris agreement, signed in 2015, committed to strengthening the global response to the threats of climate change, by holding the global temperature rise to no more than 2°C and preferably below 1.5°C. Key to this agreement is the reduction of Greenhouse Gas (GHG) emissions fast enough to achieve this temperature goal.

The recent European Green Deal 2019 aims to make significant advances in climate action, providing a more sustainable low-carbon economy for the EU. It plans to boost the efficient use of resources by moving to a clean circular economy, and to restore biodiversity and cut pollution. The Deal has set a goal of net zero carbon emissions by 2050, and a 50-55% reduction in emissions by 2030. The UK Climate Change Act 2008 introduced a legally binding target for the reduction of GHG emissions in the UK by at least 80% below 1990 baseline levels by 2050. The target for the current 2018-2022 period is a reduction in emissions by 37% by 2020 and, for the next period (2025) to reduce emissions by 51%. The Act was amended in 2019, and now commits the UK to reducing emissions by 100% by 2050 from 1990 baseline levels (in line with the EU's 'net zero 2050 target').

It is considered that the key issues associated with implementation of the draft FAPP and air quality / climatic factors comprise:

- Potential for effects on Methane (CH_4), nitrous oxide (N_2O), and carbon dioxide (CO_2) GHG emissions arising from agricultural and land use activities;
- Potential for effects on transboundary emissions (e.g. NH_3) arising from agricultural activities;
- Potential for effects of air pollutants on sensitive habitats;
- Potential for effects of air pollutants on human health;
- Potential for effects on climate resilience; and
- Potential for improvement of efficiencies leading to a reduction in emissions.

3.3.5.1 Air Quality in Northern Ireland

Air quality is monitored regularly at 21 stations within Northern Ireland. At each of these locations, levels of carbon monoxide, nitrogen oxides, sulphur dioxide, particulates, ozone, benzene and polycyclic aromatic hydrocarbons are monitored, and measured with regard to EU Air Quality Directives and the 2007 UK Air Quality Strategy (AQS) objectives. Air quality in Northern Ireland is reported annually by DAERA, the most recent report in 2019[59], and is compiled from data supplied by the monitoring stations. This highlights any exceedances of air quality objectives, and highlights any emerging air quality trends. The most significant air pollutants for Northern Ireland and their sources are the following:

- Nitrogen oxides (NO_x, including nitric oxide NO and nitrogen dioxide NO_2), arising from fuel combustion in transport and energy generation;
- Sulphur dioxide (SO_2), arising from combustion of fuels that contain sulphur, from power generation, industry and domestic solid fuel combustion;
- Particulate matter (PM_{10} and $PM_{2.5}$), arising from road transport and domestic solid fuel combustion;
- Ground-level ozone (O_3), arising from the interaction of various air pollutants with sunlight;

[59] https://www.daera-ni.gov.uk/DAERA_Air_Pollution_in_NI_2019

- Ammonia (NH_3), arising from agricultural activities and handling of manure. NH_3 reacts with other pollutants (NO_x, S), producing fine particles of ammonium nitrate and ammonium sulphate; and
- Polycyclic aromatic hydrocarbons (PAHs), arising from incomplete combustion primarily from domestic sources.

The following pollutants were monitored in Northern Ireland in 2019: Carbon monoxide (CO), Nitrogen oxides (NO_x, including NO and NO_2), sulphur dioxide (SO_2), particles (PM_{10}, $PM_{2.5}$ and black carbon), Ozone (O_3), Benzene, polluting elements (lead, arsenic, cadmium, nickel, mercury) and polycyclic aromatic hydrocarbons (PAHs). The EU limit values, target values and AQS objectives were met for PM_{10} particulate matter, O_3, CO, Benzene, SO_2 and polluting elements. The four sites monitored for NO_2 met EU limit values, but all exceeded the more stringent AQS objectives for annual mean concentrations; each of these are traffic related. The three sites monitored for PAHs met EU limit values but exceeded the more stringent AQS objectives.

The UK National Atmospheric Emission Inventory (NAEI) is the standard reference air emissions inventory for the UK, and includes emission estimates for England, Scotland, Wales and Northern Ireland for a wide range of important pollutants including GHGs, regional pollutants leading to acid deposition and photochemical pollution, persistent organic pollutants (POPs) and other toxic pollutants such as heavy metals. The NAEI is compiled annually, when the latest set of data are added, and the full time series updated and reported internationally. The latest report was published in September 2021, and covers the period 2005-2019[60]. This summarises emissions in Northern Ireland for the eight priority air pollutants: ammonia (NH_3), carbon monoxide (CO), nitrogen oxides (NO_x as NO_2), non-methane volatile organic compounds (NMVOCs), particulate matter less than 10 micrometres (PM_{10}), particulate matter less than 2.5 micrometres ($PM_{2.5}$), sulphur dioxide (SO_2) and lead (Pb). Most pollutant emission levels were lower in 2019 than they were in 2005. Ammonia emissions have increased since 2010 a result of greater numbers of dairy cattle and associated manure management and spreading, as well as increase in other nitrogen-based (primarily urea-based and digestate) fertiliser use. Ammonia emissions were estimated to be 33kt in 2019, an overall increase of 7% since 2005. Inventory figures show that, in 2019, 12% of the total UK ammonia emissions came from Northern Ireland. This is disproportionate when compared to Northern Ireland's population (3% of the UK total) and land area (6% of the UK total) as a result of the importance of agriculture to Northern Ireland's economy. In 2019 it was estimated that 96.9% of all ammonia emissions in Northern Ireland came from the agriculture sector. Agriculture was also an important sector in the contribution of NMVOCs (45.7% of the NI total) and PM_{10} (16.1% of the NI total).

Nitrogen can be lost to the air in gaseous forms such as ammonia or nitrous oxide from livestock, their manures and from the application of fertiliser. The transport of ammonia can vary greatly and, emissions can lead to impacts at a localised level, as well as contributing to the effects of long range pollutant transport. Ammonia emissions lead to the deposition of nitrogen compounds on land, which can occur in two ways:

- Dry deposition of nitrogen compounds close to the ammonia source; and
- Wet deposition of nitrogen compounds in rainfall, which can be transported much further than the source.

The Making Ammonia Visible report (2017)[61] highlighted that ammonia emissions from agriculture in Northern Ireland are not predominantly caused by the intensive sector, with only 20% of emissions emanating from the pig and poultry sectors. Cattle production is responsible for by far the greatest proportion of ammonia originating from the agriculture sector at over 70%. Fertiliser is estimated to contribute 7% of the total ammonia emissions. The source of agricultural ammonia emissions in 2015 was estimated as follows:

- Manure spreading 34%;
- Housing 28%;
- Hardstandings 11%;

[60] https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2109270949_DA_Air_Pollutant_Inventories_2005-2019_Issue1.1.pdf

[61] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

- Grazing/outdoor 10%;
- Manure storage 10%; and
- N fertilisers 7%.

The Inventory of Ammonia Emissions from UK Agriculture 1990-2019 was published in 2021[62], and provides a breakdown of ammonia emission quantities and sources for the UK as a whole for 2019. This estimates that 47% of UK ammonia emissions came from cattle (24% from dairy cows and 24% from other cattle), 14% from poultry, 8% from pigs, 5% from sheep, 1% from horses, and 25% from fertilisers, sludge and digestates. In terms of emission sources, housing (26%), manure application (25%) and storage (9%) and the application of fertilisers (17%) contributed the majority of ammonia emissions.

In Northern Ireland, the Code of Good Agricultural Practice (COGAP) for the Prevention of Pollution of Water, Air and Soil was developed prior to the first designation of Nitrate Vulnerable Zones in 1999. In addition to the COGAP for the Prevention of Pollution of Water, Air and Soil, the COGAP for Reducing Ammonia Emissions was published by DAERA in May 2019[63]. This was produced in collaboration with the farming industry, and provides farmers with a range of practical steps they can take to minimise ammonia emissions. In particular, it outlines legislative requirements of the NAP in relation to the storage of organic manures, and how to apply organic manures effectively and efficiently through the use of Low Emission Slurry Spreading Equipment (LESSE). As a consequence of the total territory approach in Northern Ireland, the sections of the COGAP for the Prevention of Pollution of Water, Air and Soil relevant to livestock manure storage and nitrogen fertiliser application are incorporated into the 2019 NAP Regulations and compliance is a legal requirement for all farm businesses in Northern Ireland. In addition, the COGAP for the Reducing Ammonia Emissions section on spreading organic manure using LESSE is compulsory for farms which meet certain criteria.

The draft ammonia strategy currently being developed by DAERA will propose a strategic approach to addressing ammonia to include an ammonia reduction programme for implementation on farms, a programme to restore and manage habitats to alleviate the symptoms of ammonia and nitrogen exceedances, and a revised operational protocol for assessing impacts from atmospheric nitrogen pollution.

3.3.5.2 Greenhouse Gas Emissions in Northern Ireland

The Northern Ireland GHG Inventory includes data on GHG emissions in Northern Ireland, forming part of the UK GHG Inventory reported at an International level in line with UK commitments under the Kyoto Protocol. The Inventory is updated annually, the latest available covers the period 1990-2019[64].

In 2019, Northern Ireland accounted for 4.7% of the UK total GHG emissions, which is higher than its population share of 3%. Since the base year (1990), Northern Ireland's total GHG emissions have decreased by 17.9 per cent from 26.1 to 21.4 million tonnes of carbon dioxide equivalent ($MtCO_2e$), with a 1.4% decrease compared to 2018. Decreases are largely attributable to the energy supply, waste management and residential sectors, resulting from energy efficiency improvements, the switch of fuel use from coal to natural gas, and improvements in landfill management. Agriculture, transport and land use change sectors showed higher GHG emissions in 2019 than in the base year of reporting.

Agriculture was the sector responsible for the greatest amount of GHG emissions in 2019 (26%), followed by transport (20%) and residential (14%). Agricultural sources accounted for a significantly higher proportion of emissions in Northern Ireland than in the rest of the UK, owing to the greater relative importance of the sector to the Northern Ireland economy. The composition of GHG emissions for Northern Ireland in 2019 was as follows:

- 68% Carbon dioxide (UK 80%);

[62] https://uk-air.defra.gov.uk/assets/documents/reports/cat07/2103191000_UK_Agriculture_Ammonia_Emission_Report_1990-2019.pdf

[63] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/code-of-good-agricultural-practice-for-the-reduction-of-ammonia-emissions.pdf

[64] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/NI%20Greenhouse%20Gas%20Statistics%201990-2019_2.pdf

- 22% Methane (UK 12%);
- 8% Nitrous oxide (UK 5%); and
- 2% Fluorinated and other gases (UK 3%).

The total quantity of Northern Ireland's emissions attributed to the agriculture sector in 2019 was 5.6 of the total 21.4 $MtCO_2e$. This represents a 7.7% increase from the base year. Across all sectors other than agriculture and waste management, carbon dioxide was the most common emitted GHG. For the agriculture sector, methane arising from livestock and nitrous oxide from soils represented more significant emissions than carbon dioxide. The agriculture sector was accountable for 3.7 of the 4.8 $MTCO_2e$ of methane (CH_4), and 1.3 of the 1.7 nitrous oxide (N_2O) emitted within Northern Ireland in 2019, but a much lower proportion of CO_2 (0.6 of the 14.6 $MTCO_2e$ emitted).

The land use change sector includes sinks and sources of GHG emissions from land use, land use change and forestry; sinks remove GHGs from the atmosphere, while sources emit GHGs. This sector showed 9.1% higher GHG emissions in 2019 than in the base year, contributing 12% of the total Northern Ireland emissions (2.5 $MtCO_2e$), and making it a net emitter of GHG emissions[53]. This increase since 1990 is reflective of changes in carbon stock that are associated with conversion of land between cropland, grassland, settlements and forest land, the largest growth being attributed to conversion from grassland to settlements, cropland remaining as cropland, and conversion of cropland to grassland.

GHG emissions are an indicator in the draft 2016-2021 PfG, based on a criteria for change set at +/ 1.0 percentage points annually since the baseline of 21.9 $MtCO_2e$ in 2014. The decrease of 2.1% from 2014 to 2019 is considered as 'no change' for PfG reporting. On the whole, the UK has reduced emissions by 44% since the base year, however the different parts of the UK vary in their reduction, with Northern Ireland achieving the lowest reduction of 18% in emissions to date (Scotland 45%; England 44%; Wales 31%).

3.3.5.3 Effects of Air Pollution on Sensitive Habitats

According to the Expert Working Group on Sustainable Land Management, nitrogen deposition, particularly on priority habitats, arising primarily from ammonia emissions, is one of the key environmental challenges that faces the agriculture sector in Northern Ireland[65].

Emissions of ammonia lead to the deposition of nitrogen compounds on land, through either dry deposition close to the emission source, or wet deposition in rainfall that can be transported much further afield. The effects of exposure to ammonia are particularly important for sensitive habitats such as bogs and woodlands. In bogs, sensitive plants are subject to stress from ammonia exposure much faster than they are through wet N deposition (i.e. at lower nitrogen loads), and exposure can lead to direct damage to sensitive species, changes in community composition, plant water stress, and changes in plant morphology. Owing to their acidic nature, ombrotrophic bogs provide a significant sink for ammonia. In woodlands ammonia can result in direct damage to foliage, and negative effects such as increased sensitivity to drought, frost, and pest attack, loss of mycorrhiza and fruit bodies, and changes in community composition.

The Air Pollution Information System (APIS)[66] provides a searchable database and information on pollutants and their impacts on habitats and species. This includes indicative values of critical levels of ammonia concentrations for sensitive habitats. This enables a search of designated European sites, and features within, that are receiving ammonia concentrations that are above their critical level. Of the 59 SACs in Northern Ireland, 33 sites have ammonia concentrations that are above the critical level for the habitats present. This relates to the following broad habitat types:

- Raised and blanket bogs (20 sites)
- Valley mires, poor fens and transition mires (3 sites)
- Dry heaths (3 sites)

[65] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

[66] http://www.apis.ac.uk/

- Rich fens (3 sites)
- Alluvial woodland (2 sites)
- Alpine and subalpine grasslands (2 sites)
- Arctic, alpine and subalpine scrub habitats (2 sites)
- Non-Mediterranean dry acid and neutral closed grassland (2 sites)
- Northern wet heath (2 sites)
- *Erica tetralix* dominated wet heath (2 sites)
- Acidophilous *Quercus*-dominated woodland (1 site)
- Sub-Atlantic semi-dry calcareous grassland (1 site)
- Marsh fritillary butterfly (1 site – supporting habitat)
- Coastal dune heaths (1 site)

Each of these habitats have a critical level of 1µg NH_3/m^3 (annual mean); at 23 European sites, ammonia levels are over twice this value, and at 11 sites they are over 3 times this concentration.

Northern Ireland's Article 17 supporting documentation for the conservation status assessment of features at these sites was examined for any pressures or threats relating to air pollution, and those specified as arising from agricultural activities. Of the 48 habitats for which specific supporting documentation for Northern Ireland was available, 10 habitat assessments specified 'mixed-source air pollution, air-borne pollutants' as a pressure or threat (7 as a high-ranking pressure/threat and 3 as medium-ranking), while 22 habitat assessments specified 'agricultural activities generating air pollution' as a pressure or threat to the habitat (9 at a high-ranking level and 13 at a medium-ranking level). Of the 26 species for which specific supporting documentation for Northern Ireland was available, one specie's assessment (Marsh fritillary butterfly) specified 'agricultural activities generating air pollution' as a pressure or threat to the species (medium-ranking), while four other species (Petalwort, large white-moss, Marsh saxifrage and Pollan) specified 'mixed-source air pollution, air-borne pollutants' as a pressure or threat (all high-ranking).

The deposition of nitrogen compounds aids the growth of some plant species, but can lead to significant negative effects on plant species that are adapted to low nitrogen concentrations. In designated sites, which protect sensitive and environmentally important habitats and species, the availability of excess nitrogen through deposition can lead to out-competition of sensitive species by those that are more nitrogen-tolerant, and subsequent changes in community composition, biodiversity loss and changes in the structure and function of the ecosystem.

APIS provides indicative values within nutrient nitrogen critical load ranges for habitats, for use in air pollution impact assessments. This enables a search of European sites, and features within, that are receiving a level of nitrogen deposition that is above their critical load. **Table 3-18** shows the European sites in Northern Ireland with one or more features receiving above their critical nitrogen load. Of the 59 SACs in Northern Ireland, 48 are receiving nitrogen deposition that is above the critical load for the designated habitat or species present.

In addition to the total nitrogen deposition at the site, APIS provides an indication of the source attribution (how the deposition at the site is apportioned between different emission sources), and the relative extent to which these are local or long range in nature. **Table 3-18** indicates the total % of nitrogen deposition at these sites attributable to agricultural activities occurring within Northern Ireland, and the proportional contribution of livestock and fertiliser to this. This indicates that, of the nitrogen deposited at these sites, between 21 and 57% is attributable to agricultural activities taking place within Northern Ireland (a combination of livestock and fertiliser sources).

Table 3-18 European Sites with N Deposition above Critical Loads and Proportion Attributable to NI Agriculture

SAC	Broad Habitat Type/Species Above Critical N Load	% Contribution to site deposition from NI Agriculture*		
		Livestock %	Fertiliser %	Total %
Aughnadadarragh Lough	Marsh fritillary butterfly	41	4	45
Ballykilbeg	Marsh fritillary butterfly	34	2	36
Ballynahone Bog	Raised and blanket bogs	49	3	52
Banagher Glen	Acidophilous Quercus-dominated woodland; Meso- and eutrophic Quercus woodland	45	3	48
Bann Estuary	Coastal stable dune grasslands - acid type; Shifting coastal dunes	40	2	42
Binevenagh	Alpine and subalpine grasslands; Arctic, alpine and subalpine scrub habitats; Non-mediterranean dry acid and neutral closed grassland	48	5	53
Black Bog	Raised and blanket bogs	54	3	57
Breen Wood	Raised and blanket bogs; Acidophilous Quercus-dominated woodland	47	3	51
Carn-Glenshane Pass	Raised and blanket bogs	45.9		
Cranny Bogs	Raised and blanket bogs	46	2	48
Cuilcagh Mountain	Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Arctic, alpine and subalpine scrub habitats; Northern wet heath: Erica tetralix dominated wet heath; Dry heaths	26	2	28
Curran Bog	Raised and blanket bogs	44	2	46
Dead Island Bog	Raised and blanket bogs	52	3	55
Deroran Bog	Raised and blanket bogs	52	3	55
Derryleckagh	Acidophilous Quercus-dominated woodland; Valley mires, poor fens and transition mires	40	2	42
Eastern Mournes	Raised and blanket bogs; Alpine and subalpine grasslands; Arctic, alpine and subalpine scrub habitats; Northern wet heath: Erica tetralix dominated wet heath; Dry heaths	35	2	37
Fairy Water Bogs	Raised and blanket bogs	50	3	53
Garron Plateau	Permanent oligotrophic waters: Softwater lakes; Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Alpine and subalpine grasslands; Valley mires, poor fens and	48	2	50

	transition mires; Northern wet heath: Erica tetralix dominated wet heath; Rich fens			
Garry Bog	Raised and blanket bogs	53	3	56
Hollymount	Acidophilous Quercus-dominated woodland	36	3	38
Largalinny	Acidophilous Quercus-dominated woodland	34	2	37
Lecale Fens	Rich fens	33	2	35
Lough Melvin	Permanent oligotrophic waters: Softwater lakes; Acidophilous Quercus-dominated woodland	20	1	21
Magheraveely Marl Loughs	Rich fens	26	2	27
Magilligan	Coastal stable dune grasslands - acid type	36	3	39
Main Valley Bogs	Raised and blanket bogs	53	3	56
Monawilkin	Acidophilous Quercus-dominated woodland	34	2	36
Moneygal Bog	Raised and blanket bogs	43	2	45
Moninea Bog	Raised and blanket bogs	25	2	27
Montiaghs Moss	Marsh fritillary butterfly	42	2	45
Murlough	Coastal stable dune grasslands - acid type; Coastal stable dune grasslands - calcareous type; Non-mediterranean dry acid and neutral closed grassland; Moist to wet dune slacks; Shifting coastal dunes; Coastal dune heaths	32	2	34
North Antrim Coast	Vertigo angustior - Narrow-mouthed whorl snail; Coastal stable dune grasslands - acid type; Coastal stable dune grasslands - calcareous type; Non-mediterranean dry acid and neutral closed grassland; Shifting coastal dunes	44	3	46
Owenkillew River	Raised and blanket bogs; Acidophilous Quercus-dominated woodland	51	3	54
Peatlands Park	Raised and blanket bogs; Acidophilous Quercus-dominated woodland	51	2	53
Pettigoe Plateau	Permanent oligotrophic waters: Softwater lakes; Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs	29	2	31
River Faughan and Tributaries	Acidophilous Quercus-dominated woodland	44	3	47
River Roe and Tributaries	Acidophilous Quercus-dominated woodland	45	3	48
Rostrevor Wood	Acidophilous Quercus-dominated woodland	34	2	36
Slieve Beagh	Permanent dystrophic lakes, ponds and pools; Raised and blanket bogs; Dry heaths	49	3	51

Slieve Gullion	Dry heaths	41	2	43
Strangford Lough	Coastal stable dune grasslands	35	2	37
Teal Lough	Raised and blanket bogs	52	3	55
Tonnagh Beg Bog	Raised and blanket bogs	50	3	52
Tully Bog	Raised and blanket bogs	44	2	46
Turmennan	Valley mires, poor fens and transition mires	41	2	44
Upper Lough Erne	Acidophilous Quercus-dominated woodland	36	3	39
West Fermanagh Scarplands	Raised and blanket bogs; Alpine and subalpine grasslands; Meso- and eutrophic Quercus woodland	30	2	32
Wolf Island Bog	Raised and blanket bogs	53	3	56

*Figures are rounded.

3.3.5.4 Effects of air pollutants on Human Health

Air pollution can pose a serious risk to human health, from lung irritation and inflammation to acute respiratory illness and exacerbation of heart and lung disease. The agriculture sector is a significant contributor of atmospheric pollutants, such as methane, ammonia and nitrogen oxides, as discussed in previous sections. The consequences for human health are expanded upon in Section 3.3.2 Population and Human Health.

3.3.5.5 Summary of Existing Pressures and Issues for Air Quality and Climatic Factors in Northern Ireland

Although air quality in Northern Ireland has improved significantly over the past few decades, some pollutants continue to exceed air quality objectives. In urban areas, nitrogen dioxide concentrations are exceeding UK Air Quality Standards at monitoring sites, owing to traffic emissions. This has implications for human health, as it can lead to an aggravation of respiratory conditions either directly, or through the formation of secondary particles and ground-level ozone, and can also lead to damage to sensitive habitats and buildings. Air pollution from domestic combustion and from road transport remain as challenges in the improvement of air quality for the protection of human health[67].

While most pollutant emission levels are lower than they were in 2005, ammonia emissions have increased since 2010, as result of increased numbers of dairy cattle and associated manure management, and an increase in nitrogen-based fertiliser use. They contribute a disproportionate amount to the total UK emissions owing to the importance of agriculture to Northern Ireland's economy. Over 96% of ammonia emissions in Northern Ireland have been attributed to the agriculture sector. These emissions pose a risk to sensitive habitats and ecosystems, through direct exposure that can cause physical damage, to their contribution to deposition of nitrogen compounds that can result in biodiversity loss and changes in ecosystem structure and function. The UK has international obligations for an 8% target for ammonia reduction, through the EU National Emissions reduction Commitments (NEC) Directive 2016. Regardless of the implications of the UK's exit from the EU to these commitments, as a signatory to the Gothenburg Protocol the UK is obliged to meet this target of 8% ammonia emissions reduction.

[67] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

Climate change represents a significant challenge internationally. GHG emissions in Northern Ireland have decreased by 17.9% since 1990, owing to improvements in energy efficiency, switching from coal to natural gas as a fuel source, and improvements in management of landfills. The agriculture, transport and land use change sectors have higher emissions of GHGs currently than they had in 1990. The UK has committed to a target of a 37% reduction in GHGs by 2020; although in 2019 the UK as a whole had a 44% reduction, in Northern Ireland GHG reduction stood at only 18%. This has implications for successfully contributing to the UK target for 'net zero emissions' by 2050. The agriculture sector is responsible for the greatest amount of GHG emissions in Northern Ireland (26% in 2019), accounting for a significantly higher proportion of emissions in Northern Ireland than in the rest of the UK. The deposition of nitrogen compounds from these emissions can also indirectly lead to increased emissions of nitrous oxide from wet soils; this is a very potent GHG with a global warming potential 298 times greater than carbon dioxide[68]. The Climate Change Committee's sixth Carbon Budget publication[69] sets out in Chapter 3, Part 6 the pathways to reach net zero emissions that can be taken by agriculture and land use, land-use change and forestry (such as low-carbon farming measures), and the policy proposals introduced in the draft FAPP should be advancing these.

Implementation of the draft FAPP, and policy proposals therein, has the potential to lead to positive or negative effects on air quality and climatic change in Northern Ireland and further afield alone, or in combination with, these existing pressures. There is potential for positive or negative effects on emissions of ammonia and GHGs from agricultural activities, with implications for climate resilience. There is potential for direct and indirect positive or negative effects on sensitive habitats and ecosystems from exposure to air pollutants and deposition of nitrogen compounds.

3.3.6 Material Assets

The term 'Material Assets' can be considered very broadly within the SEA process, encompassing for example infrastructure, settlements, transport and utilities.

In recognition of the importance of agricultural land and farm outputs to the economy of Northern Ireland, consideration of material assets in the following section predominantly focusses on the number and types of agricultural assets found in Northern Ireland, as it is considered that the most potential for positive or negative effects on material assets from implementation of the draft FAPP relates to these.

In addition, consideration has been given to water-related infrastructure in Northern Ireland, owing to the possibility of their operations being affected by implementation of the draft FAPP.

It is considered that the key issues associated with implementation of the draft FAPP and material assets comprise:

- Potential for effects on the productivity of agricultural land holdings;
- Potential for effects on the financial viability of agricultural land holdings, including the level of reliance on financial support;
- Potential for effects on water-related assets; and
- Potential for effects on the status of water bodies used for drinking water, recreation and production of food.

[68] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Ammonia%20Annex-%20Expert%20Working%20Group%20%28final%29.pdf

[69] https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf

3.3.6.1 Water-related Material Assets in Northern Ireland

3.3.6.1.1 Water Treatment and Supply

There were 24 water treatment works in service with NI Water during 2020, serving 51 water supply zones (designated areas with a population of no more than 100,000). Water supplies in Northern Ireland were obtained from three types of source[70]:

- Rivers and loughs - 54.4%;
- Impounding reservoirs - 45.5%; and
- Boreholes – 0.1%

Microbiological, physical and chemical tests on water samples taken from water treatment works, service reservoirs and customer taps indicated that the overall drinking water compliance of public water supplies in 2020 was consistently high at 99.94%[71], as detailed further in Section 3.3.2 Population and Human Health.

3.3.6.1.2 Waste Water Treatment Works

Since 2007, waste water treatment works (WWTWs) must be compliant with numeric conditions of Water Order consents, and NI Water has been responsible for regulating discharges from WWTWs under the Water (Northern Ireland) Order 1999. Water Order permissions or 'consents' specify the quality and quantity for discharges into the water environment, taking into account the requirements of EU Directives and implementing national legislation. NI Water assess compliance against these standards for discharges that serve a population equivalent (PE) of greater than 249. The number of WWTWs assessed in Northern Ireland was 235 in 2020, a decrease of 11 since 2007[72]; of these 224 (95%) were found to be compliant with the conditions of Water Order consents. There are also six WWTWs that operate under a Public Private Partnership (PPP); each of these continued to achieve 100% compliance with conditions of their Water Order consents.

The Urban Waste Water Treatment Directive (UWWTD) protects the environment from the negative effects of sewage discharges, setting treatment levels on the basis of the size of sewage discharges and the sensitivity of waters receiving the discharges. There were 78 WWTWs in Northern Ireland assessed for compliance with the implementing national legislation, the Urban Waste Water Treatment (UWWT) Regulations (Northern Ireland) 2007, in 2020. The level of compliance has improved since 2007, with one WWTW non-compliant in 2019, a compliance rate of 99%.

3.3.6.1.3 Water bodies used for Drinking Water, Food Supply and Recreation

Water bodies support the population of Northern Ireland, through the provision of drinking water and aquatic food resources, supply for industry, and recreational amenity. The current status and trends of waters utilised for these purposes is expanded upon in Section 3.3.2 Population and Human Health and Section 3.3.4 Water.

[70] https://www.niwater.com/sitefiles/resources/pdf/2020/2020niwaterdrinkingwaterqualityannualreport.pdf

[71] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Drinking%20Water%20Quality%20Report%20for%20Northern%20Ireland%2C%202019.pdf

[72] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2021.pdf

3.3.6.2 Agricultural Land Holdings in Northern Ireland

3.3.6.2.1 Number and types of Farms in Northern Ireland

Agriculture is very important to Northern Ireland's economy, accounting for approximately 1.6% of Gross Value Added (GVA) and supporting 2.4% of civil employment in 2020[73]; making the sector proportionally around three times as important to the local economy as was the case for the UK as a whole.

There were a total of 25,896 farms in Northern Ireland in 2020, covering an area of 1,029,822 hectares[74]. This refers to all active farm businesses having at least a hectare of farmed land. Although this is an increase of 1,069 in the total number of farms from the previous year, this predominantly results from differences in sampling methodology, and the number of farms has shown a continuous downward trend from a total of 40,724 in 1981, decreasing by 10% in the 15 year period between 2004 and 2019. The area of land farmed, however, has remained relatively stable since 1981. Over three quarters of Northern Ireland farms were classed as very small in 2020 (20,329).

The proportion of the various farm types in Northern Ireland are outlined in **Table 3-19**. Cattle and sheep represent the predominant farm type, with 79% of farms keeping some cattle, and 38% keeping some sheep. This is similar to figures reported for 2019; total numbers of sheep and cattle were consistent, however the number of beef cows decreased by 1%. There was also a 2% decrease in total poultry numbers, and a 1% increase in total pig numbers, from the previous year.

Table 3-19 Farm Business Types in Northern Ireland, 2020

Farm Type	% Farms
Cattle and sheep	79
Dairy	10
Cereals / General Cropping / Horticulture	6
Pigs / Poultry	3
Mixed / Other	2

3.3.6.2.2 Productivity of Northern Ireland Farms

Productivity is a measure of the efficiency with which businesses turn inputs into outputs, indicating the economic competitiveness of a sector. The two main ways of measuring this are total factor productivity and labour productivity.

There were a total of 51,301 farm workers in Northern Ireland in 2020, 77% of which were farmers, partners, directors or spouses, and the remaining 33% other farm workers. This compares to a total workforce of 67,786 in 1981, comprising 76% famers or spouses and 24% other farm workers. This represents a decrease of approximately 7.5% in the total farm workforce between 1981 and 2020, however the breakdown of total farm workers between farmers, directors, partners or spouses and all other farm workers (approximately 77% to 3%) has remained relatively stable since 2004.

The total income attained from farming includes the return to farmers, partners, directors, spouses, etc. for labour, management input and personal capital invested; this increased by 34% (26% in real terms) from £342

[73] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202020%20final_1.pdf

[74] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Agricultural%20Census%202020%20Publication.pdf

million in 2019 to £456 million in 2020, and is now 44.4% above the average of the last 20 years, after counting for inflation[75]. This increase has been attributed to higher product and subsidy payments in 2020, although agricultural markets showed considerable volatility in 2020.

The gross output from farming in 2020 was estimated at £2.23 billion, an increase of 4.2% from 2019. The proportional contribution of sectors to outputs in 2020 are shown in **Table 3-20**. There were increases in the output of the milk, cattle, sheep, pigs, and eggs sectors, but these were partially offset by decreases in output from the poultry, crops and horticultural sectors. Milk was the highest valued output, at approximately £667 million, an increase in 1.5% from 2019. The annual average dairy cow population in 2020 was 0.1% higher than 2019, at 312,200 head, and the average gross milk yield per cow increased by 2.2%. There was a 0.8% decrease in the average gross milk price for 2020, however the higher dairy cow population and milk yields contributed to an overall increase in value of milk output by 1.5% from 2019. The overall value of output of cattle and calves increased by 0.8% from 2019.

Table 3-20 Gross output of Northern Ireland agriculture, 2020

Output Type	% of Total
Milk	30
Cattle	20
Poultry	13
Pigs	10
Eggs	6
Horticulture	4
Crops	3
Sheep	4
Others	10

The gross input to farming in 2020 was estimated at £1.55 billion, an increase of 0.1% from the previous year. The proportional contribution of inputs in 2020 are shown in **Table 3-21.** The total value of feed consumed in 2020 was £837 million, accounting for 40% of the total expenses. This was an overall 0.9% increase in cost from the previous year; the average price of feedstuffs increased by 1.8%, while the total purchased volume decreased by 1.2%.

Total machinery expenses decreased by 4.7 per cent to £145 million in 2020. This decrease was mainly due to a 12.1 per cent decrease in the cost of fuel & oils. Agricultural contracting costs also increased by 2.1 per cent to £93 million in 2020 whereas, total fertiliser and lime costs decreased by 2.9% to £83 million in 2020.

Changes in the volumes of inputs and outputs combined to give a 0.6% improvement in the total factor productivity (TFP), a measure of the productivity of all resources within the sector. The single factorial terms of trade, a measure of the economic welfare of farmers, also increased by 3.2% from 2019.

[75] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Stats%20Review%202020%20final_1.pdf

Table 3-21 Total expenses of Northern Ireland agriculture, 2020

Input Type	% of Total
Feedstuffs	40
Capital consumption	17
Machinery	7
Labour	4
Fertilisers and lime	4
Net rent	3
Interest	2
Other expenses	23

Through Pillar 1 of the EU CAP, approximately €327m of direct financial support has been provided annually to farmers in Northern Ireland. This has significantly influenced how economically viable the sector has been, and its competitive trading position relative to other regions. Over the past five years, direct CAP support payments (£1.3 billion) have represented 87% of the total cumulative income of the sector in Northern Ireland[76], and have prevented the sector from being in a loss-making position.

3.3.6.3 Summary of Existing Pressures and Issues for Material Assets in Northern Ireland

Population growth and development are placing increasing pressure on water treatment and supply and wastewater treatment, particularly in urban areas. There are currently c. 863,000 domestic, agricultural, commercial and business properties connected to the public water supply in Northern Ireland (around 99.9% of the total population). NI Water, the utility provider for Northern Ireland supplies 562 million litres of water daily, and treats 134 million m^3 of wastewater annually[77]. Annual population growth has been positive for the past 25 years in Northern Ireland, and the total population is predicted to increase from approximately 1.9 million in 2020 to approximately 1.99 million by 2043. There is a growing demand for water resources, owing to a lower average house occupancy, increased use of appliances, economic development and changing land uses. This is likely to put increasing pressure on the provision of water and wastewater treatment services.

The value of inputs and outputs to farming in Northern Ireland is dependent on economic fluctuations at a national and international level. The value of increased outputs can be offset by lower market prices, e.g. increased milk production offset by a decrease in average milk prices. Likewise, a decrease in the volume of inputs required, such as fertiliser and feedstuff, can be offset by price increases in these products.

Implementation of the draft FAPP, and policy proposals therein, has the potential to lead to positive or negative effects on water-related material assets and productivity of Northern Ireland farm holdings alone, or in combination with, these existing pressures. There is potential for positive or negative direct effects, or in-combination effects on clean water supply and wastewater treatment from the application of policy proposals. There is also potential for direct or indirect effects on the productivity of farm holdings in Northern Ireland from application of these policy proposals, with implications for farm incomes and value of the sector, and for effects on the level of reliance of farm businesses on government subsidies.

[76] https://www.daera-ni.gov.uk/publications/statistical-review-ni-agriculture-2007-onward

[77] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

3.3.7 Cultural, Architectural & Archaeological Heritage

Northern Ireland is rich in cultural, archaeological and architectural heritage, with many important archaeological sites, monuments and heritage buildings. It is considered that the key issues associated with implementation of the draft FAPP and Cultural, Architectural and Archaeological Heritage comprise:

- Potential for effects on archaeological and architectural features and their settings; and
- Potential for indirect effects on water-based features and their settings via changes in water quality.

3.3.7.1 Heritage Assets

There are 51,783 recorded heritage assets within Northern Ireland that have been recorded by The Historic Environment Record of Northern Ireland (HERoNI) including:

- 16,875 entries on the Sites and Monuments Record;
- 15,843 recorded historic buildings;
- 16,601 Industrial Heritage Record sites;
- 738 Defence Heritage Record sites;
- 738 Battlefield sites;
- 663 Historic Parks and Gardens Record sites;
- 340 Historic Wrecks; and
- 99 Historic Nucleated Urban Settlements (including those with identified areas of archaeological potential).

There are also over 12,000 designated heritage assets in Northern Ireland including:

- 190 Monuments in State Care;
- 2,008 Scheduled Historic Monuments;
- 2 Protected Wrecks;
- 8,976 Listed Buildings (Listed Buildings are those designated through listing as being of 'special architectural or historic interest' under Section 80 of the Planning Act (NI) 2011);
- 300 Historic Parks and Gardens of Special Historic Interest (A Register of Parks, Gardens and Demesnes of Special Historic Interest was established in the late 1990s to identify those sites that can be considered of exceptional importance within Northern Ireland);
- 60 Conservation Areas;
- 10 Areas of Significant Archaeological Interest (non-statutory designations that seek to identify distinctive areas of the historic landscape in Northern Ireland);
- 177 Areas of Townscape / Village Character; and
- 547 Local Landscape Policy Areas.

There is also one UNESCO world heritage site in Northern Ireland; being the Giant's Causeway, designated for its unique geological heritage.

It is important to note that The HERoNI archive is still growing, with new assets added as new information is provided. Numerous previously unidentified heritage assets were reported under previous agri-environment policies and good farming practice initiatives.

3.3.7.2 Summary of Existing Pressures and Issues for Cultural Heritage in Northern Ireland

Built heritage in Northern Ireland has been adversely affected by population growth and expansion of the agricultural sector since the 18th century, with major landscape changes such as marginal land reclamation and removal of peatland occurring since the UK joined the EU in the 1970s[78]. According to the most recent State of the Environment report for Northern Ireland (2013), the archaeological resource is at risk from agricultural land use practices such as ploughing and tree planting, and from urban development. While archaeology and built heritage in urban areas tends to be most susceptible to impacts associated with development, resources in rural areas are susceptible to impacts associated with agriculture, particularly through cultivation, but also through stock density and machinery use.

At present, 527 heritage assets, including 5.4% of listed buildings, are on the Heritage at Risk register, while 3% of Scheduled Historic Monuments are considered to be in poor condition[79]. Environmental protection policies since the 1980s have brought protection to known archaeological sites and have incentivised good management practices, while introduction of the CAP has improved land management and associated earthwork monuments through the reduction of herd sizes; however protected and unprotected sites are considered to remain at risk from arable practices and urban development. Considering the high proportion of land in Northern Ireland that is in agricultural use, the majority of archaeological and heritage features are found on farmland. The CAMSAR Report (Condition and Management Survey of the Archaeological Resource), published in 2009, recognised prehistoric monuments present within arable and improved grassland as being the most vulnerable. Post medieval vernacular heritage is also considered to be at risk from some practices and development. DAERA has provided technical guidance regarding the protection of historic monuments on farmland[80]. Landowners in receipt of direct payments are obligated to maintain their land in Good Agricultural and Environmental Condition (GAEC), including protection of archaeological sites, which must be retained and cannot be damaged, and this is a condition of cross-compliance. Conditions regarding the sensitive management of heritage features have also been attached to agri-environmental schemes.

Implementation of the draft FAPP, and policy proposals therein, has the potential to lead to positive or negative effects on the condition or setting of heritage assets alone, or in combination with, these existing pressures. There is potential for direct or indirect effects on archaeological and architectural features within farm holdings, and for indirect effects on water-related heritage assets via changes in water quality, from the implementation of policy proposals outlined in the draft FAPP.

3.3.8 Landscape & Visual Amenity

'Landscape' is defined by the European Landscape Convention as ''an area as perceived by people whose character is the result of the action and interaction of natural and/or human factors' and 'it concerns landscapes that might be considered outstanding as well as every day or degraded landscapes'. It aims to promote landscape protection, management and planning, and to organise European co-operation on landscape issues. The UK ratified the Convention in 2006, and it came into effect in 2007. Signatories to the Convention are required to draw up specific and/or sectoral landscape strategies, linked by landscape quality objectives.

The current landscape of Northern Ireland is a product of land use changes and human interventions that have taken place in the *c*.9,000 years since the area was first settled. Although population growth in the late 20th

[78] https://www.daera-ni.gov.uk/sites/default/files/publications/doe/corporate-report-from-evidence-to-opportunity-second-assessment-of-state-of-ni-environment-2013.pdf

[79] NI Heritage Statistics (communities-ni.gov.uk)

[80] https://www.nienvironmentlink.org/cmsfiles/policy-hub/files/documentation/Built/protecting_historic_monuments_on_farmland-3.pdf

and early 21st centuries expanded the extent of built-up areas, the Northern Ireland landscape remains predominantly rural, with agriculture the most prevailing land use[81].

It is considered that the key issues associated with implementation of the draft FAPP and Landscape and Visual Amenity comprise:

- Potential for effects on areas of designated landscape quality and scenic views (i.e. in Local Development Plans);
- Potential for effects on the general landscape and on riverscapes, lakescapes and seascapes; and
- Potential for effects on the recreational or tourism value of water bodies.

3.3.8.1 Designated Landscapes

The value of the landscape present in Northern Ireland is recognised through the designation of eight Areas of Outstanding Natural Beauty (AONB), designated for their distinctive landscape character and high scenic value. These areas cover approximately 325,000 hectares, or *c*.20% of the total land area of Northern Ireland. There are also eight NIEA Country Parks, and 56 National Trust Sites within Northern Ireland.

3.3.8.2 Landscape Character Assessment

Landscape character assessments are used as a tool to identify the landscape features that give a locality its 'sense of place'. The use of landscape character assessments for this purpose arose in response to the European Landscape Convention of 2000. The Nature Conservation and Amenity Lands Order (NI) 1985 (NALCO) is the current legislative basis for the protection of landscapes. A Landscape Character Assessment of the whole territory of Northern Ireland was carried out in 1999, before the European Landscape Convention was published and became binding. The Northern Ireland Landscape Character Assessment 2000[82] (NILCA) subdivided the countryside into 130 Landscape Character Areas (LCAs), each based upon local patterns of geology, landform, landuse, cultural and ecological features. For each LCA, the key characteristics were described and an analysis of landscape condition and its sensitivity to change was made. The land use planning system will generally refer to the NILCA where development might affect the landscape character[83].

The Northern Ireland Regional Landscape Character Assessment (NIRLCA), developed in 2016, aimed to complement the NILCA by providing a regional framework upon which more detailed local studies could be based. This subdivided the countryside into 26 Regional Character Areas (RCAs), based upon information relating to people and place and the combinations of nature, culture and perception that contribute to local uniqueness. These aim to provide information on which to base plans at a more local level that might affect landscape character.

The NIEA also published Northern Ireland's Landscape Charter in 2014 in response to the European Landscape Convention, with the following affirmations and guiding principles for decision making: landscape is essential; landscape contributes to wellbeing; landscape is part of identity; landscape reflects culture; landscapes matter and each of us has a right to landscape benefit; landscapes are shared and each of us is responsible; landscape is a networked asset whose whole is more than the sum of its parts; landscape change is inevitable but can be managed to enhance value; and transparency engenders awareness and confidence. Those interested in the value of Northern Ireland's landscape can sign the charter, thereby committing to these affirmations and guiding principles through their actions.

Areas of High Scenic Value (AOHSV) and scenic views are designated in Local Development Plans to protect the setting of the urban area and other areas of particular landscape merit. Planning permissions may not be

[81] State of Environment Report 2013 (daera-ni.gov.uk)

[82] Landscape Character Assessment for Northern Ireland 2000

[83] kess_es_policybriefing_landscape-planning-for-sustainable-development-.pdf (niassembly.gov.uk)

granted for development proposals that would be likely to have a significant negative effect on the quality, character and features of interest in Areas of High Scenic Value.

3.3.8.3 Summary of Existing Pressures and Issues for Landscape and Visual Amenity in Northern Ireland

The main pressures on Landscape in Northern Ireland, according to the most recent State of the Environment report (2013), are development (including housing, industrial and recreational), infrastructure, extraction industries, agriculture and forestry, and tourism. Land cover and habitats have changed in the past few decades as a result of population increases, changes in household structure and employment patterns and agricultural restructuring. While the economic recession slowed the rate of developments for a period post-2008, actions to stimulate economic growth put continued pressure on urban and rural landscapes[84].

Implementation of the draft FAPP, and policy proposals therein, has the potential to lead to positive or negative effects on local and regional landscape character or visual quality alone, or in combination with, existing pressures. There is potential for direct or indirect effects on the general landscape, as well as on areas designated for landscape quality and scenic views, from the application of policy proposals outlined in the draft FAPP.

3.4 Evolution of the Environment in the Absence of the draft FAPP

In the absence of the draft FAPP, i.e. the Do Nothing Scenario, there would be no change in the existing support policy for the agriculture sector in Northern Ireland, and no opportunity to tailor support arrangements to better meet the needs of the agriculture sector in Northern Ireland.

Many elements of biodiversity in Northern Ireland are likely to continue to show declines, through the impact of human activities such as land use change associated with agriculture (land reclamation, drainage, increased production and stocking rates, and subsequent impacts on water and air quality) and development for housing and infrastructure, pollution and fisheries. Priority and protected habitats and species are likely to continue to show an overall decline in status from pressures such as land management practices, water pollution and air pollution. In the absence of any change in agricultural policy, the current pressures on biodiversity, flora and fauna in Northern Ireland attributable to the agriculture sector are likely to continue. There is potential for some improvements necessitated by other policies and legislation, such as through the requirements of the WFD and NI RBMP, MSFD and Biodiversity Action Plans.

The population of Northern Ireland is expected to continue to increase, and the trend of an ageing population is likely to continue. Human health and wellbeing in Northern Ireland are likely to be affected more in the future by the effects of climate change, biodiversity loss and land degradation, and continue to be affected at a more local level through air quality, water quality effects on drinking water or food quality, or on recreational water-based resources such as bathing waters. Without the draft FAPP, current effects on air quality and water quality resulting from agricultural activities, with associated implications for the quality of waters used for drinking supply, bathing and food supply are likely to continue, albeit with some potential for improvement through measures implemented as part of RBMPs under the requirements of the WFD. The health and wellbeing of the population is also likely to continue to be indirectly negatively affected via the effects of agricultural activities on biodiversity loss and climatic change.

Groundwater will continue to be most vulnerable to contamination in areas where bedrock outcrops are present or where glacial sand and gravels are present, particularly in areas of higher elevation. Poorly draining or waterlogged soils, which are abundant in Northern Ireland, particularly in areas of lower elevation, will continue to pose a risk to erosion and contaminant runoff, proving the greatest risk to downstream surface water bodies. In the absence of the draft FAPP, farm soil health is likely to continue to degrade, or be managed in an ad hoc manner. Some agricultural land will continue to be managed under agri-environmental scheme agreements, and some farmers will continue to test soils at their own expense and manage land under Nutrient Management Plans with potential for protection and improvement of soil health. Without the introduction of the Soil Nutrient Health Scheme (SNHS) recommended by the SALMS, many areas of farmland in Northern Ireland, including those identified as Critical Risk Areas, will continue to be managed in the absence of relevant knowledge of

[84] State of Environment Report 2013 (daera-ni.gov.uk)

its PH, nutrient or carbon content, or the areas of greatest risk for nutrient run-off that could enable farmers to manage the soils on their land in the most appropriate manner.

The existing potential point and diffuse source pollution pressures on water quality, including from industry, construction, septic tanks and agricultural and forestry practices are likely to remain, although there is potential for improvement in the status of some water bodies through actions required by the WFD and MSFD, including through measures outlined in the NI RBMP. However in the absence of any strategic changes to agricultural policy, there is potential for further degradation in water quality from the run-off of pesticides, soils and nutrients from agricultural land, and migration of these to groundwaters and surface waters, and it may be a significant challenge for RBMP and MS objectives for water quality to be met for many water bodies within Northern Ireland. Inappropriate soil and land management is also likely to lead to the continuation of flood risk within and downstream of agricultural land, with potential for risks to increase in response to climatic change.

For air quality, the levels of many pollutant emissions are likely to continue to improve, while nitrogen dioxide emissions from traffic and ammonia emissions from the agriculture sector are expected to continue to pose a challenge. Without the draft FAPP, the agriculture sector in Northern Ireland will still face obligations to reduce emissions to air, particularly those of ammonia, with Northern Ireland expected to contribute to the 16% reduction in emissions for the UK (in comparison to 2005 levels) set out in the UN Gothenburg Protocol. The draft Ammonia Strategy for Northern Ireland should provide a positive impetus for achieving this target, however the proposed ammonia reduction programme for implementation on farms may be hampered should policies around farm investments not be updated to tie in with this Strategy. The draft Ammonia Strategy will include a programme to restore and manage valuable habitats such as peatlands in order to alleviate symptoms of ammonia and nitrogen exceedance, however, without any changes to policy, ammonia emissions are likely to continue to impact upon these habitats.

In the absence of the draft FAPP, GHG emissions in Northern Ireland are predicted to continue to decrease overall, owing to further improvements in energy efficiency and transport improvements and necessitated by Northern Ireland's commitment to contribute fairly to the legally binding 'net zero' GHG emissions reduction targets set out in the UK Climate Change Act 2008, as amended in 2019. However, the agriculture sector is currently responsible for the greatest amount of GHG emissions in Northern Ireland and, in order for Northern Ireland to achieve net zero CO_2 emissions, and at least an 82% net reduction in all GHGs by 2050, the agriculture sector is required to reduce its GHG emissions by 34%. In the absence of directed policy changes, the sector is likely to be at risk of failing to meet this target, with the CCC report stating that existing agricultural policies are not enough to deliver this required reduction in GHG emissions.

Without the draft FAPP, the overall number of farms in Northern Ireland is likely to continue to decrease, but the overall land area covered by agriculture to remain stable, as has been the trend for the past 30 years. The proportion of farm types is likely to vary somewhat depending on market changes, however the predominant farm type is expected to remain as cattle and sheep. The total farm workforce in Northern Ireland may continue to show a decline. The total value of inputs and outputs to the agricultural sector in Northern Ireland will continue to be influenced by economic market fluctuations at a national and international level. The total income achieved will remain dependent on both product value and subsidy payments; in the scenario of the absence of the draft FAPP, the existing subsidy payments will remain in place through the Basic Payment Scheme and other schemes such as the Environmental Farming Scheme. Water treatment and supply, and wastewater treatment are likely to continue to come under increasing pressure from population growth and development.

There are unlikely to be any significant changes to cultural, architectural and archaeological heritage features in the absence of the draft FAPP. Historic or heritage features will continue to be afforded protection under the Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995. Archaeology and built heritage will continue to be at risk from impacts associated with development, particularly in urban areas, and those associated with agricultural practices. Obligations of landowners in receipt of direct payments will continue to include protection of archaeological sites, which must be retained and cannot be damaged as a condition of cross-compliance, while conditions regarding the sensitive management of heritage features are likely to continue to be attached to agri-environmental schemes.

In absence of the draft FAPP, the landscape of Northern Ireland will likely continue to be affected by developments, infrastructure, agricultural and forestry practices, mineral extraction and tourism, with changes exacerbated by the predicted population increase. Habitats such as hedgerows and scrub, and traditional features may continue to be lost owing to existing agricultural policy and the continued incentive to convert

land into productive ‘actively farmed’ land in order to receive increased financial support, with repercussions for the character of the rural landscape, which may be occurring in the long term, through cumulative, gradual changes.

4 REVIEW OF RELEVANT PLANS, PROGRAMMES AND POLICIES

4.1 Interaction with other relevant Plans and Programmes

As part of the SEA process, the context of the draft FAPP must be established with regard to other Plans and Programmes that have been adopted at International, National and Regional levels. In particular, the environmental protection objectives (EPO's) and standards included within these Plans and Programmes that will directly influence, or be influenced by, the draft FAPP requires consideration. These EPOs have been used to create the Strategic Environmental Objectives (SEOs) that have been used for assessment of the draft FAPP.

Table 4-1 identifies the main significant environmental plans, programmes and legislation, adopted at International, European, National level and Regional level, which would be expected to influence, or be influenced by, the draft FAPP. While it is recognised that there are many Plans, Programmes and legislation that could relate to the FAPP it is considered appropriate to only deal with those significant texts so as to keep the assessment at a strategic level. More information on these Plans, Programmes and legislation, along with their potential interaction with the draft FAPP is given in **Appendix D**.

Table 4-1 Summary of Key Plans, Programmes and Legislation Relevant to the draft FAPP for Northern Ireland

Level	Plan / Programme / Policy / Legislation
International / EU Level	*Biodiversity* • UN Convention on Biological Diversity (1992) • Ramsar Convention on Wetlands of International Importance (1971 and amendments) • Bern Convention (Convention on European Wildlife and Natural Habitats) (1982) • The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (1992) • Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals) (1983) • EU Biodiversity Strategy to 2030 • EU Birds Directive [2009/147/EC] • EU Habitats Directive [92/43/EEC] *Population / Human Health* • Seveso Directive [2012/18/EU] • Biocidal Products Directive [98/8/EC and 2007/107/EC] *Climate Change* • Paris Agreement (UNFCCC, 2015) • UN Kyoto Protocol, The United Nations Framework Convention on Climate Change (UNFCC, 1997) • EU 20-20-20 Climate and Energy Package Agreement (2007) • The European Green Deal 2019 • EU Methane Strategy 2020 • EU Farm to Fork Strategy 2020 • Renewable Energy Directive [2009/28/EC] • EU Strategy on Adaptation to Climate Change 2013 • Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change 2021 [COM(2021)82] • Second European Climate Change Programme (ECCP II) 2005 • EU Green Infrastructure Strategy (COM(2013) 249 final) *Air quality*

Level	Plan / Programme / Policy / Legislation
	• Stockholm Convention (2004) • WHO Air Quality Guidelines – global update (2005) • The Gothenburg Protocol (1999) • Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive [2008/50/EC] & 4th Daughter Directive of the Air Quality Framework Directive [2004/107/EC] • Industrial Emissions Directive [2010/75/EU] • National Emissions reduction Commitments (NEC) Directive [2016/2284/EU] • Geneva Convention (1979) *Sustainable Development* • Common Agricultural Policy (CAP) (1962) • Seventh Environmental Action Programme to 2020 of the European Community • EUROPE 2020 A strategy for smart, sustainable and inclusive growth (COM/2010/2020) • SEA Directive [2001/42/EC] • EIA Directive [85/337/EEC] [2014/52/EU] • EU Thematic Strategy for Soil Protection [COM/2006/231] and Report on its implementation [COM/2012/046] • Integrated Pollution Prevention Control Directive [96/61/EC], as amended by Directive 2008/1/EC *Water* • Water Framework Directive [2000/60/EC] and amendments • Marine Strategy Framework Directive [2008/56/EC] • Floods Directive [2007/60/EC] • Bathing Water Directive [2006/7/EC] • Groundwater Directive [80/68/EEC] and Daughter Directive [2006/118/EC] • Drinking Water Directive [98/83/EC] • Urban Waste Water Treatment Directive [91/271/EEC] • Sewage Sludge Directive [86/78/EEC] • Nitrates Directive [91/676/EEC] • Environmental Liability Directive [2004/35/EC] • Environmental Quality Standards Directive [2008/105/EC] • A Blueprint to Safeguard Europe's Water Resource (COM(2012)73) *Waste* • Waste Framework Directive [2008/98/EC] • Use and Disposal of Animal By-products (Commission Regulation 2011/EU142) *Cultural Heritage* • Valetta Treaty (1992) • Granada Treaty (1985) • World Heritage Convention [WHC-2005/WS/02] *Landscape* • European Landscape Convention [ETS No. 176]
National Level	*Biodiversity* • Biodiversity Strategy for Northern Ireland to 2020 • UK Post-2020 Biodiversity Framework • Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 • The Wildlife (Northern Ireland) Order 1985 (as amended) • Wildlife and Natural Environment Act (NI) 2011The Environment (Northern Ireland) Order 2002 • DAERA Conservation Management Plans for SACs (in prep.)

Level	Plan / Programme / Policy / Legislation
	• UK National Ecosystem Assessment (2011) • Northern Ireland Species and Habitat Action Plans • Fisheries Act 2020 • Fisheries Act (NI) 1966 • Convention for the Conservation of Salmon in the North Atlantic *Soils* • Delivering Our Future, Valuing Our Soils: A Sustainable Agricultural Land Management Strategy (SALMS) For Northern Ireland 2016 • Soil Nutrient Health Scheme for Northern Ireland *Climate Change / Air Quality* • Northern Ireland's second Climate Change Adaptation Programme (NICCAP2) 2019 – 2024 • Northern Ireland Strategic Energy Framework (SEF) (2010) • (Northern Ireland) Sustainable Energy Action Plan 2012-2015 and beyond (2012) • UK Climate Change Act 2008 • The Climate Change Act 2008 (2050 Target Amendment) Order 2019 • UK Climate Change Risk Assessment 2017 • The National Emissions Ceiling Regulations 2018 • UK National Air Pollution Control Programme (NAPCP) 2019 • Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 • Air Quality Standards Regulations (Northern Ireland) 2010 • The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013 • Clean Air Strategy for Northern Ireland – A Public Discussion Document, 2020 • Making Ammonia Visible (Annex to the SALMS for NI) 2017 • Environmental Farming Cuts Greenhouse Gases Implementation Plan 2016-2020 • Northern Ireland Greenhouse Gas Inventory 1990-2019 statistical bulletin • Draft Ammonia Strategy for Northern Ireland (in development) • Draft Northern Ireland Peatland Strategy 2021- 2040 • DAERA Science Strategy Framework 2020 - 2035 • Climate Change (No.1) Bill • Climate Change (No.2) Bill *Sustainable Development* • Northern Ireland State of the Environment Report 2013 • Environment Strategy for Northern Ireland 2019 • Rural Development Programme for Northern Ireland 2014-2020 & Annual Implementation Report 2019 • Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 • Food Wise 2025 (Republic of Ireland strategy) • Northern Ireland Executive Programme for Government 2016-2021 • Draft Programme for Government 2021 • Strategic Planning Policy Statement for Northern Ireland 2015 • The Regional Development Strategy 2035 – Shaping Our Future • UK Sustainable Development Strategy • 10X Economy – An Economic Vision • Sustainability for the Future – "DAERA's Plan to 2050" • Draft Green Growth Strategy for Northern Ireland

Level	Plan / Programme / Policy / Legislation
	• Draft Northern Ireland Food Strategy Framework • Draft Environment Strategy for Northern Ireland (in development) • Draft Rural Policy Framework for Northern Ireland • Northern Ireland Energy Strategy 2050 *Water* • Nutrient Action Programme Regulations (Northern Ireland) 2019 • Water Environment (Floods Directive) (Amendment) Regulations (Northern Ireland) 2018 • The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 • Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015 • The Quality of Bathing Water Regulations (Northern Ireland) 2008 • Drainage (Environmental Impact Assessment) Regulations (Northern Ireland) 2017 • Water Resources (Environmental Impact Assessment) Regulations 2017 • Private Water Supplies Regulations (Northern Ireland) 2017 • Water Supply (Water Quality) Regulations (Northern Ireland) 2017 • Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (NI) 2003 • Environmental Liability (Prevention and Remediation) Regulations 2009 and amendment • Groundwater Regulations (Northern Ireland) 2009 and amendments • Pollution Control and Local Government (Northern Ireland) Order 1978 • Protection of Water Against Agricultural Nitrate Pollution (Northern Ireland) Regulations 2004 • Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990 • Urban Waste Water Treatment Regulations (Northern Ireland) 2007 • Waste and Contaminated Land (Northern Ireland) Order 1997 (including updates) • Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 and amendment Regulations 2007 • Water (Northern Ireland) Order 1999 (including amendments up to 2004) • Water and Sewerage Services (Northern Ireland) Order 2006 • Water and Sewerage Services (Miscellaneous Provisions) (Northern Ireland) Order 2006 • NI Water Our Strategy 2021-2046 • NI Flood Risk Management Plan, 2021-2027 • Marine Act (NI) 2013 • Marine and Coastal Access Act 2009 • UK Marine Policy Statement 2011 • Draft Marine Plan for Northern Ireland 2018 • Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026 • Draft 3rd cycle River Basin Management Plan (RBMP) for the North Western, Neagh Bann and North Eastern River Basin Districts 2021-2027 *Waste* • Northern Ireland Waste Management Strategy, 2012 • Waste Management Plan 2013 – 2020 *Cultural Heritage* • Archaeology 2030 – A Strategic Approach for Northern Ireland • Historic Monuments and Archaeological Objects (NI) Order 1995 • Planning Act (NI) 2011

Level	Plan / Programme / Policy / Legislation
	• The Regional Development Strategy 2035 – RG11 *Landscape* • Nature conservation and Amenity Lands Order (NI) 1985
Regional Level	• Local Biodiversity Action Plans (LBAPs) • County Development Plans and Local Development Plans • Living With Water in Belfast 2020

5 ASSESSMENT METHODOLOGY

This Environmental Report has been produced to assess the environmental effects of the policies proposed as part of the draft FAPP and to provide environmental guidance in the further development and implementation of the policies within the FAPP to ensure they are sustainable. In conjunction with this, a Programme level HRA Report has also been prepared to inform the decision-making process, in terms of the potential for the proposed policies to impact upon the integrity of any European sites in view of their conservation objectives.

5.1 Methodology

The policy proposals of the draft FAPP have been assessed in terms of their potential positive and negative effects, and the significance of these effects on the environment against the SEA objectives. The purpose of this is to predict and evaluate, as far as possible, the environmental effects of the FAPP, highlighting any significant environmental problems and / or benefits that are likely to arise from the implementation of the FAPP.

The approach used for assessing the draft FAPP is an objective-led assessment. This is a strategic level assessment, as it is not possible or practicable for the baseline environment to be described and assessed in as much detail as could be done for a project-level Environmental Impact Assessment. Instead, the SEA approach is based on a system of *objectives*, *targets* and *indicators*, in order to rationalise information for assessment purposes.

Each policy proposal introduced in Part 2 of the draft FAPP, and described in Section 2 of this report, has been assessed in terms of their potential for positive and/or negative effects and the significance of these effects on the environment against the SEA objectives for each of the following broad environmental topics:

- Biodiversity, Flora & Fauna (BFF);
- Population & Human Health (PHH);
- Geology, Soils & Landuse (GSL);
- Water (W);
- Air Quality (AQ);
- Climatic Factors (CF);
- Material Assets (MA);
- Cultural, Architectural and Archaeological Heritage (CH); and
- Landscape & Visual Amenity (L).

The purpose of this is to predict and evaluate, as far as is possible, the environmental effects of the draft FAPP, highlighting any environmental problems that are likely to arise from its implementation. Policy proposals have been assessed in the short, medium and long term for likely effects, the significance of the effects, and whether they are positive or negative effects. For the purposes of this assessment:

- Plus (+) will indicate a potential positive environmental effect;
- Minus (-) will indicate a potential negative environmental effect;
- Plus/minus (+/-) will indicate that both positive and negative environmental effects are likely or that, in the absence of further detail, the potential effects are unclear or uncertain. If a situation arises whereby positive effects out way negative effects, or *vice versa*, an additional + or – will be used (++/- or +/--);
- Zero (0) will indicate neutral or no effect;
- Short term – 0 – 2 years (Immediate);
- Medium term – 2 – 6 years (Normally the completion of a first cycle of Plan or Programme); and
- Long term – beyond 6 years (Normally the second cycle of a Plan or Programme and beyond).

Other effects that will be assessed for significance are indirect effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects. The scenario of "The Evolution of the Environment in the absence of the draft Programme' will also be assessed in the same format. This will be considered the Do-Nothing Scenario. All potential positive and negative effects will be presented individually, with a text description, and a summary table.

5.2 Strategic Environmental Objectives

Policy proposals have been assessed against a set of strategic environmental objectives (SEOs). These SEOs were developed in the context of broader environmental protection objectives set at both international and national level (outlined in **Section 4** and detailed in **Appendix D**), and also took into account the context of potential for effects associated with the draft FAPP. Each of the environmental topics described in **Section 4** was assigned at least one high-level SEO, specifying a desired outcome, against which the policy proposals comprising the draft FAPP could be assessed. Each high-level SEO has been paired with a specific target(s), as well as indicator(s) that can be used to measure the progress towards achievement of these targets.

The SEOs, Sub-Objectives, Indicators and Targets used are given in **Table 5-1.** The assessment examined the likely significant effects of the policy proposals comprising the draft FAPP, and how their implementation could contribute to achieving these SEOs.

5.3 Difficulties and Data Gaps

Policies proposed in the draft FAPP are at different stages of planning and development; some polices are merely defined by a set of design principals at this stage, whereas other policies are at a more advanced stage of planning. Policies can only be assessed at the level they are set. Those policies for which a greater level of detail has been provided in the draft FAPP are easier to assess than those with less, making it difficult to give an assessment that is level across all policies.

The proposed policies are at different scales; some will be applied over a large geographic scale, covering farms across Northern Ireland, whereas others will support a narrower set of measures. At a strategic level of assessment, there is some difficulty and uncertainty in assessing the implications of policy implementation at the local level.

Some of the proposed policies are founded on existing policies, which have been modified to better suit the agricultural sector in Northern Ireland and to incorporate more potential for environmental benefits, whereas other proposed policies are entirely new, and based on emerging science and technologies. In the case of those policies that are based on new science or technologies, the potential effects of their implementation have been assessed on the basis of current understanding and taking the objectives as outlined in the draft FAPP at face value; owing to their novel nature, however, there will be a level of uncertainty regarding the long term effects of implementing these policies, which may require further research during policy development as well as monitoring to assess any potential implications.

These differences present some difficulties in the level at which the policies can be assessed; assessments have been made at a high level across all policies, and are based on the assumption that policies will be subject to appropriate implementation. Where difficulties or uncertainties such as described above have been identified during assessment, recommendations and mitigation have been proposed.

Table 5-1 Strategic Environmental Objectives, Indicators and Targets

Criteria	Objective		Sub-Objective		Indicators	Target
Biodiversity, Flora & Fauna	**1**	Support International and National Environmental Designations for flora and fauna, and contribute to the protection and restoration of natural habitats and species.	**A**	Preserve, protect, maintain and, where possible, enhance internationally protected species and habitats.	• Conservation condition of designated habitats and species within European sites (SACs, SPAs, Ramsar sites).	• No negative change, or a positive change, in the conservation status of designated habitats and species within European sites.
			B	Preserve, protect, maintain and, where possible, enhance national and local nature conservation sites.	• Status of designated habitats and species within national and local sites.	• No negative change, or a positive change, in the conservation status of designated habitats and species within national and local sites.
			C	Preserve, protect, maintain and, where possible, enhance protected and priority species and habitats, or other known species of conservation concern, and increase the naturalness and connectivity of the countryside.	• Status of protected and priority habitats and species. • Naturalness and connectivity of the countryside.	• No negative change, or a positive change, in the status of protected or priority species and habitats outside of designated sites. • Improved naturalness and connectivity of the countryside.
Population & Human Health	**2**	Support the provision of clean and safe water and food, and contribute towards a healthy population in the countryside.	**A**	Preserve, protect, maintain and where possible enhance water used for drinking, bathing and food supply.	• Status of drinking, bathing and shellfish water protected areas.	• No negative change, or a positive change, in the status of areas protected for drinking water, bathing water or shellfish production.
			B	Support the production of a clean and safe food supply.	• Quality of animal products available for consumption.	• No negative change, or a positive change, in the quality of animal products.

			C	Contribute towards a healthy population living in the countryside.	• Health statistics of the population.	• No negative change, or a positive change, in the health of the population living in the countryside.
Geology, Soils and Landuse	**3**	Protect soils from pollution and prevent degradation or loss of the soil resource, and protect and enhance soil quality.	**A**	Protect and enhance the function and quality of agricultural soils.	• Soil health and nutrient levels, and quality of agricultural land.	• No negative change, or a positive change in soil health and land quality.
			B	Protect against physical damage to, or loss, of the agricultural or natural soil resource.	• Soil resource within the agriculture sector.	• No loss of the agricultural or natural soil resource.
Water	**4**	Protect water sources from pollution by agricultural activities, and support the objectives of the Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD), and Floods Directive.	**A**	Protect water sources from pollution by agricultural activities, and support the objectives of the WFD and MSFD.	• WFD status of surface and groundwater bodies. • Status of NI seas, as reported for the MSFD.	• No negative change, or a positive change, in the status of surface water and groundwater bodies, and potential to contribute to the achievement of water body objectives under the WFD. • No deterioration in the status of NI seas, and potential to contribute to the achievement of Good Environmental Status (GES) under the MSFD.
			B	Protect against flood risk through agricultural activities.	• Flood risk status.	• No increase in flood risk or contribution to flood risk management.
Air	**5**	Avoid, prevent or reduce harmful effects on human health and the environment resulting from emissions to air.	**A**	Reduce impacts to air quality from agricultural emissions.	• Quantity and trends of air emissions attributable to the agricultural sector.	• Reductions in the quantity of emissions to air arising from the agricultural sector.

Climatic Factors	**6**	Reduce GHG emissions from the agricultural sector in line with national commitments.	**A**	Reduce GHG emissions from agriculture.	• Quantity and trends of GHG emissions attributable to the agricultural sector and land use change sector.	• Reduction in the quantity of GHG emissions arising from the agricultural sector and land use change sector.
Material Assets & Infrastructure	**7**	Support economic agricultural activities	**A**	Support sustainable agricultural land use and improved land management practices.	• Agricultural outputs and productivity.	• Sustainable increase in agricultural productivity, i.e. a more efficient use of resources.
			B	Support the long term viability of farms.	• Agricultural sector income, costs and revenues.	• Decrease in the reliance of farm incomes on direct payments.
Cultural, Architectural & Archaeological Heritage	**8**	Protect, conserve and enhance International, National and Local Heritage Designations, and their settings.	**A**	Protect, conserve and enhance International, National and Local Heritage Designations, and their settings.	• Number, condition and setting of international, national and local heritage designations.	• No loss or negative change to the condition or setting of international, national and local heritage designations • Potential for protection and/or restoration of known or currently unknown heritage assets via the implementation of policies
Landscape & Visual Amenity	**9**	Protect and enhance the character and quality of landscapes, riverscapes, lakescapes and seascapes.	**A**	Protect and enhance the character and quality of landscape sand riverscapes, lakescapes and seascapes.	• Landscape/ Seascape Character Assessments. • Local Development Plan scenic views and Areas of High Scenic Value.	• No negative change, or a positive change, in visual amenity or landscape / seascape character and local views.

6 CONSIDERATION OF ALTERNATIVES

6.1 Consideration of Alternatives

The SEA process must include an evaluation of the likely environmental consequences of a range of reasonable alternative scenarios, which in this case are alternatives to the draft FAPP. The purpose of this section is to outline the reasons for choosing the draft FAPP as the preferred alternative in light of other reasonable alternatives considered.

6.2 Consideration of Alternative Policies during Policy Development

In 2018, DAERA, in conjunction with key food, farming and environmental stakeholders, identified four key desired outcomes that together constituted the long term vision for the Northern Ireland agricultural industry. DAERA undertook an engagement exercise on a draft framework setting out how policies could be developed to deliver these four outcomes. In total, there were 1,277 responses to this engagement exercise, of which 67 were from organisations/representative groups and 1,210 were from individuals.

Reflecting the responses received during that process, DAERA refined the identified outcomes and vision for the agricultural industry in Northern Ireland as follows:

1. An industry that pursues **increased productivity** in international terms as a means to sustained profitability, closing the productivity gap which has been opening up with other major suppliers.

2. An industry that is **environmentally sustainable** in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets. This outcome is an integral part of the new Green Growth Strategy and associated Climate Action Plan which will be the Department's initial route map to climate action, green jobs and a clean environment.

3. An industry that displays **improved resilience** to external shocks (such as market and currency volatility, extreme weather events, etc.) which are ever more frequent and to which the industry has become very exposed.

4. An industry which operates within an integrated, profitable, efficient, sustainable, competitive and an **effective functioning supply chain**, with clear transmission of market signals and an overriding focus on high quality food and the end consumer.

These outcomes are synergistic and improvement in one outcome can provide a positive effect on one or more of the other outcomes. For example, the reward of greater productivity is more efficient use of finite resources and a lower environmental footprint. Producing higher value products through product innovation can increase profit margins, resilience and environmental sustainability.

In seeking to deliver the above outcomes, DAERA noted the following additional requirements that must also be taken into account:

- Future agricultural policy and the intervention framework must not conflict with WTO obligations; and
- The framework should not give rise to unacceptable market distortions within the UK.

6.2.1 Policy Development and Stakeholder Views

The following sections outline the development of the draft FAPP against the four strategic outcomes DAERA is seeking to achieve.

6.2.1.1 Key Outcome 1: Increased Productivity

DAERA note that productivity growth has been a constant feature of global agriculture for many decades, even centuries. Improvement in labour productivity in UK agriculture has been consistently lower than that of competitors such as the USA, France, the Netherlands and Italy over the past ten years and more. For example, it has been suggested that had the UK rate of productivity growth kept pace with that of the US since

2000, the contribution of UK farming to the rural economy would have been £4.3 billion higher by 2013[85]. At a local level, benchmarking data indicate very considerable opportunities for substantial gains to be achieved in on-farm performance. If the Northern Ireland agricultural industry is to have a viable future as a trading sector, it must at least keep pace with the productivity growth of its competitors and indeed out-perform them if it wishes to enhance profitability. Whilst it is recognised that the productivity challenges faced by each agricultural sub-sector will not be the same, productivity growth must be one of the key outcomes for the future development of the industry as a whole. However, productivity gains cannot be at the expense of environmental sustainability and if managed correctly, these two objectives can be mutually supportive. Any new policy agenda needs to ensure that the twin objectives of productivity and environmental sustainability are pursued in a way that is synergistic rather than antagonistic.

In the 2018 engagement exercise[86], four broad policy instruments were identified to drive productivity in Northern Ireland:

1. Science and Innovation;
2. Agricultural Education;
3. Knowledge Exchange (as part of continuous professional development); and
4. Investment and Restructuring.

1. Science and Innovation

Science and innovation is an important driver of long term productivity growth. The goal of higher productivity growth through science and innovation must be achieved in a manner that is compatible with improving environmental sustainability and delivering high animal health and welfare standards. Targeted science and innovation must also seek to address these latter objectives in their own right (i.e. not narrowly focused on productivity growth).

DAERA stated that science evidence will be the foundation on which it structures the policy responses to address sustainability challenges (GHGs, ammonia emissions, biodiversity etc.) and will be fundamental for monitoring and verifying that the policy interventions are having the intended effects and in driving further policy improvements.

2. Agricultural Education and Knowledge Exchange

DAERA has stated that the future success of the Northern Ireland agri-food industry will be determined largely by the ability of its people to acquire, assimilate and deploy knowledge that equips them to prosper in changing markets and trading conditions.

DAERA noted that agricultural education and knowledge transfer are the key drivers to the successful on-farm adoption of innovation and new technology. Research has shown that family farm income is higher in those households where the farmer has agricultural qualifications compared with those with no qualifications[87,88]. In Northern Ireland, some 62% of working owners and 40% of employees hold no formally recognised qualifications[89]. To address this issue, a renewed focus on, and a significantly higher investment in, increasing professional educational attainment and knowledge transfer in the sector is needed.

DAERA's Knowledge Framework[90] recognises that an education and skills system is crucial for economic growth, and indicates that improving the skills and employability of the entire workforce will allow people to progress, thereby delivering higher productivity and sustainability. Future policies will aim to ensure that individuals, organisations, and businesses within the agri-food industry will have access to high quality, relevant and accessible education, training and technology exchange provision to improve productivity. DAERA noted that this will mean focussing on interventions where there is evidence to support their adoption and ensuring there is an appropriate balance of investment and impact. Interventions may include; promotion and marketing (to tackle inertia and the lack of value attached to education), incentives (e.g. offsetting the cost

[85] https://adhb.org.uk/documents/Horizon_Driving%20Productivity_Jan2018.pdf

[86] http://www.daera-ni.gov.uk/consultations/northern-ireland-future-agricultural-policy-framework

[87] https://www.daera-ni.gov.uk/sites/default/files/publications/dard/returns-to-education-report.pdf

[88] https://www.teagasc.ie/media/website/publications/2014/Teagasc_Impact_of_Education_Report.pdf

[89] https://www.daera-ni.gov.uk/sites/default/files/publications/dard/skills-assessment-for-the-environmental-land-based-sector-in-northern-ireland.pdf

[90] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/zita%201.pdf

of acquiring skills where appropriate, improving accessibility, making education and knowledge a gateway to entering other programmes) or regulation (e.g. requiring certain minimum skills levels to be achieved by operators).

More people in better jobs is a key outcome in the draft PfG. To meet that outcome, going forward there will need to be a focus on addressing skills imbalances in the economy[91]. The greatest area of undersupply is in the mid-level qualifications above GCSE and equivalent, but below degree level. Qualifications at this level will be vital to our ability to adapt to new technologies and ensure they play their part in driving economic growth. The DAERA Knowledge Framework sets an ambition that by 2025, anyone taking over as head or effective head of a commercial farm or horticulture business should have at least a relevant Level 3 qualification (broadly equivalent to 'A' Level)[92]. This is a goal to which the Department will work, not a mandatory requirement for those involved in the sector. However, the benefits of skills and knowledge acquisition are beyond question and the Department will seek to build stakeholder commitment to the continued professionalisation of the agricultural industry.

Achieving this ambition will require both an investment in human capital and a culture shift within a sector where the benefits of formal qualification attainment have tended to be undervalued. Therefore, it is a goal that will require action both on the part of government and of the industry. The downstream food chain must also seek ways of encouraging and incentivising the creation of a professional, qualified agricultural sector, recognising both the benefits and reduced risks that this creates in terms of its raw material supply base.

Past experience (e.g. in respect of the Young Farmers' Payment) has shown that linking qualification attainment with scheme eligibility or scheme competitive scoring can help drive farmer engagement with formal training initiatives, often for the first time. Experience has also shown that once this initial step has been taken, a significant proportion of participants are keen to progress with further training, having recognised the benefits that it can bring to their businesses. Moving forward, DAERA is seeking to continue to create the conditions whereby the attainment of relevant professional qualifications is encouraged and recognised across its policy agenda.

3. Continuous Professional Development (Knowledge Exchange)

DAERA has noted that the attainment of a Level 3 qualification in early career is insufficient to maintain a high level of professional competence for an entire working life. A long-term commitment to skills and competency development can help deliver increased productivity through successful innovation and improved farm management efficiency; increased resilience through better management; a more strategic approach to farm business development; greater flexibility and adaptability; and improved environmental performance and animal health and welfare outcomes. Therefore, investment in Continuous Professional Development (CPD) is relevant to all farmers, land managers and workers, regardless of what stage they are in their career or of their existing level of formal qualification. This will be promoted in the sector through appropriate, accessible and flexible training and knowledge exchange initiatives. DAERA noted a wish to engage with industry to establish a more structured approach to CPD for individuals, which can be planned and phased in line with business development needs, and a portfolio of new knowledge and skills built up over time.

4. Investment and Restructuring

DAERA noted that in order that farm businesses can fully benefit from science, innovation and technology transfer to drive productivity, they need to have access to the necessary funds that support innovation and new technology uptake that are also aligned to better environmental performance. Targeted support for capital investment will remain one of the tools that the Department will deploy to unlock innovation, drive better economic and environmental performance and achieve the broader strategic outcomes identified in this framework. However, not all investment needs to be underpinned by government support and care needs to be exercised to avoid displacing normal credit provision from banks and other lenders, and to provide support in a form relevant to the investment needs. Therefore, any government involvement needs to be carefully considered and targeted, following a careful analysis of need, to ensure value for money and the achievement of policy objectives. Evidence of market failure should be a key consideration and intervention should seek to address the causes of market failure rather than addressing the symptoms as part of a tailored policy portfolio. Where benefits are uncertain or design is novel, a pilot approach will be considered, and investments with no

[91] https://www.economy-ni.gov.uk/consultations/skills-strategy-northern-ireland-skills-10x-economy

[92] Level 3 is broadly equivalent to A-level and considered the lowest level of qualification consistent with a managerial role see https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels

pure economic revenue return may be given priority for grant support. Investment does not necessarily need to be in the form of capital grant; alternative financial instruments, such as loan funds or loan guarantees, may complement and unlock bank lending.

6.2.1.1.1 Stakeholder views

In the 2018 engagement exercise there was general support for the productivity approaches presented and for the proposals relating to encouraging agricultural education, knowledge exchange, Continuing Professional Development (CPD), investment in innovation and new technology, and exploring all possible alternatives to capital grants. There were, however, mixed views about linking educational attainment to other policy interventions. Copies of the responses received during the 2018 engagement exercise are published on the DAERA website at: http://www.daera-ni.gov.uk/publications/stakeholder-responses-northern-ireland-future-agricultural-policy-framework-stakeholder-engagement.

6.2.1.2 Key Outcome 2: Environmental Sustainability

DAERA has noted that although a core objective of farmers is to produce food, they need to do this in a way that is environmentally sustainable and with due regard to their stewardship of habitats and landscapes. Around 70% of land in Northern Ireland is devoted to agriculture. Agriculture, therefore, has a significant impact on the environment, both positively and negatively. In particular:

- There is significant scope for influencing biodiversity through agricultural practices.
- Agriculture is responsible for a significant number of point source pollution incidents, and diffuse pollution from agriculture is one of the main pressures on water quality.
- Because of the structure of the Northern Ireland economy, agriculture emits more greenhouse gases (GHGs) than any other single sector – 26% of total Northern Ireland GHG emissions in 2019. However, agriculture can also act as a very significant carbon sink, and the industry in Northern Ireland has been making significant progress in reducing the intensity of CO_2 emissions per unit of output. Nevertheless, it is recognised that there needs to be a significant step change in the response of the industry to the climate change agenda and that agriculture needs to play its full and fair part in helping Northern Ireland as a whole meet its GHG obligations.
- Agriculture is responsible for 91% of ammonia emissions in Northern Ireland. Ammonia deposition, together with other nitrogen compound deposition, is at a level that is having a detrimental impact on the condition of Northern Ireland's priority habitats, with plants that are intolerant to nitrogenous compounds being displaced by other species.
- Pressure on soils from agricultural activity can impact on their vital functions, such as nutrient cycling, filtering pollutants and water, storing carbon, and supporting plant and animal life.

Although agriculture does exert negative environmental impacts (GHGs, ammonia emissions, water pollution, pressure on soils etc.), changes in agricultural practices have the potential to deliver major gains. Positive behavioural change amongst farmers and land managers is key to ensuring the long term environmental sustainability of the agriculture sector. Resource efficiency within agriculture will not only help drive enhanced productivity, it will also help deliver better environmental outcomes by avoiding unnecessary inputs and minimising losses to the environment. In many instances, enhanced productivity (if well managed) and environmental sustainability are complementary objectives. However, there are no economic incentives for individuals to improve environmental outcomes if these are not rewarded or recognised by the market. Therefore, there is a strong rationale to support actions which will improve the environment for the benefit of all citizens through an appropriate balance of regulation, incentivisation, education and advice. A number of principles were identified by DAERA to guide policy development moving forward.

6.2.1.2.1 Stakeholder views

There was good support for the suggested environmental principles in the 2018 engagement exercise, although many noted that actions to encourage environmental sustainability should be within the broader framework of sustainability. Over 50% of respondents supported the need for investment in research and education and recognised the need for any mitigations to be based on sound science. Stakeholders supported

outcome-based measures; co-design with farmers and land managers; more emphasis on the role of positive environmental management and a move beyond a costs incurred approach to incentivise changes. On this latter issue, there was recognition of the need to balance the requirement for environmental payments which are attractive to farmers with providing clear value for money to the public. Copies of the responses received during the 2018 engagement exercise are published on the DAERA website at: http://www.daera-ni.gov.uk/publications/stakeholder-responses-northern-ireland-future-agricultural-policy-framework-stakeholder-engagement.

6.2.1.3 Key Outcome 3: Improved Resilience

DAERA has noted that the agriculture sector is particularly prone to uncertainty arising from issues such as fluctuating input costs and farm gate prices caused by local, national and global market influences, extreme weather events, animal and crop diseases, changes in international trading patterns, geopolitical shocks, etc. Farmers, therefore, require tools that can assist their ability to "bounce back" in response to temporary shocks and "bounce forward" in response to system shifts.

Planning to mitigate and deal with the consequences of market disturbances and other setbacks must become a more prominent feature of the business of farming. Leaving this largely to government encourages unwarranted risk taking and exacerbates the problems when they do emerge. There needs to be a much greater focus within farm business planning and development on risk management and the use of risk management tools. That in turn must be reflected in the knowledge agenda going forward so that farmers have the necessary information and skills to embed robust risk management within their business models. Supply chain initiatives and relationships will also play a key role in the better understanding and management of risk, and that includes better market intelligence and information.

Farming does, of course, face risks and challenges that place it apart from other production sectors. Therefore, there is role for government in providing an underpinning, and appropriately designed, safety net whilst avoiding the more undesirable aspects of a direct support regime.

6.2.1.3.1.1 Resilience Support

Income support payments can improve farm resilience by providing an assured income stream. However, if set too high, such payments can act to slow agricultural productivity growth by masking technical inefficiency, reducing the drive to innovate and delaying structural adjustment. Support payments can also act to reduce the incentive to manage risk within farm business, or even encourage risky behaviour. Therefore, a balance needs to be struck between providing a safety net which helps a farm business withstand shocks outside of its control, and dampening the incentive to be efficient, competitive and to manage risk proactively.

Moving forward, a simple, area based (resilience) payment will form part of the agricultural support framework to provide this basic safety net. The level of funding allocated to this measure will be lower than under the current Basic Payment Scheme, both to mitigate the negative consequences noted above and to enable funding to be diverted to other policy interventions. This transition will be phased and the transfer of funding to other areas will be timed to match the capacity of these other measures to absorb the monies released. The funding will be targeted at active farmers (the definition of which will be reviewed to ensure this targeting is as accurate as reasonably possible), and in keeping with the policy objective of providing a safety net for active farmers, the lower and upper thresholds for receiving this support will also be reviewed.

In return for this support, certain standards of farming activity and behaviour will be expected, built upon a set of principles. This will be an evolution the current cross compliance regime that is more focussed on supporting the broad policy agenda set out in this document and reflective of Northern Ireland conditions and issues.

It is recognised that the beef and sheep sectors face particular challenges in terms of their economic resilience, viability and exposure to volatility. Therefore, sitting alongside the area based payment, there will be coupled support (headage) payments in these sectors. However, these payments will seek to deliver more than a safety net – they will encourage and incentivise improvements in productivity and environmental performance in keeping with the broader policy agenda and so will have their own set of conditionalities.

6.2.1.3.1.2 Crisis Response

The safety net measures described above should operate in tandem with improved on-farm risk mitigation and management. These are the measures that will form the basis of a response to future shocks, unexpected events and market disturbances. Therefore, it is appropriate that there should be a common understanding of the scale and nature of the impact that these measures are expected to address, and only in the event that these thresholds are exceeded would there be any case to consider additional government assistance. Therefore, a crisis response framework will be developed to provide this clarity and understanding.

6.2.1.3.2 Stakeholder views

There was strong support for a simple areas based resilience payment but no consensus on how that could be best achieved. There was some support for targeting resilience support payments to take account of natural disadvantage. Other suggestions for establishing the level of area based resilience payment were made. These included linking the payments to measures that improved productivity, efficiency, environment, effective use of natural resources, targeting towards active farmers, numbers of full time employees involved in in a farm business and/or adjusting for different sectors and differing farming landscapes. There was an even split of stakeholders who supported tiering or capping of these payments and those who did not. There was support for having a crisis response framework. There were also a number of mixed and opposing views on what cross compliance should include. Copies of the responses received during the 2018 engagement exercise are published on the DAERA website at: http://www.daera-ni.gov.uk/publications/stakeholder-responses-northern-ireland-future-agricultural-policy-framework-stakeholder-engagement.

6.2.1.4 Key Outcome 4: Supply Chain Functionality

DAERA noted that there is a range of supply chain structures in the Northern Ireland industry, ranging from the highly vertically integrated to the extremely fragmented. To overcome this fragmentation, encourage closer collaboration and cooperation between farmers and producers and to deliver a more efficient supply chain, the 2018 engagement exercise proposed that future agricultural policy in this area should address information, education, incentivisation and regulation.

6.2.1.4.1.1 Supply of Information

Farmers and growers need ready access to impartial and timely information on pricing, production costs and markets. There were long established EU requirements for price reporting of key commodities established under the EU Common Market Organisation Regulation. Although this no longer applies to Northern Ireland and the rest of the UK, this system will continue, seeking to ensure that farmers have access to timely pricing and cost of production information to assist in business planning and managing their output. There is of course, scope to modify the data collection and reporting system in response to industry needs and the Department remains open to engagement with stakeholders on this issue.

6.2.1.4.1.2 Education and Knowledge Transfer

A better functioning, more efficient supply chain will require better information flows and awareness of market demands, trends, opportunities, product and process innovations, etc. Operating in line with its Knowledge Framework, DAERA will continue to work with stakeholders to define needs and ensure that appropriate skills provision is available along the length of the supply chain to assist its efficient operation.

6.2.1.4.1.3 Incentivisation

Cooperation and collaboration within the agri-food supply chain, such as producer organisations and other collaborative partnerships, has had relatively limited uptake in Northern Ireland to date. However, it does continue to offer an opportunity to address issues such as fragmentation, continuity of supply, economies of scale, etc. Co-operative and group initiatives can also play a very positive role in delivering the broader agricultural agenda, such as group-based learning and development initiatives, technology exploration and uptake or environmental delivery models. Therefore, DAERA will continue to explore opportunities to encourage greater collaboration (horizontal and vertical) where this offers a viable means of delivering better outcomes along the supply chain.

6.2.1.4.1.4 Regulation

Competition law is a reserved matter within the UK. There are effective mechanisms for regulating unfair trading practices and since leaving the EU, the UK Internal Market Act[93] has been created to underpin the smooth operation of the UK market. This includes the commitment to unfettered access for Northern Ireland produce on the GB market. The UK Government continues to develop its position on matters such as dairy producer contracts and DAERA will engage in this process to ensure that Northern Ireland's interests are fully recognised. Northern Ireland agri-food will also need to operate in line with EU State Aid requirements as defined. Subsidies granted in accordance with Article 10 of the Protocol (including future farm support payments in Northern Ireland) will not be subject to the UK Subsidy Control Regime.

6.2.1.4.2 Stakeholder views

Responses to the engagement exercise in 2018 showed good support for the Department playing a role in ensuring transparency. There was also support for supply chain awareness training, but mixed views were expressed on delivery of these and use of qualifications in seeking wider funding. Copies of the responses received during the 2018 engagement exercise are published on the DAERA website at: http://www.daera-ni.gov.uk/publications/stakeholder-responses-northern-ireland-future-agricultural-policy-framework-stakeholder-engagement

Following the reinstatement of the Northern Ireland Assembly in early 2020, the DAERA Minister asked the Department to develop policy proposals for future agricultural support in Northern Ireland to deliver the four key outcomes of:

- Increasing agricultural productivity as a means to improved profitability;
- Environmental sustainability;
- Improving resilience; and
- A responsive supply chain.

6.2.2 Governance of Policy Development in DAERA

The **DAERA Food and Farming Group (FFG) Policy Programme Board** Meetings and Workshops took place to discuss and assess policy development and met regularly from November 2018 to January 2021**.** The FFG Policy Programme board consisted of FFG Deputy Secretary, Heads of Division within FFG as board members, Environment Marine and Fisheries Group (EMFG) Deputy Secretary, Heads of Division within EMFG as board members, the DAERA 14 work stream Policy leads and internal DAERA Agriculture and Environmental Experts. The FFG Policy Programme Board conducted single item meetings/deep dives to consider in detail the background, issues, direction of travel for individual workstreams. The purpose of the deep dives was to examine the work that has been undertaken, review progress to date, consider issues and explore where there are remaining gaps and to provide feedback to the policy team.

The DAERA Agricultural Policy Programme Board was established in January 2021 to replace the FFG Policy Programme Board with a stronger focus on the agriculture components of the previous board. The Agricultural Policy Programme Board acts as a forum for discussion for ongoing cross-cutting elements and for decisions on strategic issues, policy proposals and eventual Scheme design before seeking formal agreement with the DAERA Minister. The board draws representatives at senior level across all workgroups within DAERA including NIEA/EMFG. The board meets every six weeks with workshops to focus on specific workstream policy development occurring between board meetings, Livestock and Meat Commission (LMC)/ Ulster Famers Union (UFU) and the Royal Society for the Protection of Birds (RSPB) have made representations at two of these workshops. There have also been workshops covering Climate Change, Rural Needs Policy, Peatlands Strategy, Ammonia and Biodiversity from colleagues in EMFG/NIEA ensuring the latest strategies and policies from other parts of the Department feed into future agriculture policy development. Focused discussions on individual workstream topics involving small teams help move policy development after wider scale input from workshops/board meetings.

Workstreams have engaged with experts outside DAERA to other administrations and a range of stakeholders regarding their individual work areas. The DAERA Agri Policy Stakeholder Group was established in June 2021 by DAERA to ensure that stakeholder views were understood and properly considered during the

[93] https://www.legislation.gov.uk/ukpga/2020/27/contents/enacted

development of the DAERA Future Agricultural Policy, including environmental considerations. The group has met regularly since June, with meetings reviewing policy development in each workstream. The DAERA Agri Policy Stakeholder Group is composed of representatives of the main food, farming and environmental organisations.

6.3 Consideration of Strategic-Level Alternatives

From a strategic perspective, two alternative scenarios can be considered for the draft FAPP:

- Alternative No.1: Do-Nothing Approach or continuation of the existing agricultural policies for Northern Ireland.

- Alternative No.2: Implementation of the draft FAPP, comprising changes to agricultural policy for Northern Ireland.

This section provides a comparative evaluation of the likely environmental effects of implementing these two strategic-level alternatives, and determines the likely positive or negative effects in comparison to the SEOs.

Alternative	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
1	-	0/-	-	-	-	-	+/-	-	-
2	+	+	+	+	+	+	+/-	+	+

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Land use; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

6.3.1 Alternative No.1

If the draft FAPP is not adopted, there will be no overall changes to the status quo for agricultural policies for Northern Ireland. In the 2013 CAP reform (implemented since 2015), a new support regime known as the "Basic Payment Scheme (BPS)" was introduced, with convergence towards a flat rate for entitlements, whereby all hectares in a region would receive the same level of income support. The payment that individual farmers receive is based on the amount of eligible land that they actively farm, and the corresponding number and value of entitlements that they hold for that scheme year. The CAP reform also introduced a 'Greening Payment', focussing on environmental returns for financial support, and a 'Young Farmers' Scheme', to encourage generational renewal in the sector. Greening Payments were reviewed in 2020 and found to have limited relevance to Northern Ireland, while adding significant administrative complications; from the 2021 scheme year, Greening requirements have been removed, with payments incorporated into the BPS entitlements. In the Do-Nothing scenario, the financial support arrangements for the agriculture sector in Northern Ireland will continue in their current form. CAP Direct Pillar 1 Direct payments to farmers in Northern Ireland, made via a package of measures was set at €327million per annum since 2015, as converted to sterling through an annually set exchange rate, and post EU exit the budget for these payments has been set at £293.3 million per annum. In the Do-Nothing scenario, the eligibility criteria for direct financial support payments will not change, continuing to include grass selling businesses / those maintaining land in GAEC as their sole activity, and land holdings of <10ha. This will have a positive short to long term effect for farm businesses (MA SEO 7B) through the provision of continued financial support. In the long term, however, there is also potential for negative effects on the MA SEO 7A, as current agricultural policy will not effectively support sustainable agricultural land use and land management practices.

In this scenario, there is potential for negative long term effects on the SEOs for BFF. On the whole, the current pressures on BFF in Northern Ireland attributable to the agriculture sector are likely to continue, with potential for continuing negative effects in the long term both directly, through financial incentives for land clearance, and indirectly via degradation in water quality and air emissions attributable to the sector. There is some potential for slight positive long term effects on BFF SEOs necessitated by other policies and legislation, such as potential for slight long term positive effects on water-dependent BFF via surface water quality improvements necessitated by WFD objectives and through implementation of the NI RBMP; however, without any amendments to existing agricultural policy, these water quality improvements may have plateaued and further improvements may not be achievable. On a local scale there is potential for slight long term positive

effects on BFF SEOs from implementation of Local Biodiversity Action Plans while, at a national level, nationally and internationally important designated habitats and species will continue to come under legislative protection. The existing cross-compliance obligations for farmers and land managers under the Basic Payment Scheme to meet the requirements of a number of Statutory Management Requirements and keep their land in Good Agricultural and Environmental Condition within eligible land will continue to provide some mitigation against negative effects on SEOs for BFF under the Do-Nothing approach. However, the incentive will remain to convert unproductive land into land that can be actively farmed in order to receive increased financial support under this system.

In the Do-Nothing scenario, there are unlikely to be any significant changes in the quality of animal products available, and effects on PHH SEO 2B are therefore anticipated to be neutral. However, the current pressures on water quality from the sector are likely to continue, with potential for long term negative effects on water used for drinking, bathing and food supply (PHH SEO 2A), (albeit with some potential for improvement through measures implemented as part of RBMPs under the requirements of the WFD), as well as negative indirect cumulative effects in the long term on the health of the rural population via air quality and climatic change effects, continuing loss of natural habitats and water quality degradation.

In the absence of a change in agricultural policy for Northern Ireland, the current pressures affecting soil health and the quality of agricultural land are likely to continue, with potential for long term direct negative effects on the GSL SEO 3A. Standards that are required to be met through cross-compliance for those farmers and land managers receiving payment under the BPS will continue to provide some mitigation against negative effects on SEOs for GSL under the Do-Nothing approach. Some farmers will continue to test soils at their own expense, and some land will be managed under Nutrient Management Plans, however the majority of farmland in Northern Ireland will continue to be managed in the absence of relevant knowledge of its pH, nutrient or carbon content, with potential for negative long term effects on farm soil health (GSL SEO 3A).

In the Do-Nothing scenario, there is potential for long term negative effects on SEOs for W. The current pressures on water quality attributable to the agriculture sector are likely to continue, with potential for long term negative effects on W SEO 4A via run-off of pesticides, soils and nutrients from agricultural land, and migration of these to groundwaters and surface waters. Standards that are required to be met through cross-compliance for those farmers and land managers receiving payment under the BPS, as well as requirements under the NAP Regulations, will continue to provide some mitigation against direct and indirect negative effects on W SEOs. Implementation of actions under the NI RBMP will have some potential for positive long term effects on water status however, without any changes to agricultural land management policies, RBMP and MS objectives may not be achievable for many water bodies in Northern Ireland. There is also potential for long term negative effects on W SEO 4B to continue, as unsustainable soil management, and the continued incentive to maximise productive ‘actively farmed’ land, will contribute to downstream flood risk, with potential for this risk to be exacerbated in the future owing to climatic change.

Without any strategic agricultural policy changes, there is potential for continuing long term negative effects on AQ (SEO 5A) from emissions arising from the agriculture sector. In this scenario, it will be difficult for Northern Ireland to meet its obligations for reducing overall air emissions, particularly those of ammonia. The draft Ammonia Strategy for Northern Ireland will provide a positive impetus for achieving targets for ammonia reduction, however the proposed ammonia reduction programme for implementation on farms is likely to be hampered in the absence of any policy changes. In addition, although the draft Ammonia Strategy will include a programme to restore and manage valuable habitats such as peatlands in order to alleviate symptoms of ammonia and nitrogen exceedance, indirect negative effects on these habitats are likely to continue (BFF SEOs) as a result of continuing agricultural emissions. Standards required through cross compliance for famers receiving Basic Payments will continue to provide some mitigation against negative effects on the AQ SEO.

In the Do-Nothing scenario, there is potential for continuing long term negative effects on CF (SEO 6) from GHG emissions that are directly attributable to the agriculture sector. Standards required through cross compliance for famers receiving Basic Payments will continue to provide some mitigation against negative effects on the CF SEO. Without any changes to agricultural policy, it may not be possible for Northern Ireland to achieve net zero CO_2 emissions, and at least an 82% net reduction in all GHGs by 2050, as outlined in the

'balanced pathway' recommended by the Climate Change Committee (CCC) in its sixth carbon budget[94] and, more specifically, for Northern Ireland's agriculture sector to achieve the required 34% reduction in GHG emissions. The CCC report[95] states that existing policies are not enough to deliver this required reduction in GHG emissions. In this scenario, Northern Ireland may fail to contribute to the overall UK requirement to reach 'net zero' GHG emissions (in comparison to 1990 baseline levels) by 2050.

In the absence of a change in agricultural policy for Northern Ireland, archaeological and built heritage assets (CH SEO 8) in rural areas of Northern Ireland will continue to be negatively affected in the short to long term by land management practices associated with agriculture, including through cultivation, fertiliser application, machinery use and stock density. Designated heritage assets will continue to be afforded legislative protection, and standards required through cross compliance for famers receiving Basic Payments will continue to provide some mitigation against negative effects on the CH SEO, including archaeological sites, while some heritage features will be more sensitively managed by farmers as part of agri-environmental schemes.

In the Do-Nothing scenario, there is potential for some long term negative effects on the rural landscape (L SEO 9). The continuing financial incentive to convert unproductive land into land that can be actively farmed in order to receive increased financial support under the BPS is likely to lead to further loss of natural habitats such as hedgerows and scrub, field boundaries and other traditional features, with negative effects on the character of the rural landscape of Northern Ireland

6.3.2 Alternative No.2

The assessment of implementing the draft FAPP, i.e. Alternative No.2, has been undertaken in detail in the following Section 7. In this scenario, the preferred policies for the agriculture sector in Northern Ireland, as outlined in the draft FAPP, will be progressed.

The overall potential for positive and negative effects on SEOs from implementing the combined policies proposed in the draft FAPP have been assessed comparatively with Alternative 1, as illustrated above. There is potential for positive long terms effects across the majority of SEOs from implementing the proposed policies of the draft FAPP. Changes in land eligibility for Resilience Payments to disincentivise land clearance, application of Farm Sustainability Standards, a package of measures to farm for nature, and a large scale scheme for assessment of soil nutrient health leading to subsequent nutrient management planning for farm lands will cumulatively have the potential for positive effects in the long term on SEOs for BFF, PHH, GSL, W, AQ, CF, CH and L. The inclusion of a separate workstream that focuses on policies to 'farm for carbon' and reduce GHG emissions from the sector, as well as the integration of conditions with potential for GHG emission reduction within policies across other workstreams, has potential for significant positive effects in the long term on the CF SEO, if properly implemented.

Implementation of the draft FAPP has potential for both positive and negative effects on the farming population and on MA SEO 7B (long term viability of farms); Resilience Payments will be provided, supporting the livelihoods of farmers and rural living, while the exclusion of some businesses and the lowering of payments under this policy has potential for some short term negative effects on businesses until they adjust to the changed circumstances and the requirements of payments through other policies such as those in the FNP and FCM workstreams. In the long term, there is potential for positive effects on MA SEO 7A, by supporting more sustainable agricultural land use and improved land management practices.

6.4 Preferred Alternative

The preferred alternative is Alternative No.2: Implementation of the draft FAPP, comprising changes to agricultural policy for Northern Ireland. This alternative will provide the greatest potential for positive effects across SEOs. Positive effects have the potential to be significant in the long term if policies are developed carefully and implemented in a manner that will maximise the potential benefits.

[94] https://www.theccc.org.uk/publication/sixth-carbon-budget/

[95] Reducing emissions in Northern Ireland - Climate Change Committee (theccc.org.uk)

7 ENVIRONMENTAL ASSESSMENT OF THE PROPOSED POLICIES

The purpose of this section of the Environmental Report is to evaluate as far as possible the environmental effects of implementing the draft FAPP, and to set out measures envisaged to prevent, reduce and as far as possible offset any significant adverse effects on the environment.

7.1 Assessment of Draft FAPP Policies

The draft FAPP is sub-divided into four sections. Parts 1, 3 and 4 have not been assessed, as they comprise an introduction, a description of impact assessments to be undertaken for the FAPP, and a description of the stakeholder feedback process, respectively.

Part 2 presents the portfolio of measures and cross cutting initiatives that are being developed to address the FAPP's desired outcomes. For each workstream, it provides a consideration of the main issues, policy proposals and design principles. These will be subject to and influenced by strategic environmental assessment.

The draft FAPP outlines eight main workstreams, as follows:

- Resilience Measure;
- Headage Sustainability Package;
- Farming for Nature Package;
- Farming for Carbon;
- Investment Measure;
- Knowledge Measure;
- Generation Renewal; and
- Supply Chain Measures.

In addition to these eight main workstreams, the draft FAPP outlines five cross-cutting measures, as follows:

- Soil testing and LiDAR;
- Livestock Genetics and Data;
- Controls and Assurance;
- Metrics, Monitoring and Evaluation; and
- Environmental Assessments.

There is also one sectoral workstream, as follows:

- Horticulture.

Together these comprise the 14 workstreams of the draft FAPP. Note workstream 13 Environmental Assessments comprises the environmental assessments to be undertaken for the draft FAPP; it does not outline any policy proposals and therefore will not be assessed in the SEA process. Further information regarding conditions and design principles of the policy proposals in the other 13 workstreams are provided in Section 2.3 of this report. The policy proposals outlined for each of these 13 workstreams of the draft FAPP are assessed in this section.

7.1.1 Workstream 1 – Resilience Measure

Policy Code	Policy Description
RM1	Farm resilience will be addressed via a Resilience Measure: a relatively simple area-based resilience payment to provide a basic safety net, whilst also delivering environmental outcomes.

RM2	Farm resilience will be addressed via a Crisis Framework that will enable the Department to assess potential risks and determine the most appropriate intervention for a specific crisis.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
RM1	+/-	+/-	+/-	+/-	+/-	+/-	++/-	+/-	+/-
RM2	0	0	0	0	0	0	+	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 1 – Resilience Measure

Policy RM1

Proposed policy RM1 aims to provide for the continuation of financial support to the agriculture sector in Northern Ireland. There is potential for direct and indirect negative effects on SEOs for BFF, PHH, GSL, W, AQ, CF, CH, and L from factors that are inherent to agricultural production. In the medium to long term, however, there is potential for reduction in these effects owing to the conditions and design principles that are attached to this proposed policy, as discussed further below. DAERA proposes to increase the minimum claim size for Resilience Payments from the current 3ha to 10ha, with the consequence that these smaller, non-eligible, land holdings will not be subject to the conditions and regulations stipulated for those lands receiving Resilience Payments; this has potential for direct or indirect negative effects across SEOs in the long term, which will need to be carefully monitored.

Implementation of policy RM1 also has potential for long term, positive effects on SEOs for BFF. The change in eligibility of land within farm holdings, whereby all land with the exclusion of hard features will be eligible for payments, has potential to significantly lessen the existing incentive for clearance of vegetation and scrub, and draining of land, so that it may be classified as productive. Under RM1, these newly eligible areas of land would be brought under the protections provided by Farm Sustainability Standards (policy CA3). This has the potential to increase the naturalness and connectivity of the countryside, through the management of features of farm landscapes that are of major importance for wild flora and fauna including pollinators. The transfer of a portion of the funds from this Resilience Payment to other workstreams, including the FNP, over time also has potential for long term, positive effects on SEOs for BFF.

Proposed Farm Sustainability Standards (FSS) that must be met under policy RM1, including FFS4 Livestock food and feed / herd and flock health and biosecurity; FFS5 Welfare and Protection of Farmed Livestock (including Transport); FFS6 Livestock Identification and Traceability, have potential for positive effects on the quality of food supplied to the population (SEO for PHH 2B). The inclusion of all land types as eligible under this policy, and the prospective for this to increase the naturalness of the countryside, has potential for indirect positive effects on the quality of the countryside for the population (SEO for PHH 2C), for landscape through better management of landscape features (L SEO 9), and for cultural heritage through the potential for retention and positive management of features such as hedgerows/historic planting (CH SEO 8). The change in eligibility of land types under this policy also has the potential for long term positive effects on climatic factors (CF SEO 6), as non-productive land such as scrub and hedgerows can act as carbon ‘sinks’ and can also help to reduce flood risk to downstream areas (W SEO 4B). There is potential for cumulative positive effects of this change in land eligibility on SEOs for W, CF, GSL, PHH, and CH.

The requirement under this policy to provide genetic data has potential for long term indirect positive effects on climatic factors and the SEO for CF 6, through the possibility of genetically selecting for animals that have lower enteric methane emissions.

It is a stipulation under this policy for soil testing and LiDAR of all lands receiving Resilience Payments, with Nutrient Management Planning (NMP) for farms to follow, based on this testing. In the short term, there are unlikely to be any significant changes to the management of soils; however, in the medium to long term, when data becomes available to farmers and land managers, along with appropriate advice on its application, there

is potential for moderate to significant effects on soil health (GSL SEO 3A). The application of NMP based on farm soil testing across Northern Ireland should also lead to a reduction in the application of slurries and chemical fertilisers to soils, with these being used in circumstances where a requirement is outlined in the farm NMP. This has potential for indirect moderate to significant positive secondary effects on water quality (W SEO 4A), as well as water-dependent habitats and species (BFF SEOs) in the medium to long term, through an anticipated reduction in the run-off of excess nutrients into water bodies. Appropriate soil management and an associated reduction in the application of nitrogen-based fertilisers also has the potential for direct positive effects on AQ (SEO 5) through a reduction in emissions.

In the short term, there is potential for both positive and negative effects on the farming population and on MA SEO 7B; Resilience Payments will be provided, supporting the livelihoods of farmers and rural living, while the exclusion of some businesses and the lowering of payments under this policy has potential for some short term negative effects on businesses until they adjust to the changed circumstances and the requirements of payments through other policies such as those in the FNP and FCM workstreams. In the long term, there is potential for positive effects on MA SEO 7A, by supporting more sustainable agricultural land use and improved land management practices.

Policy RM2

This policy relates to a framework to support the resilience of the sector in the most appropriate manner in the event of a crisis. There is not considered to be any potential for positive or negative effects on the majority of SEOs from the implementation of this proposed policy. There is, however potential for direct positive effects on MA SEO 7B through the provision of support for the long term viability of farms.

In-Combination, Interactions and Cumulative Effects

Policy proposal RM1 has the potential for in-combination direct, long term positive effects on BFF SEOs, and indirect positive long term effects on SEOs for W, CF, GSL, PHH, L and CH from the implementation of proposed policy CA3 as a condition of Resilience Payments under RM1. Policy proposal RM1 also has the potential for in-combination direct long term positive effects on soil health (GSL SEO 3A), and indirect positive long term effects on water quality (W SEO 4A), water-dependent habitats and species (BFF SEOs), and air quality (AQ SEO5) from the implementation of proposed policy STL1 as a condition of Resilience Payments under RM1. There is also potential for in-combination indirect long term positive transboundary effects on SEOs for BFF, W, and AQ in the Republic of Ireland. Policy proposal RM1 also has the potential for in-combination, direct, long term positive effects on the SEO for CF, including transboundary effects, from the implementation of proposed policy LGD1 as a condition of Resilience Payments under RM1, and for cumulative, long term, positive effects on the SEO for CF with proposed policies under the Farming for Carbon Measures workstream.

The expanded eligibility of land types for Resilience Payments, and the potential for this to increase the naturalness of the countryside, will contribute towards the objectives of the Biodiversity Strategy for Northern Ireland and the UK Post-2020 Biodiversity Framework, as well as towards Local Biodiversity Action Plans. The requirement for farmers and land managers to partake in soil testing and LiDAR of all lands receiving payment, followed by the management of these lands through NMP directly supports the recommendations of the Sustainable Agricultural Land Management Strategy (SALMS), while potential indirect positive effects on water quality will contribute towards the protection and enhancement of water body status in line with the WFD, the 3rd cycle RBMP for Northern Ireland (in prep.), Local Management Area Action Plans, the MSFD and the UK Marine Strategy. The potential for a reduction in GHG emissions will contribute towards the targets required under the Climate Change (2050 target) Order 2019 and the draft Green Growth Strategy for Northern Ireland, while potential for improvements in air emissions will contribute towards the achievement of targets under the National Emissions Ceiling Regulations and the UK National Air Pollution Control Programme.

Policy proposal KM1 has the potential for long term positive in-combination effects on MA SEO 7B with policy RM2, through the objective that farm businesses receiving financial support will have increased awareness of the need to manage risk appropriately.

Habitats Regulations Assessment

Policy RM1

The inclusion of all agricultural and horticultural land (with the exception of buildings and hardstanding) as eligible for acreage-based resilience payments will, in contrast to the current system of agricultural subsidies, remove the incentive for farmers to maximise the area of their land in good agricultural and environmental condition (GAEC). This requirement has historically given rise to large scale losses of hedgerows, rough grasslands, scrub and other semi-natural habitats which in some locations provide supporting habitat for Annex II species such as otter, and Annex I bird species within nearby SACs and SPAs respectively and which help to mitigate other agricultural impacts such as nutrient run-off into freshwater SACs and SPAs and can have a buffering effect on airborne nutrient emissions to sensitive habitats such as raised and blanket bogs.

Farmers who sell grass only, or those who maintain their land in GAEC only, without actively farming will not be eligible for resilience payments. It is considered that this is likely to be a positive measure, which will reduce the potential for agricultural land to be managed for the purposes of subsidy only. It is envisaged that marginal farmland which is not suitable for profitable farming of livestock or arable or horticultural crops and is not currently used as such, will in the absence of a subsidised incentive no longer be subject to inefficient management to the detriment of semi-natural habitats, where the land could have relatively greater value in terms of its ecological status. Should this be the effect of the policy it is considered that impacts upon SACs and SPAs would be positive, with increased supporting habitat for relevant qualifying species, such as breeding raptors, wintering wader species and potential beneficial effects on impacts associated with agricultural run-off and sedimentation on freshwater SACs.

In order to be eligible for resilience payments, claimants will be required to meet farm sustainability standards (FSS) and undertake required actions, such as soil testing and LiDAR survey and nutrient management planning. It is considered that these measures also have potential to give rise to significant positive effects upon European sites, especially those vulnerable to impacts associated with agricultural run-off and nutrient enrichment through increased understanding of nutrient levels and thus a reduction in unnecessary application of organic or chemical fertilisers. The potential effects of soil testing and LiDAR are discussed specifically in the section dealing with this cross-cutting element.

The proposed minimum claim size for resilience payments is 10ha (24.7 acres). It is considered that this has potential to give rise to negative effects whereby a holding under this acreage is not eligible for payments, and is subsequently not subject to the FSS and other controls imposed on other farms. While it is noted that livestock farms under 10ha are likely to be fairly uncommon, horticultural holdings are relatively likely to be smaller than 10ha in size. In the absence of controls on smaller holdings there is potential for negative effects through the inappropriate use of chemical and organic fertilisers and poor soil management practises.

Policy RM2

This policy proposal relates to the intention to provide a crisis framework of financial support in circumstances which exceed the required threshold. Such measures are proposed to be targeted and temporary in nature.

This measure by its very nature is intended to provide support in periods of crisis only, is therefore temporary and unlikely to give rise to significant alterations to farming practises at the routine level. It is considered unlikely that any significant positive or negative effects upon European Sites would arise as a result of this proposed measure.

Proposed SEA Recommendations and Mitigation Measures

Inclusion of Policies STL1 and CA1-3 as conditions of Resilience Payments will help to mitigate against potential adverse effects on BFF, GSL, W, AQ, CH and L from implementation of Policy RM1.

Policy STL1 stipulates soil testing and LiDAR and the use of NMPs for all eligible lands, which will help to mitigate against nutrient loss to waters from soils following excessive or inappropriately timed fertiliser or slurry application and negative effects on water-dependent habitats and species, including priority habitats and species and those of national or international importance. Policy CA3 stipulates that all agricultural land

(excluding hard surfaces) would be eligible for Resilience Payments and these would be required to maintain a set of FSS, defined under policy CA1 and regulated under policy CA2. The proposed FSS outlined in Policy CA1 would be applicable to all farm businesses that are in receipt of Resilience Payments. These revised standards are anticipated to provide comparable measures for the avoidance of negative effects on SEOs for BFF, GSL, W, AQ, CH and L as existing cross-compliance measures, and will help to mitigate against potential negative effects from implementation of Policy RM1. Periodic monitoring and review should be undertaken to ensure that there are no significant negative effects on these factors from implementation of Policy RM1, and to ensure that there are no unintended negative effects on the environment from the change from cross-compliance standards to Farm Sustainability Standards, or from the increase in minimum claim size for receipt of Resilience Payments. Should negative effects be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.

Inclusion of Policies LGD1 and CA3 as conditions of Resilience Payments will help to mitigate against potential negative effects on CF from implementation of Policy RM1, through the broadening of eligible land that could act as a carbon sink and support of genetic selection for animals with lower enteric methane emissions. Periodic monitoring and review should be undertaken to ensure that there are no significant negative effects on this factor from implementation of Policy RM1. Should negative effects be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.

Implementation of policies under other workstreams and provision of funding within these, such as HSP, FNP, FCM, IM, will help to mitigate against potential negative effects on MA from a decrease in the level of funding under Policy RM1. It is recommended that DAERA formulates official guidance that can provide clarity to farmers regarding the timescale and process through which funding will be transferred to policies of other workstreams, in order to support adaptation of the farming community.

Proposed HRA Recommendations and Mitigation Measures

Policy RM1

It is considered that this policy proposal has potential to give rise to a range of positive impacts upon European Sites, subject to appropriate implementation. Potential negative effects are limited to those associated with regulatory gaps for farms under 10ha in size. Such regulatory gaps may be appropriately addressed through the finalised policy or through reliance on existing legislation, such as the NAP Regulations (2019-2022, and its derivatives).

Policy RM2

No positive or negative impacts upon European Sites are envisaged due to the targeted and temporary nature of the proposed crisis framework measures.

7.1.2 Workstream 2 – Headage Sustainability Package

Policy Code	Policy Description
HSP1	Support will be made available to suckler cows which meet the set out conditions.
HSP2	Support will be made to clean beef animals slaughtered in accordance with a Beef Transformation Scheme.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
HSP1	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-
HSP2	0	+	0	0	0	+	+	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 2 – Headage Sustainability Package

Policy HSP1

This proposed policy aims to provide financial support to famers with suckler cows, to ensure the future viability of the beef sector. As a condition of payments under this proposed policy, claimants would be required to take management measures to reduce the age at first calving, and to reduce the calving interval, for suckler cows. These measures are expected to increase productivity (i.e. the output per unit of input) and performance efficiency. This has potential for long term positive effects on material assets (SEOs 7A and B), by increasing profitability and the consequent viability of the sector and for PHH SEO 2B by supporting the production of a clean and safe food supply.

There is uncertainty as to the overall potential for positive or negative effects on CF (SEO 6), including transboundary effects, from implementation of policy HSP1. This proposed policy aspires to support the reduction of emissions and the overall carbon footprint of these farms by means of the increased productivity, and the reduced amount of time that these animals would spend on-farm. With a shift to smaller sized animals, and lower food requirements, farmers may have capacity for increasing the number of cows that they hold, with implications for the overall level of methane emissions. Stocking quotas will apply under this policy, calculated on an individual farm level based on a historic reference period (still to be determined), and a retention period will also apply for suckler cows being claimed; together these conditions should avoid the incentive to increase stock in order to increase eligibility for subsidy payments, however a financial benefit may remain to increase numbers. There is also uncertainty as to the overall potential for positive or negative effects on CF (SEO 6) from the use of historical quotas, depending on whether or not this would be based on numbers that are sustainable in terms of the achievement of overall GHG emissions targets.

The overall cumulative potential for positive or negative indirect effects on SEOs for BFF, PHH, GSL, W, and AQ is also uncertain. Increased productivity and a reduced amount of time spent by animals on-farm could have indirect positive, long term effects on these factors, such as through a reduced waste supply and implications for a reduction in ammonia emissions, run-off into adjacent waters and subsequent impacts on water-dependent habitats and species, however a potential risk of overstocking on some farms may negate some of these benefits. While the application of stocking quotas is anticipated to contribute towards discouraging overstocking for the purpose of increased subsidy payments, overstocking may still occur on some farms, leading to a risk of soil poaching and soil loss to downstream water bodies (GSL SEO 3B), and effects on water quality (W SEO 4A and PHH SEO 2A) and water-dependent habitats and species (BFF SEOs) from sediments and associated nutrients. There is also potential for negative effects on water quality (W SEO 4A and PHH SEO 2A) and water-dependent habitats and species (BFF SEOs) of downstream transboundary water bodies.

Policy HSP2

As in the case of policy HSP1, proposed policy HSP2 aims to increase productivity and performance efficiency of the beef sector, as well as to help in reducing the carbon footprint of these animals. It proposes that, through a Beef Transformation Scheme, eligible cattle would be finished at an earlier age, to reach their slaughter weight by no later than 24 months. Implementation of this policy has the potential for long term positive effects on MA SEOs, as this measure is anticipated to lead to increased productivity and efficiency with benefits for the viability of the sector, and for PHH SEO 2B by supporting the production of a clean and safe food supply.

This proposed policy also aims to support the reduction of emissions and the overall carbon footprint of these farms, by avoiding the retention of cattle beyond their target slaughter weight that are currently contributing unnecessarily to GHG emissions. On this basis there is potential for long term positive effects on the SEO for CF from the anticipated reduction in GHG emissions from implementation of this proposed policy, including the potential for positive transboundary effects. There is unlikely to be any change to the overall number of cattle from implementation of this proposed policy, as those cattle finished at an earlier age would free up land to be used by replacement cattle. This policy is therefore considered to have an overall neutral effect on SEOs for BFF, GSL, W, AQ, CH, and L.

In-Combination, Interactions and Cumulative Effects

Policy proposals HSP1 and HSP2 have the potential for in-combination, direct, long term positive effects on the SEO for CF from the future implementation of proposed policy LGD2 as a condition of payments under the Headage Sustainability Package. There is also potential for cumulative, long term, positive effects on the CF SEO with proposed policies under the Farming for Carbon Measures workstream.

The objective of increased productivity and potential for reduction in GHG emissions is in line with the objectives of the Green Growth Strategy and Sustainability for the Future – 'DAERA's Plan to 2050', as well as Strategic Priority Four of the draft Northern Ireland Food Strategy Framework (Protecting and enhancing our natural resources).

Habitats Regulations Assessment

Policy HSP1

This policy is intended to provide financial support for beef farmers. Payment quotas, to provide a proxy limitation to the number of stock kept on a given farm, will be calculated based on a historical reference period. It is considered that this policy, given the imposed financial incentive for limiting stock numbers in line with historical stocking rates, would have little potential to give rise to negative impacts on any European Sites, in principle.

No stocking density cap is proposed in respect of this policy. This cap may not be required due to the proxy control through limited financial incentives based on the historical reference. However there is potential for farmers to stock cattle at higher rates than the historical reference and claim only for those falling within this reference. Higher density of stocking could potentially give rise to a range of impacts through associated water and air quality impacts in the absence of controls. The proposals include for the need for monitoring of the effects of this lack of stocking cap in future.

Conditions associated with this policy proposal will require claimants to undertake management measures to reduce both the age of first calving for suckler cows and to reduce the interval between calving for suckler cows. Suckler cows would be subject to a retention period (at least 6 months of the year) to prevent abuse of the system. This represents a potentially positive measure which will increase the efficiency of beef production and therefore result in overall reductions of airborne emissions particularly, over the course of the cow's lifetime. Indirect benefits may be delivered through an overall lowering of the nutrient requirement across the NI beef herd and as such a potential reduction in the requirement for artificial fertilisation of land.

Much depends on the nature of the implementation of the policy to ensure no unforeseen negative effects, such as those arising from higher stocking densities.

Policy HSP2

As in the case of policy HSP1, proposed policy HSP2 aims to increase productivity and performance efficiency of the beef sector, as well as to help in reducing the carbon footprint of these animals. It proposes that, through a Beef Transformation Scheme, eligible cattle would be finished at an earlier age, to reach their slaughter weight by no later than 24 months. It is considered that this policy would have potential to give rise to significant positive impacts upon European Sites, through increasing the efficiency of beef production, and therefore result in overall reductions of airborne emissions particularly, over the course of the cow's lifetime.

Indirect benefits may be delivered through an overall lowering of the nutrient requirement across the NI beef herd and as such a potential reduction in the requirement for artificial fertilisation of land.

It is noted however that this more efficient system, may not give rise to any reduction in the overall nutrient requirement of farmland, the resultant emissions of cattle or any other positive effects, due to the temporal nature of such changes which would simply result in a shortened rotation of cattle within a holding, with no overall reduction in environmental effects. Negative effects associated with a more intensive rotation of cattle may arise, even where efficiencies are created.

Proposed SEA Recommendations and Mitigation Measures

The implementation of proposed policy LGD2 as a condition of payments under policies HSP1 and HSP2 (in the future), will help to mitigate against negative effects on the SEO for CF, through provision of data to support the genetic selection for animals with lower enteric methane emissions. DAERA plans to base payment quotas for Policy HSP1 on a historical reference period. During further policy development, it is recommended that the historical reference numbers are reviewed carefully to ensure that they correspond to numbers that are appropriate to enable the achievement of emission reduction targets. Periodic monitoring and review should be undertaken to ensure that no negative environmental behaviours are inadvertently incentivised from the implementation of Policies HSP1 and HSP2. Should negative effects on this factor be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.

To be eligible for Headage Sustainability Payments, applicants must be in receipt of the Resilience Payment. Therefore in order to receive payments, farmers must adhere to the conditions stipulated for Policy RM1, i.e. Policies STL1 and CA1-3. These policies will help to mitigate against negative effects on BFF, GSL, W, AQ, CH and L from implementation of Policy HSP1. Periodic monitoring and review should be undertaken to ensure that no negative environmental behaviours, including overstocking, inadvertently occur from the implementation of Policy HSP1. Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.

Proposed HRA Recommendations and Mitigation Measures

Policy HSP1

This policy has potential to give rise to a number of positive effects upon European sites through increased agricultural efficiency. Potential negative effects are limited to that associated with the absence of a stocking density cap, which could give rise to increased emissions to air and water and associated impacts upon European sites. It is considered that this will require monitoring to establish how farming behaviours are altered and subsequently remedial measures applied as required. Mitigation may also potentially comprise existing legislative requirements, namely compliance with the NAP Regulations.

Policy HSP2

This policy has potential to give rise to a number of positive effects upon European sites through increased agricultural efficiency. Potential negative effects are limited to unforeseen implications of the policy, which could give rise to increased emissions to air and water and associated impacts upon European sites. It is considered that this will require monitoring to establish how farming behaviours are altered and subsequently remedial measures applied as required. Mitigation may also potentially comprise existing legislative requirements, namely compliance with the NAP Regulations.

7.1.3 Workstream 3 – Farming for Nature Package

Policy Code	Policy Description
FNP1	A new Farming for Nature Package will be used to support farmers to make substantial contributions to environmental improvements and sustainability, while continuing to pursue

	increased productivity, improved resilience and operating within an effective functioning supply chain supply chain.
FNP2	The initial focus of the Farming for Nature Package should be on reversing the trends in nature decline through retaining, maintaining, restoring and creating habitats that are important for species diversity and improving connectivity between habitat areas.
FNP3	Conservation Management Plans for SACs will have a tailored approach, including innovative partnership delivery models and incentivisation of collective action within SACs.
FNP4	A series of 'Test and Learn' pilots will be developed, focused on the maintenance, restoration and creation of the habitats listed above in the farmed landscape.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
FNP1	+	++/-	+	+	+	+	++/-	+	+
FNP2	+	+	+	+	+	+	+	+	+
FNP3	+	+	+	+	+	+	+	0	+
FNP4	+	+	+	+	+	+	+	+	+

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 3 – Farming for Nature Package

Policy FNP1

The proposed policy FNP1 comprises a package of future supports incentivising farming for the benefit of nature. Implementation of this proposed policy has the potential for long term positive effects across all SEOs.

While the initial focus of the FNP is detailed further in proposed policy FNP2, what will constitute the FNP in the long term is not yet clear, and will be informed by 'Test and Learn pilots' as proposed in policy FNP4. However, the high-level and outcome based approach proposed is likely to have positive, long term effects on SEOs for BFF, including habitats and species of international and national importance, through the retention or appropriate creation, and appropriate management, of habitats that are important for species diversity and habitat connectivity. Maintenance or restoration of existing natural features such as hedgerows and dry stone walls has potential for positive, long term effects on L and CH SEOs, through the retention of these features of landscape and historical importance. The appropriate creation or retention of natural landscape features has the potential for positive, long term effects on the SEO for CF, with a potential increase in carbon stored in vegetation and provision of ecosystem services such as absorption of water and reduction in run-off and sedimentation that could contribute towards adaptation to climatic change, and could also help to reduce flood risk to downstream areas (W SEO 4B). Surface water bodies will likely be subject to a greater degree of buffering as part of the package, with potential for a reduction in soil and nutrient loss from agricultural lands, and positive, long term effects on SEOs for GSL, W, and BFF, including the potential for positive transboundary effects on downstream water bodies in the Republic of Ireland.

The proposed eligibility requirements for this package of measures means that they would be available to all farm businesses in receipt of Resilience Payments under proposed policy RM1, as well as other land managers. A greater number of farmers may participate on this basis, with potential for a greater spatial spread across farms in Northern Ireland, and associated positive effects on all SEOs. The significance of potential positive effects would be dependent on the overall level of uptake of measures under this package. The intention for encouragement of collaboration between farmers or landowners also has the potential to increase the significance of any positive effects in these areas.

Although implementation of this proposed policy is, on the whole, considered to represent a positive measure for SEOs, there is some potential for negative, long term effects on the SEOs for MA and PHH if the policy is not developed and implemented appropriately. This relates to the design principle whereby there is currently no proposed individual business cap on payments under this policy; if this is abused and taken to excess, there is the potential for this to lead to negative effects in the long term on food supply and the sustainable management of agricultural lands.

At the next stage of further policy development, this principle should be carefully reviewed in order to ensure that this open-ended incentive to farm land for nature does not lead to any issues with long term farm viability or food supply and guidance or regulation provided to ensure that the outcomes are sustainable.

Policy FNP2

Policy proposal FNP2 outlines the initial focus of the FNP on the retention, maintenance, restoration and creation of a selection of habitats that are importance for species diversity and improved connectivity of the countryside, through: Hedge creation and management plans; Restoration of dry stonewalls and stone ditches; Maintenance and management of field margins; Management measures to encourage pollinator strips; Management of riparian buffer strips; Management of winter stubble and provision of wild bird cover; Planting and integration of native trees across the farmed landscape, including: tree plantations around livestock yards; Integration of trees within crop or livestock farming systems; Restoration or creation of species-rich grasslands; Ponds; Conversion of improved grasslands and croplands to herbal leys and 'hospital fields' for biodiversity; and Non-native species management.

At a strategic level, these measures have the potential for significant, positive across all SEOs. Positive effects on SEOs for BFF arise from direct positive effects on biodiversity of habitats within farmlands, provision of habitats for species, including protected and priority species, and increased connectivity of the countryside supporting species migration and pollinators. Dry stone walls have historical significance, and their restoration has potential for long term, positive effects on the CH SEO. Creation and maintenance of natural habitat features has the potential for positive effects on the SEO for Landscape. Implementation of measures such as tree planting in locations such as around livestock yards have potential for positive effects on SEOs for AQ in the long term, once these have reached sufficient maturity to effectively capture agricultural air emissions.

As discussed for proposed policy FNP1, the appropriate creation or retention of natural landscape features has potential for positive, long term effects on the SEO for CF, including positive transboundary effects, with a potential increase in carbon stored in vegetation and provision of ecosystem services such as absorption of water and reduction in run-off and sedimentation that could contribute towards adaptation to climatic change. Measures such as management of riparian buffer strips can contribute to a reduction in soil and nutrient loss into downstream water bodies, with the potential for indirect, positive, medium to long term effects on SEOs for GSL W and BFF, including the potential for positive transboundary effects on downstream water bodies in the Republic of Ireland.

There is potential for long term, positive effects on MA SEO 7A, through support of more sustainable land use and improved land management by incorporating, and better managing, natural features within the farmed landscape. Cumulative, indirect, positive, medium to long term effects on PHH SEOs are likely from the application of measures and the potential for increased naturalness of the countryside and improvements in water quality.

There is potential for cumulative, positive, medium to long term effects on SEOs from the implementation of these measures concurrently. The level of significance for positive effects arising from the implementation of these measures will likely be dependent on the level of uptake, and geographic spread across Northern Ireland.

Policy FNP3

Policy proposal FNP3 aims to support the implementation of measures outlined in Conservation Management Plans that are currently being prepared by DAERA for the 57 terrestrial SACs situated within Northern Ireland. It includes incentivisation for collective action and partnership working for management measures that are recommended to maintain or improve the condition of features within these SACs, with the aim of ensuring that the level of uptake is sufficient to enable clear improvements in conservation status. This has potential for positive effects on MA SEO, as incentivisation will allow for the implementation of improved land

management within these areas. This policy has the potential for significant, positive effects on SEOs for BFF, including direct and specific long term, positive effects on BFF SEO 1A through preservation, maintenance and enhancement of internationally protected habitats and the species that they support, as well as positive effects on BFF SEOs 1B and 1C. Implementation of this proposed policy also has potential for indirect, positive effects on SEOs for GSL, W, L, and PHH, through the retention and enhancement of natural habitats, their protection against soil and nutrient loss to surface waters, ability to store carbon and the cumulative positive effects on PHH. There is also potential for positive transboundary effects on these factors for transboundary terrestrial SACs in the Republic of Ireland.

Policy FNP4

Policy proposal FNP4 comprises the development of a series of pilot programmes, designed to test out, and learn lessons from, measures to restore and create the habitats listed in proposed policy FNP2 in the farmed landscape. The potential effects on SEOs from implementation of this policy would mirror those for policy FNP2, as discussed above.

In-Combination, Interactions and Cumulative Effects

Taken as a whole, the strategic-level policy proposals in the Farming for Nature Package have the potential for cumulative, direct, long term, positive effects on SEOs for BFF, and significant cumulative, indirect, long term, positive effects on SEOs for PHH, GSL, W, AQ, CF, MA, CH, and L. There is potential for in-combination, long term, positive effects on these factors from the implementation of policies STL1 and CA3. There is also potential for cumulative, indirect, long term, positive transboundary effects on SEOs for BFF, W, AQ and CF in the Republic of Ireland.

Implementation of the proposed policies under this workstream will contribute towards the objectives of the Biodiversity Strategy for Northern Ireland and the UK Post-2020 Biodiversity Framework, as well as towards Local Biodiversity Action Plans, while implementation of Policy FNP3 will directly support the successful implementation of measures outlined in the draft SAC Management Plans. Policies have potential to improve soil health, supporting the objectives of the SALMS, and have potential to lead to improvements in water quality, supporting the objectives of the WFD, the 3rd cycle RBMP for Northern Ireland (in prep.), Local Management Area Action Plans, the MSFD and the UK Marine Strategy, and reduction of downstream flood risk through creation and appropriate management of natural habitats, supporting the Floods Regulations and the Northern Ireland Flood Risk Management Plan. The potential for a reduction in GHG emissions will contribute towards the targets required under the Climate Change (2050 target) Order 2019 and the draft Green Growth Strategy for Northern Ireland, while potential for improvements in air emissions will contribute towards the achievement of targets under the National Emissions Ceiling Regulations and the UK National Air Pollution Control Programme.

Habitats Regulations Assessment

Policy FNP1

The implementation of the proposed farming for nature package is considered, on the whole, to represent a positive measure with potential to give rise to benefits to a large proportion of SACs and SPAs in Northern Ireland. All farmers and land managers will be eligible, subject to land ownership of over 3ha and derivative schemes are required to deliver landscape scale benefits. Derivative schemes will be targeted to be collaborative, outcome based, set to appropriate timescales and robustly monitored and evaluated. On this basis no negative impacts to European sites are predicted, however aspects of the package are discussed individually below.

Policy FNP2

This part of the farming for nature package places an emphasis on the initial proposals which include for the restoration/creation of habitats, with a focus on field boundaries including hedgerows, the creation of pollinator strips, watercourse buffers, tree plantations and other management prescriptions. These measures, if implemented correctly have potential to result in significant beneficial effects upon European Sites throughout Northern Ireland, through the creation of supporting habitat for Annex II species and Annex I bird species, the attenuation of surface water run-off, buffering of airborne emissions, control of the spread of invasive species and other positive effects. It is noted however that there is some limited potential for such

measures to give rise to negative effects upon European Sites if inappropriately implemented. Examples include the creation of forestry within an area close to important habitat for wintering waders and waterfowl; the management or creation of habitats in close proximity to an SAC or SPA giving rise to disturbance impacts and for other potential effects on downstream European Sites such as sedimentation, in the short term.

Policy FNP3

This policy represents a positive measure which is likely, if implemented appropriately, to result in significant beneficial effects upon European Sites. No negative effects are predicted to be likely to arise as a result of this policy proposal.

Policy FNP4

This policy would involve a progressive and experimental roll-out of policies as set out at FNP2 as such potential impacts associated with that policy also apply here. However, it is noted that this test and learn approach is likely to function as a form of mitigation for potential negative effects described in relation to that policy and as such this policy is regarded as being wholly positive and inclusive of a form of monitoring for negative impacts potentially arising as a result of FNP2.

Proposed SEA Recommendations and Mitigation Measures

No potential for negative effects were identified in the assessment, however negative effects are possible should measures under this policy be implemented inappropriately. It is recommended that measures implemented as part of the FNP should be tailored regionally and implemented locally on the basis of existing ecological and environmental resources, in order to ensure that they can maximise environmental benefits and do not lead to any inadvertent negative effects. For instance, in the case of native tree planting, there is a need to ensure that this is not implemented in inappropriate locations, in order to avoid any negative effects on terrestrial habitats such as peatland, or ground-nesting birds that require clear lines of sight for avoidance of predators.

At the next stage of further policy development, proposed policy FNP1 should be reviewed carefully in order to ensure that the open-ended incentive to farm land for nature through the lack of an individual business cap on payments, does not lead to any issues with long term farm viability or food supply and guidance or regulation provided to ensure that the outcomes are sustainable.

Proposed HRA Recommendations and Mitigation Measures

Policy FNP1

This policy has potential to give rise to a number of positive effects upon European sites through environmental and ecological improvements within, in proximity to and upstream of such sites.

Policy FNP2

Subject to proper implementation it is considered that the proposed policy will give rise to significant beneficial effects upon European sites and the wider landscape. Potential negative impacts may arise through the creation of inappropriate habitats in proximity or hydrologically linked to SACs and SPAs and care should be taken when evaluating applications for such measures in these locations, preferably on a case-by-case basis. Mitigation can therefore be delivered within the context of the policy and proposed monitoring.

Policy FNP3

This policy represents a positive measure which is likely, if implemented appropriately, to result in significant beneficial effects upon European Sites. No negative effects are predicted to be likely to arise as a result of this policy proposal and no mitigation is required.

Policy FNP4

This policy is a positive measure which will act as a form of monitoring and mitigation to prevent potential negative impacts, as identified under FNP2.

7.1.4 Workstream 4 – Farming for Carbon Measures

Policy Code	Policy Description
FCM1	Reducing numbers of non-productive livestock, with released land used alternatively, e.g. managed for environmental outcomes, forestry and bioenergy feedstocks.
FCM2	Development of a challenge fund model to test enteric methane reducing feed additives in Northern Ireland conditions and, if successful, and the market matures sufficiently, ensuring these additives are routinely incorporated in ruminant concentrate diets.
FCM3	Directing genetic selection programmes to drive a reduction in the carbon footprint of ruminant livestock.
FCM4	Use of urease inhibitor treated fertilisers to reduce N_2O emissions.
FCM5	Encouragement of appropriate timing of slurry and fertiliser application practices to reduce N_2O emissions.
FCM6	Soil management to optimise the growth of mixed species swards.
FCM7	DAERA will engage with stakeholders on the design of possible schemes to incentivise the farming of carbon as a business enterprise.
FCM8	A Scheme to encourage and facilitate the re-wetting and sustainable management of peatlands is likely to be co-developed with stakeholders under the umbrella of the Northern Ireland Peatland Strategy.
FCM9	Potential development of biomethane and hydrogen circular economy initiatives.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
FCM1	+	0	+	+	+	+	++	+/-	+/-
FCM2	0	0	0	0	+	+	+	0	0
FCM3	0	0	0	0	+	+	+	0	0
FCM4	+/-	0	+/-	+/-	+	+	+	0	0
FCM5	+	0	+	+	+	+	+	0	0
FCM6	+	0	+	+	+	+	+	0	0
FCM7	+/-	0	+/-	+/-	+/-	+/-	+/-	+/-	+/-
FCM8	+	+	+	+	++/-	+	+	+	+
FCM9	+	+	+	+	+/-	+/-	+	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 4 – Farming for Carbon

Policy FCM1:

The proposed policy FCM1 will see the reduction of non-production livestock, with released land used in an alternative way, such as being managed for environmental outcomes, forestry and bioenergy feedback. Initially two conditions are being proposed which are considered to have the potential to improve both productivity and reduce the carbon footprint for the sector. These include reducing the age of first calving, reducing the calving interval and applying a retention period for suckler cows, as well as reducing the age at slaughter for beef cattle. The proposals under the FCM1 will be implemented at intervals over a four year period. The basis of FCM1 is to increase farm efficiency in the long term through reducing age at slaughter for beef cattle and reducing non-productive periods for breeding stock and is designed to encourage large scale uptake. Released land is to be used in an alternative way to achieve environmental outcomes, which would have long term, positive effects across all SEOs. However the strategy for this is under consideration and subject to further policy development and should be implemented in line with those policies proposed under the HSPs. Policy FCM1 and those proposed under the HSPs should be carefully implemented to ensure that farmers are not provided with the opportunity to increase animal numbers (due to increased efficiencies) regardless of subsidy payments, which could lead to the unintended consequence of higher GHG and other emissions and higher nutrient loadings (from imported feeds and animal manures).

As well as developing robust policies to ensure that land is released for environmental outcomes, released land must be appropriately identified and selected to manage indirect effects. If not appropriately selected and managed, released land for forestry (afforestation or agroforestry) may have indirect, negative, medium to long term effects on terrestrial habitats (BFF), such as peatlands which are sensitive to changes in the water table regime or colonisation by conifers, which in turn may have indirect, negative medium to long term effects on the SEOs for AQ and CF as well as alteration of water quality and quantity to downstream habitats (SEOs for W). There may be both positive and negative effects of the SEOs for BFF. There is potential for positive effects through the provision of habitats, however potential negative effects may be associated with the disturbance of bird species, changes in habitat of ground nesting birds and/or alteration of predation behaviour.

The release and change of land use associated with policy FCM1 may have both positive and/ or negative short term, temporary or long term effects on the SEOs for L and CH through the potential for disturbance/damage to unknown heritage assets/ features of the landscape as well as the retention and protection of known assets/ features of the landscape.

Policy FCM1 has the potential for in-combination direct long term, positive effects on BFF SEOs and indirect, positive, long term effects on SEOs for W, CF, GSL, PHH, L and CH from the implementation of the proposed policies under the HSP and LGD policy proposals.

Policy FCM2 and FCM3

The proposed policy FCM2 is for the development of a challenge fund model to test enteric methane reducing feed additives and if successful, to routinely incorporate these additives into ruminant concentrate diets. There is ongoing worldwide research into feed additives to reduce enteric methane from ruminant livestock. A number of feed additive products are either commercially available or undergoing regulatory approval. Similarly, policy FCM3 is a proposal to reduce enteric methane emissions through strategic breeding. Ongoing research across Europe suggests that animal selection for reduced enteric methane production has the potential to directly reduce enteric methane emissions by up to 25%. Both policies FCM2 and 3 require ongoing research and modelling/monitoring to accurately assess the potential effects of implementation, however if proven to be successful, both policies have the potential for long term, significant positive effects on the SEO for both AQ and CF. In addition, in the long term, there is also potential for positive effects on MA SEO 7A, by supporting more sustainable agricultural land use and improved land management practices and MA SEO 7B, by supporting the long term viability of farms. It is not anticipated that policy FCM2 and 3 will have positive or negative effects on other SEOs.

Policies FCM 2 and FCM3 have the potential for in-combination direct long term positive effects on the SEOs for AQ and CF from implementation with policy LGD4.

Policy FCM4

This policy relates to the use of urease inhibitor treated fertilisers to reduce N_2O emissions. Research which has been carried out by AFBI has shown that urea fertiliser treated with a urease inhibitor significantly reduces N_2O emissions compared to the most commonly used fertiliser in Northern Ireland, calcium ammonium nitrate (CAN). These urease inhibitor treated fertilisers are already commercially available in Northern Ireland and are therefore readily available with proven effectiveness. Depending on the extent of utilisation, policy FCM4 has the potential for reducing GHG emissions from farms and therefore significant, medium to long term positive effects on the SEOs for AQ and CF. In addition, it is anticipated that FCM4 may have long term (with continued use) positive effects on MA SEO 7A by supporting sustainable agricultural land use and improved land management practices.

Although AFBI research has highlighted the success of urease inhibitor fertilisers in reducing N_2O emissions, there is limited information available on the potential of these inhibitors to enter the food chain. Previous studies have found residual contaminants in dairy products[96] which could have negative effects on the PHH SEO 2B (support the production of a clean and safe food supply) as well as soil nutrient levels and soil heath (SEO3A). However research undertaken by Teagasc[97] has found that the risk of residues occurring in milk are low. It is therefore uncertain what the potential long term effects on policy FCM4 are on the SEOs for PHH and GSL. Similarly, reduced N_2O emissions are anticipated to have positive effects on BFF SEOs, GSL SEO3A and W SEO 4A (Protect water sources from pollution by agricultural activities, and support the objectives of the WFD and MSFD), however further research is required to understand the long term effects on BFF, GSL and W with regards to contamination and bioaccumulation which also remain uncertain.

Policy FCM4 has the potential for in-combination, synergistic, direct medium to long term positive effects on GSL SEOs and indirect, positive, long term, effects on SEOs for BFF, PHH W, CF, CH and L from the implementation of the proposed policy STL1.

Policy FCM5

The proposal under policy FCM5 is to encourage appropriate timing of slurry and fertiliser application practices to reduce N_2O emissions. Research carried out by AFBI has shown that an interval of at least 5 days between fertiliser and slurry applications significantly reduces N_2O emissions compared to application of both fertiliser and slurry on the same day. This information is being considered in the creation of policy FCM5 and if successful, is likely to reduce the extent of fertilisation required which could have medium to long term, positive effects on the SEOs for BFF, PHH, GSL, W, AQ, CF as well as MA. It is not anticipated that policy FCM5 will have positive or negative effects on the SEOs for CH or L.

Policy FCM5 has the potential for in-combination, direct, long term, positive effects on GSL SEOs and indirect, positive long term effects on SEOs for W, CF, GSL, PHH, L and CH from the implementation of the proposed policy STL1.

Policy FCM6

Policy FCM6 is in relation to ongoing research which indicates the possibility of increased carbon sequestration in soils by optimising the growth of mixed species swards. These mixed species swards require reduced rates of nitrogen fertiliser input, with potential for reduced N_2O emissions and nitrate leaching, as well as higher rates of carbon sequestration through the use of deep rooted plants, contributing to indirect, positive effects on the SEOs for AQ, CF, GSL, as well as W SEO 4A (protect water sources from pollution by agricultural activities, and support the objectives of the WFD and MSFD) and W SEO 4B (protection against flood risk through the presence of deeper rooting plants). Compared to grasslands, there is also anticipated to be direct, positive effects on BFF SEOs through enhanced biodiversity, particularly pollinators feeding on the variety of flowering plants in multi-species swards.

[96] https://www.mdpi.com/2071-1050/12/15/6018/pdf

[97] https://www.mdpi.com/1420-3049/26/10/2890

There are unlikely to be any significant positive or negative effects on SEOs for PHH, CH or L from the implementation of the proposed policy.

Policy FCM7

This policy relates to the creation of schemes to incentivise carbon farming as a business enterprise. This policy is directly linked with policy STL1 whereby DAERA will run a Soil Nutrient Health Scheme (SNHS) to provide a baseline on soil nutrient health and carbon stocks. As the baseline levels of soil carbon and research supporting further soil carbon sequestration are validated to enable carbon accumulations to be credited in the GHG Inventory, DAERA will engage with stakeholders on the design of possible schemes to incentivise the farming of carbon as a business enterprise. As yet there is limited information available as to the detail included within the carbon farming schemes, however they are likely to include practices to sequester/ store carbon such as afforestation, agroforestry, hedgerow planting etc. Similarly to policy FCM1, the addition of carbon farming actions should be carefully selected and implemented. If not appropriately selected and managed, forestry (afforestation or agroforestry) may have indirect, negative medium to long term effects on terrestrial habitats (BFF), such as peatlands which are sensitive to changes in the water table regime or colonisation by conifers, which in turn may have consequences for carbon emissions (AQ) (CF), as well as alteration of water quality and quantity to downstream habitats (W). There may be both positive and negative effects on bird species through disturbance, changes in habitat of ground nesting birds and/or alteration of predation behaviour.

Policy FCM7 has the potential for in-combination, direct, long term, positive effects on GSL and BFF SEOs and indirect, positive, long term effects on SEOs for AQ and CF from the implementation of the proposed policy STL1.

Policy FCM8

The proposed policy FCM8 is to encourage and facilitate the re-wetting and sustainable management of peatlands and is likely to be co-developed with stakeholders under the umbrella of the Northern Ireland Peatland Strategy. If the objectives of the proposed Northern Ireland Peatland Strategy 2021-2040 are met, policy FCM8 has the potential for significant, medium to long term, positive effects of the majority of the SEOs, particularly for BFF, AQ, CF, CH and L. Restoration of upland peatlands which form the catchments to water reservoirs will likely indirectly also support the SEO for PHH 2A as well as for W 4A and 4B in the long term. Restoration of peatlands is also expected to have direct, long term, positive effects on GSL SEO 3B through the protection of the natural soil resource.

Although restoration measures will be undertaken by technical experts, farmers and land farmers would have a significant role in the ongoing management of peatlands and is therefore linked with policy FNP1-4. Financial incentives for this ongoing management may contribute to meeting the SEO for MA (7B) by providing additional means to support the long term viability of farms as well as contributing to their climate resilience (CF).

There may be short term and temporary, negative effects associated with policy FCM8 with regards to implementation of measures during the construction phase on AQ (machinery emissions).

Policy FCM9

Proposals under policy FCM9 relate to the potential development of biomethane and hydrogen circular economy initiatives. This policy would involve the use of anaerobic digestion to generate biomethane for injection into the Northern Ireland gas grid and/or to produce hydrogen as a power source for the heavy goods transport sector using a combination of manures from livestock farms, waste streams from food processing and energy crops grown on land diverted from conventional agricultural uses. The use of biomethane compared to conventional natural gas produces less greenhouse gas emissions and therefore would potentially have medium to long term positive effects on the SEOs for both AQ and CF.

Combining biomethane with technologies to capture and recycle nutrients from the digestate that would otherwise be land spread could also help address nutrient loading and water quality problems. This policy is therefore anticipated to have medium to long term indirect positive effects on the SEOs for BFF, W, PHH, GSL. In addition, if the use of biomethane is incentivised for farmers, this may have long term, direct positive effects on the SEOs for MA as it would support economic agricultural activities. It is important that this policy

is regulated and managed in line with other policies, particularly policy FCM1, to ensure that animal numbers on farms are not increased to support this policy.

In-Combination, Interactions and Cumulative Effects

The implementation of the proposed policies HSP1 and HSP2 with CA1-3 will help to negate any negative effects associated with the FCM1 policy. However although there may be no subsidy associated with increased animal numbers, the potential remains for farmers to increase their animals if this is financially viable without the subsidy. In addition, the current FCM1 policy proposal could have significant negative implications for SEOs if policies for releasing land are not managed effectively and sustainably. This should be undertaken in line with those policies proposed under the Farming for Nature Package (FNP1-4).

Policies FCM 2 and 3 have the potential for in-combination, direct, synergistic, and medium to long term positive effects on the SEOs for AQ and CF from implementation with policy LGD4.

Policy FCM4 has the potential for in-combination, direct, long term, positive effects on GSL SEOs and indirect, positive, long term effects on SEOs for BFF, PHH W, CF, CH and L from the implementation of the proposed policy STL1

Policy FCM5 has the potential for in-combination, direct, synergistic medium to long term positive effects on GSL SEOs and indirect, positive, long term effects on SEOs for W, CF, GSL, PHH, L and CH from the implementation of the proposed policy STL1.

Policy FCM7 has the potential for in-combination, direct, long term, positive effects on GSL and BFF SEOs and indirect, positive, long term effects on SEOs for AQ and CF from the implementation of the proposed policy STL1.

In general, with the successful implementation of FCM1-9, there is also potential for cumulative, indirect, medium to long term, positive transboundary effects on SEOs for BFF, W, AQ and CF in the Republic of Ireland. With regards to FCM4, there is potential for uncertain or negative, indirect, transboundary effects on the SEO for PHH (2B), where dairy products are transported and sold in the Republic of Ireland or where used at transboundary locations. The potential effects of this measure with regards to bioaccumulation remains uncertain and requires further definitive research and monitoring

The objective of reducing enteric methane emissions and releasing land for environmental management as well as reducing N_2O emissions have the potential for reductions of GHG emissions and are in line with the objectives of the Green Growth Strategy and Sustainability for the Future – 'DAERA's Plan to 2050', Draft Northern Ireland Peatland Strategy 2021-2040, the NAP for Northern Ireland, as well as Strategic Priority Four of the draft Northern Ireland Food Strategy Framework (Protecting and enhancing our natural resources).

Habitats Regulations Assessment

Policy FCM1

This policy will be driven by a number of key considerations which should protect the policy from giving rise to potential negative effects upon European Sites. The policy is considered to be generally positive, and should give rise to an overall reduction in the area of land which is currently farmed, intensively or otherwise. However careful consideration will need to be given to potential negative effects of carbon farming practises proposed on released land parcels. As discussed above in respect of FNP2, the creation of forestry in inappropriate locations, whether for carbon capture or biodiversity enhancement purposes can give rise to inadvertent negative effects upon European Sites. Furthermore, other proposed land management activities may also have potential to give rise to similar negative effects.

Policy FCM2

It is considered that this policy is largely neutral, with little potential to give rise to positive effects upon European Sites. It is noted however that any feed additive, if employed at a large scale would, in the absence of a sufficient evidence base, have potential to negatively impact European Sites, particularly freshwater sites, due to such additives entering the freshwater environment, either through spillage or following excretion by livestock and subsequent run-off, should such an additive give rise to unforeseen impacts upon metabolic pathways of organisms within that ecosystem.

Policy FCM3

It is considered that this policy represents a neutral measure with little potential to give rise to positive or negative effects upon European Sites.

Policy FCM4

In theory this policy is positive and will potentially give rise to a reduction in localised N_2O emissions. Such an effect would benefit a range of Annex I habitats which are known to be sensitive to nutrient deposition, such as peatlands, species-rich grasslands and woodlands. As set out above in respect of FCM2, the use of chemicals, especially at a landscape scale would have potential to give rise to negative effects upon European Sites, particularly those designated for their aquatic habitats, due to the potential for such chemicals to enter and potentially accumulate in such ecosystems via agricultural run-off. A study undertaken of the most popularly used of these urease inhibitors, N-(n-butyl) Thiophosphoric Triamide (NBPT) (Byrne et al. 2020) identified that this chemical may have some potential to persist within the natural environment, with a predicted half-life of 26-30 days in soil and 15 days in freshwater. This study also suggests that the chemical is unlikely to bioaccumulate, as noted in respect of fish. It is considered that monitoring should be undertaken, in the absence of a robust scientific evidence base to suggest that negative impacts will not occur, to assess the ongoing potential effects of such chemicals particularly within the freshwater environment.

Policy FCM5

This is considered to be a positive measure which could potentially give rise to significant beneficial effects on European Sites through the reduction of airborne nutrient emissions.

Policy FCM6

This policy is considered to be a positive measure, as the use of nitrogen fixing species within the sward will ultimately reduce the requirement for artificial fertilisation of land and associated impacts such as airborne emissions and run-off.

Policy FCM7

This policy is considered likely to be neutral however potential impacts, as addressed above at FCM1 may also be relevant here.

Policy FCM8

This is considered to be a positive measure and while directed toward carbon sequestration, would also likely give rise to significant beneficial effects upon peatland SACs and SPAs in respect of their qualifying interests, through appropriate management.

Policy FCM9

This policy and its potential implications will vary greatly depending upon the nature of the proposed initiatives. Overall it is considered that there is potential for both positive and negative effects and consideration of these should be afforded to any derivative project or initiative.

Proposed SEA Recommendations and Mitigation Measures

Policy FCM1 and those policies proposed under HSP should be carefully implemented to ensure that farmers are not provided with the opportunity to increase animal numbers (due to increased efficiencies) regardless of subsidy payments, which could lead to the unintended consequence of higher GHG and other emissions and higher nutrient loadings (from imported feeds and animal manures).

Both policies FCM2 and FCM3 require ongoing research and modelling/monitoring to accurately assess the potential long term effects of their implementation.

Further research is required to understand the long term effects on PHH, BFF and W with regards to contamination and bioaccumulation of urease inhibitors, particularly their ability to enter the food chain.

Proposed HRA Recommendations and Mitigation Measures

Policy FCM1

This policy has potential to give rise to positive impacts to European Sites however negative impacts may arise where the proposals are improperly implemented. Mitigation can be delivered within the wording of the policy or through the application of further measures and/or a case-by case assessment of potential effects.

Policy FCM2

It is recommended that the use of feed additives and incentivisation of their use, should be carefully considered in light of the available scientific information to establish any potential for negative impacts upon aquatic ecosystems. Mitigation may include the requirement within such a policy for a robust scientific assessment of such effects prior to implementation or an appropriate level of monitoring.

Policy FCM3

It is not considered that this policy has potential to give rise to any positive or negative effects upon European Sites. It is therefore envisaged that mitigation is not required.

Policy FCM4

This measure may have potential to give rise to positive effects through the reduction of airborne nutrient emissions from agriculture. Negative effects may arise should urease inhibitors give rise to unforeseen impacts upon natural systems, particularly aquatic. Potential negative effects can be addressed through reference to scientific study, where it is shown definitively that such chemicals do not give rise to environmental impacts, or through careful monitoring of the potential effects of their application.

Policy FCM5

This is considered to be a positive measure which could potentially give rise to significant beneficial effects to European Sites through the reduction of airborne nutrient emissions.

Policy FCM6

This is considered to be a positive measure which could potentially give rise to significant beneficial effects to European Sites through the reduction of airborne nutrient emissions.

Policy FCM7

This is considered to be a neutral measure, with little potential to give rise to significant effects upon European Sites.

Policy FCM8

This is considered to be a positive measure which could potentially give rise to significant beneficial effects to peatland European Sites.

Policy FCM9

It is considered that this policy has potential to give rise to both positive and negative effects and consideration of these should be afforded to any derivative project or initiative. Mitigation in the form of further assessment and monitoring is likely to be required.

7.1.5 Workstream 5 – Investment Measure

Policy Code	Policy Description
IM1	The following design principles will be considered for future capital support: evidence of market failure; measures to address causes of market failure; addressing key environmental and societal issues; alignment with DAERA policy objectives; appropriate type of support; realistic achievement of intended outcomes; measurable outcomes for public good; careful scheme design.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
IM1	+/-	+/-	+/-	+/-	+/-	+	+	+/-	+/-

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 5 – Investment Measure
Policy IM1 The proposed policy IM1 is intended to provide on-farm capital investment that meets certain design principles, with the aim of enabling or facilitating the achievement of other policy goals. The types of on-farm capital investments that may be applied are not stipulated at this strategic stage. These may include the building of new, or updating of existing farm buildings, or new farm equipment. This proposed policy has potential for positive effects on SEOs for MA, as investment could help to support the long term viability of farm businesses, and investment in equipment or other measures that can improve environmental performance could contribute towards more sustainable agricultural land use and improved land management practices. There is potential for both positive and negative effects on SEOs for BFF, PHH, GSL, W, AQ, CH and L; on-farm development that may be supported by capital investment has the potential for short term, temporary negative effects on these factors during the construction phase, while the use of more modernised equipment is likely to have long term, positive effects on these SEOs. The use of more modernised equipment is also likely to lead to reduced emissions, with positive effects on the CF SEO, including the potential for positive transboundary effects. The potential for positive or negative effects on the CH SEO will also depend on whether existing historical on-farm buildings are appropriately preserved as part of this measure.
In-Combination, Interactions and Cumulative Effects There is potential for in-combination long term, direct and indirect positive effects from implementation of measures under policy IM1, such as the use of more modernised equipment, with other proposed policies, such as KM1, CA3 and STL1, across all SEOs.
Habitats Regulations Assessment This policy proposal has potential to give rise to both negative and positive effects upon European Sites, via a large number of potential pathways arising from the nature of the proposed investments. Consideration of these should be afforded to any derivative investment measure.
Proposed SEA Recommendations and Mitigation Measures During policy development, it is recommended that investment measures are prioritised that will lead to improvements in environmental factors. This could include consideration of investment in innovative

technologies, such as adding GPS technology to tractors with the aim of improving efficiency of slurry spreading, and avoiding hedges or other sensitive habitats.

During policy development, it is recommended that DAERA provides clear guidance to applicants regarding any additional requirements or procedures that may need to be followed, depending on the types of capital investment included (e.g. planning permissions, EIA/EcIA and HRA).

During policy development, it is recommended that, should capital investment measures include provision for changes to existing farm buildings, DAERA provide incentives for existing historical farm buildings to be restored, where possible, to avoid negative effects on cultural heritage.

Proposed HRA Recommendations and Mitigation Measures

It is considered that this policy has potential to give rise to both positive and negative effects and consideration of these should be afforded to any derivative project or initiative. Mitigation in the form of further assessment and monitoring is likely to be required.

7.1.6 Workstream 6 – Knowledge Measures

Policy Code	Policy Description
KM1	DAERA proposes the development of a suite of knowledge transfer and innovation programmes.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
KM1	+	+	+	+	+	+	+	+	+

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 6 – Knowledge Measures

Policy KM1

The proposed policy KM1 encompasses the development of set of programmes concerning knowledge transfer and innovation that aim to build on the strengths and successes of existing provisions, and deliver additional positive impacts on productivity, environmental sustainability and resilience of the sector.

These programmes are expected to have medium to long term, positive, direct effects on material assets, supporting sustainable agricultural land use and improved land management practices (SEO 7A) and the long term viability of farm businesses (SEO 7B). This proposed policy will support the policies of other workstreams, e.g. workstream 10 Livestock Genetics and Data. Through innovation measures, and the implementation of these policies with increased knowledge and expertise, there is potential for indirect, medium to long term, positive effects on SEOs for BFF, PHH, GSL, W, AQ, CF, CH, and L, including the potential for positive transboundary effects via GHG emissions and water quality.

In-Combination, Interactions and Cumulative Effects

Proposed policy KM1 has the potential for direct and indirect, long term, positive in-combination effects across all SEOs with proposed policies of other workstreams of the draft FAPP, such as RM, HSP, FNP, FCM, STL1,

through the provision of improved knowledge that can support the successful implementation of measures under these policies.
Habitats Regulations Assessment This policy proposal is considered to be positive and should assist in making landowners more aware of their obligations under existing and proposed agricultural legislation and the associated requirement to protect European Sites. It is considered likely that a large proportion of problematic behaviours giving rise to impacts upon European Sites, such as the inappropriate application of artificial fertilisers and organic matter, or the removal of riverside hedgerows, is undertaken as a result of a lack of understanding by landowners. In order for potentially beneficial policy proposals, as discussed above, to be implemented effectively, knowledge of the mechanisms of such policies and their intentions will be necessary for those implementing them.
Proposed SEA Recommendations and Mitigation Measures No negative effects have been identified in this assessment from implementation of proposed policy KM1, therefore no mitigation measures are required. Knowledge measures will act as mitigation and monitoring of negative effects identified from implementation of other policies. As part of a cycle of monitoring and mitigation of the FAPP, knowledge measures should help to ensure that proposed policies are based on sound research and are applied in the most appropriate manner.
Proposed HRA Recommendations and Mitigation Measures This policy proposal is considered to be positive and should assist in making landowners more aware of their obligations under existing and proposed agricultural legislation and the associated requirement to protect European Sites.

7.1.7 Workstream 7 - Generational Renewal

Policy Code	Policy Description
GR1	DAERA proposes the development and delivery of a Generational Renewal Programme which comprises policy interventions around knowledge and incentives. This proposes a Succession Planning Facilitation Service.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
GR1	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 7 – Generational Renewal
Policy GR1 Policy proposal GR1 relates to the development and delivery of a programme for generational renewal, with a Succession Planning Facilitation Service that includes knowledge and capacity building, access to supports and guidance and incentives for the meeting of actions or objectives.

There is potential for direct positive effects on MA SEO 7B, by provision of support and long term direction to help the long term viability of farms. There is uncertainty as to the potential for indirect effects on all other SEOs from implementation of this policy at this strategic stage. Theoretically there may be potential for indirect positive effects on these SEOs in the long term through the transition of farm businesses to those of a younger generation with more training and skills who could more successfully implement the desired productivity and environmental outcomes of policies proposed in the draft FAPP, however this is based on the assumption that a younger generation would not just be more highly trained but also more environmentally responsible. Monitoring will be required to establish the overall benefits of generational renewal.
In-Combination, Interactions and Cumulative Effects There is potential for positive, long term, in-combination effects on MA SEO 7B with proposed policy IM1, through potential improvements in on-farm capital, and across all SEOs in-combination with other proposed policies, such as RM, HSP, FNP, FCM, STL1, through the potential for successful implementation of measures under these policies.
Habitats Regulations Assessment This policy proposal has potential to give rise to both negative and positive effects upon European Sites, via a large number of potential pathways arising from the potential behaviours which may be exhibited by a younger generation of farmers. While some young farmers may be more aware of the need for sustainable or environmentally friendly farming practises others may be more focused on profit generation through intensive land management practises. It is recommended that generational renewal measures should take into account the potential for unforeseen negative impacts and ensure that younger generations of farmers are informed by knowledge measures, as proposed at KM1, in regard to their environmental obligations.
Proposed SEA Recommendations and Mitigation Measures Periodic monitoring and review should be undertaken to ensure that there are no unintended negative effects on these factors from implementation of Policy GR1. Knowledge Measures (KM1) should be applied as mitigation to ensure that the younger generation are suitably informed as to their environmental obligations. Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.
Proposed HRA Recommendations and Mitigation Measures This policy proposal has potential give rise to both negative and positive effects upon European Sites, via a large number of potential pathways arising from the potential behaviours which may be exhibited by a younger generation of farmers. Mitigation may be addressed through Knowledge Measures and through the wording of derivative policies or projects.

7.1.8 Workstream 8 – Supply Chain Measures

Policy Code	Policy Description
SCM1	Improving information flow and transparency - helping to create the information infrastructure that drives transparency, confidence and the effective transmission of market signals amongst supply chain partners.

SCM2	Addressing Fragmentation - providing support, where needed, to help sectors address blockages to collaboration and co-operation between supply chain actors. Providing the tools (education, mechanisms to encourage co-operation, regulation) to help sectors improve supply chain integration and co-ordination.
SCM3	Using the supply chain to achieve better strategic outcomes - to identify, agree and align behind the achievement of strategic objectives, such as a sustainability agenda for Northern Ireland agri-food which is supported by all actors in the food chain, and which creates a positive narrative for the industry as it responds to social and market drivers.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
SCM1	0	+	0	0	0	0	+	0	0
SCM2	0	+	0	0	0	0	+	0	0
SCM3	0	+	0	0	0	0	+	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 8 – Supply Chain Measures

Policy SCM1-3

Policy proposals SCM1-3 seek to improve the integration, profitability, efficiency, sustainability, competitiveness and overall effective functioning of the supply chain for the agriculture sector in Northern Ireland. These policies have the potential for long term positive effects on MA SEO 7B, through support of the long term viability of farm businesses in Northern Ireland. Implementation of these proposed policies also has the potential for long term positive effects on PH SEO 2B, through support for the production of a clean and safe food supply.

There are unlikely to be any significant positive or negative effects on SEOs for BFF, GSL, W, AQ, CF, CH and L from the implementation of these proposed policies.

In-Combination, Interactions and Cumulative Effects

There is potential for cumulative, long term, positive effects from implementation of these proposed policies on MA SEO 7B (supporting the long term viability of farms) along with proposed policies of the Headage Sustainability Package, Resilience Measures, Investment Measure, Knowledge Measures and Livestock Genetics and Data workstreams.

The objectives of policies under this workstream are in line with the objectives of the Green Growth Strategy, and will support the objectives of the draft Northern Ireland Food Strategy Framework.

Habitats Regulations Assessment

These policies are considered to be neutral and unlikely to give rise to any significant positive or negative effects upon any European Site.

Proposed SEA Recommendations and Mitigation Measures

No negative effects have been identified in this assessment from implementation of proposed policies SCM1-3, therefore no mitigation measures are required.
Proposed HRA Recommendations and Mitigation Measures These policies are considered to be neutral and unlikely to give rise to any significant positive or negative effects upon any European Site.

7.1.9 Workstream 9 - Soil Testing and LiDAR

Policy Code	Policy Description
STL1	DAERA will run a Soil Nutrient Health Scheme (SNHS) to provide a baseline on soil nutrient health and carbon stocks and it will be a condition of the Resilience payment that farmers will participate in this Scheme when offered to them.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
STL1	+	+	+	+	+	+	+	+	+

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 9 – Soil Testing and LiDAR
Policy STL1 Under this policy, soil testing and LiDAR will be a requirement for all lands receiving payments under policy RM1. This data on soil nutrient health and carbon stocks will provide a baseline to be used in a SNHS, for which participation by means of NMP will also be required under policy RM1. In the short term, there are unlikely to be any significant changes to the management of soils; however, in the medium to long term, when data becomes available to farmers and land managers, along with appropriate advice on its application, there is potential for moderate to significant effects on soil health. This has potential for medium to long term positive effects on MA SEO 7A, by supporting more sustainable agricultural land use and improved land management practices. The application of NMP based on farm soil testing across Northern Ireland should also lead to a reduction in the application of slurries and chemical fertilisers to soils, with these being used in circumstances where a requirement is outlined in the farm NMP. This has potential for indirect moderate to significant positive secondary effects on water quality (W SEO 4A), as well as water-dependent habitats and species (BFF SEOs), and waters used for drinking, bathing or food supply (PHH SEO 2A) in the medium to long term, through an anticipated reduction in the run-off of excess nutrients into water bodies. There is also potential for positive transboundary effects on these SEOs for downstream water bodies in the Republic of Ireland. There is potential for direct and indirect positive effects on CH features, including for transboundary features such as waterways, should lower amounts of fertilisers be required (CH SEO 8) and for indirect positive effects on the landscape through anticipated benefits to water-dependent habitats (L SEO 9). Appropriate soil management and an associated reduction in the application of nitrogen-based fertilisers also has the potential for direct, medium to long term, positive effects on AQ (SEO 5) and CF (SEO 6) through a reduction in N_2O emissions, including the potential for positive transboundary effects.

In-Combination, Interactions and Cumulative Effects

Implementation of policy proposal STL1 has the potential for in-combination, direct, long term positive effects on soil health (GSL SEO 3A), and indirect, positive, long term effects on water quality (W SEO 4A), water-dependent habitats and species (BFF SEOs), air quality (AQ SEO5) and GHG emissions (CF SEO) in-combination with proposed policy RM1, owing to the stipulation that soil testing and subsequent Nutrient Management Planning are implemented as a condition of Resilience Payments; in-combination with proposed policy CA3, through the expansion of land eligibility for schemes and implications for appropriate management of this land; in-combination with proposed policies FNP1-4, through retention and restoration of natural habitats; and in-combination with FCM policies such, as FCM5-8. This includes the potential for long term, in-combination and synergistic effects on transboundary water quality (W SEO 4A), water-dependent habitats and species (BFF SEOs), AQ (SEO5) and GHG emissions (CF SEO) in the Republic of Ireland.

The requirement for farmers and land managers to partake in soil testing and LiDAR of all lands receiving payment under proposed policy RM1, followed by the management of these lands through NMP directly supports the recommendations of the Sustainable Agricultural Land Management Strategy (SALMS), while potential indirect positive effects on water quality will contribute towards the protection and enhancement of water body status in line with the WFD, the 3rd cycle RBMP for Northern Ireland (in prep.), Local Management Area Action Plans, the MSFD and the UK Marine Strategy.

Habitats Regulations Assessment

It is considered that this is a positive measure which is likely to give rise to significant beneficial effects upon European sites, particularly freshwater SACs, through a reduction in the application of chemical fertilisers and organic manure and subsequently associated run-off. Positive effects are also likely to occur through a reduction in airborne emissions on nearby sensitive Annex I habitats.

Proposed SEA Recommendations and Mitigation Measures:

It is recommended that DAERA provides an indication of the anticipated timeframe in which the gathering of baseline data, and subsequent development and application of NMP for all farm businesses receiving Resilience Payments will take place, to ensure that it will be able to mitigate against potential negative effects on soil health and indirect effects on other elements of the environment as soon as is practicably possible.

Following the roll out of NMP for all farms receiving Resilience Payments it is recommended that, during periodic monitoring and review of this policy, DAERA investigates whether smaller farm businesses <10ha not in receipt of Resilience Payments and therefore not currently covered under Policy STL1, are contributing to significant negative effects on soil quality and associated water quality. If this is the case, it is recommended that DAERA consider the potential to include these smaller farms in this scheme or a similar alternative.

Proposed HRA Recommendations and Mitigation Measures:

It is considered that this is a positive measure which is likely to give rise to significant beneficial effects upon European sites, particularly freshwater SACs.

7.1.10 Workstream 10 – Livestock Genetics and Data

Policy Code	Policy Description
LGD1	To support the industry-led ruminant genetics programme it is proposed that, within the Resilience Payment, there will be a requirement to register the sires of all calves born.

LGD2	To support the industry-led ruminant genetics programme it is proposed that, within the Headage Sustainability measure, there will be a future requirement to provide specified data from suckler cows (still to be agreed) to the ruminant genetics programme.
LGD3	To support the industry-led ruminant genetics programme it is proposed that knowledge transfer programmes are established.
LGD4	Provision of assistance to farm businesses to utilise the data coming from the livestock genetics and data programme to drive better economic and environmental performance from their ruminant enterprises.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
LGD1	0	0	0	0	0	0	0	0	0
LGD2	0	0	0	0	0	0	0	0	0
LGD3	0	0	0	0	0	0	0	0	0
LGD4	+/-	+	+/-	+/-	+/-	++/-	+	+/-	+/-

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Land use; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 10 – Livestock Genetics and Data

Policy LGD1-3

Policy proposals LGD1-3 aim to provide support to an industry-led Livestock Genetic Improvement and Data Programme. Policy LGD1 proposes a requirement to register the sires of all calves born for all farmers receiving payments under Policy RM1, while policy LGD2 proposes a future requirement that all farmers receiving payments under policies HSP1/2 provide specified data from suckler cows; together this data will be used to inform the proposed industry-led ruminant genetics programme. Policy LGD3 support the transfer of knowledge from this programme to farmers. These policies play a purely supportive role, and are considered to have neutral effects across all SEOs.

Policy LGD4

Policy proposal LGD4 aims to provide assistance for farmers to utilise the knowledge from the Livestock Genetic Improvement and Data Programme in the most appropriate manner.

This proposed policy has the potential for moderate to significant positive effects on MA (SEO 7A and 7B) in the medium to long term, as the access to data from the proposed ruminant genetics programme has the potential to provide farmers with genetic evaluations through which they may be able to improve the genetic quality of their livestock through informed breeding decisions. Improved genetic quality is expected to lead to increased productivity, with livestock that require a reduced amount of feed resources per unit of milk, beef or sheep meat produced, while potential to improve disease resistance of livestock would also have positive effects on MA SEOs through increased survival and productivity, and a reduced need for pharmaceuticals. A decreased need for animal health pharmaceuticals would also have medium to long term, positive effects on PHH SEO 2B (supporting the production of a clean and safe food supply) and W SEO 4A (protecting water sources from pollution by agricultural activities, and supporting the objectives of the WFD and MSFD). Reporting at enterprise level under the proposed programme will also have indirect positive effects on MA SEOs, providing farmers with information as to the performance of their businesses relative to their peers.

Policy proposal LGD4 has potential for positive, direct effects on the SEO for CF in the long term from selection of animals with lower enteric methane production. Ongoing research across Europe suggests that

animal selection for reduced enteric methane production has the potential to directly reduce enteric methane emissions by up to 25%. This policy will require ongoing research, however, if proven to be successful, there is potential for long term moderate to significant direct positive effects on the CF SEO, including positive transboundary effects, through reduced methane GHG emissions. Enteric methane emissions are subject to genetic variations, and genetic selection has the potential to directly reduce methane emissions. However, this will require additive genetic variation, and time to have effect, as genetic selection would be carried out over generations.

In addition, there is potential for uncertain overall indirect effects on the SEO for CF from implementation of the ruminant genetics programme. Genetic improvements, supported by the ruminant genetics programme, has potential for indirect positive effects on CF through the breeding of more productive animals, requiring lower inputs per unit of output and reduced nutrient loadings, with potential for reduced GHG emissions in livestock production per unit of milk, beef and sheep meat produced and contribution towards government GHG emission reduction targets. However, the potential for overall positive effects on the CF SEO is reliant on the assumption that ruminant numbers remain constant. Should ruminant livestock numbers increase concurrently with the implementation of these proposed policies, the overall positive effects on GHG emissions through productivity improvements may be lessened substantially.

There is also potential for uncertain overall indirect effects on the SEOs for BFF, GSL, W, AQ, CH and L. The potential for increased productivity could have indirect, long term, positive effects on these SEOs, through lower nutrient loadings (such as from imported feeds and animal manures); however the potential for positive effects on these SEOs is reliant on the assumption that ruminant numbers remain constant. Should ruminant livestock numbers increase concurrently with the implementation of this proposed policy, any overall indirect positive effects may be negated.

In-Combination, Interactions and Cumulative Effects

Implementation of policy proposals LGD1-4 have the potential for direct long, term positive effects on GHG emissions (CF SEO) in-combination with proposed policy RM1, owing to the stipulation that sire data is recorded to support the LGD programme as a condition of Resilience Payments; in-combination with proposed policies HSP1 and HSP2, owing to the condition that specified data from suckler cows is provided to support the LGD programme as a condition of Headage Payments; in-combination with proposed policy KM1, through knowledge programmes; for synergistic, in-combination effects in the medium to long term with proposed policies FNP1-4, through the restoration or creation of natural habitats and positive effects on carbon storage; and for synergistic and in-combination effects in the medium to long term with policy proposals under the FCM workstream, through various direct and indirect measures proposed to reduce GHG emissions.

The objective of increased productivity and potential for reduction in GHG emissions is in line with the objectives of the Green Growth Strategy and Sustainability for the Future – 'DAERA's Plan to 2050', as well as Strategic Priority Four of the draft Northern Ireland Food Strategy Framework (Protecting and enhancing our natural resources).

Habitats Regulations Assessment

Policies LGD1-3

These policies are considered to be neutral and unlikely to give rise to any significant positive or negative effects upon any European Site.

Policy LGD4

This policy is considered to be largely neutral and unlikely to give rise to any significant positive or negative effects upon any European Site, however some minor beneficial effects could be delivered through long term effects associated with greater livestock efficiency.

Proposed SEA Recommendations and Mitigation Measures

Farmers whose data will feed into the industry-led ruminant genetics programme, and who may benefit from the application of policies under this workstream will be in receipt of Resilience Payments. As a condition of receiving Resilience Payments, these farmers must adhere to the conditions stipulated for Policy RM1, i.e. Policies STL1 and CA1-3. These policies will help to mitigate against and potential negative effects on BFF, GSL, W, AQ, CH and L from implementation of Policy LGD4. Periodic monitoring and review should be undertaken to ensure that no negative environmental behaviours, including overstocking, indirectly and inadvertently occur from the implementation of these policies. Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation. Periodic monitoring and review should be undertaken to establish the effectiveness of these policies and the industry-led programme that they support, at reducing overall GHG emissions from the ruminant sector.
Proposed HRA Recommendations and Mitigation Measures **Policies LGD1-3** These policies are considered to be neutral and unlikely to give rise to any significant positive or negative effects upon any European Site. **Policy LGD4** This policy is considered to be largely neutral and unlikely to give rise to any significant positive or negative effects upon any European Site, however some minor beneficial effects could be delivered through long term effects associated with greater livestock efficiency.

7.1.11 Workstream 11 – Controls and Assurance

Policy Code	Policy Description
CA1	DAERA proposes to replace the current Cross Compliance system with the simplified 'Farm Sustainability Standards'.
CA2	DAERA is seeking to ensure that its penalty system for non-compliance with the new Farm Sustainability Standards is effective but fair.
CA3	DAERA proposes to make all agricultural land eligible for payment except for hard features (e.g. buildings, yards, laneways, etc.) under future area-based schemes.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
CA1	+/-	+/-	+/-	+/-	+/-	+/-	0	+/-	+/-
CA2	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
CA3	+	+	+	+	+	+	0	+	+

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 11 – Controls and Assurance
Policy CA1

Policy proposal CA1 aims to simplify the existing cross-compliance system by replacement with a new set of standards. As was the case for cross-compliance, these standards would be applicable to all farm businesses that are in receipt of area based scheme payments and, as such, DAERA anticipate that they will apply to the Resilience Measure (Policies RM1/2) and Farming for Nature Measures (FNP1-4).

Existing standards under cross-compliance have been of vital importance in protection of the environment, and it is therefore imperative that the proposed new standards provide the same, or better level of protection. DAERA has comprehensively reviewed the existing standards, and the revised standards are based on the identified gaps or overlaps, a better focus on areas of greatest non-compliance, and the exclusion of standards that have had no, or minimal non-compliance in recent years. The overall effects across SEOs for BFF, PHH, GSL, W, AQ, CF, CH and L are uncertain at this stage; the revised FSS are expected to provide comparable measures for the avoidance of negative effects on environmental factors, however should they fail to offer the same or greater protection, there is potential for significant negative effects on these factors. This should be carefully monitored in order to ensure that there are no unintended negative effects on the environment from this change. This policy is considered to be largely neutral with respect to MA.

Policy CA2

This proposed policy intends to improve the system for non-compliance with standards, by moving away from a 'penalty culture' to further use of knowledge and education. The use of penalties would be focussed on those who repeatedly breach standards, or where significant harm has been done, including to the environment. At this stage, there are uncertain effects across all SEOs from the application of this proposed policy. The use of increased knowledge and guidance has potential to reduce the incidence of breaches in compliance in the first instance, or to lessen the risk of subsequent infractions in the case of minor breaches in compliance, with potential for positive effects on SEOs, however it is not clear at this stage what would constitute a 'minor' or more 'significant' breach in compliance, the level of penalties for repeat or significant non-compliance, or the guidelines through which inspections could use discretion in the provision of advice or penalties in the case of more minor breaches.

Policy CA3

Policy proposal CA3 has potential for medium to long term, significant, positive effects across all SEOs. It ensures that non-productive areas of land on farms such as scrub, hedgerows, woodland etc., now eligible for payments under proposed policy RM1 would be brought under the protections provided by Sustainable Farming Standards (policy CA1). Appropriate management of these lands has potential for cumulative positive effects around W, CF, GSL, PHH, CH and L. Appropriate management of landscape features such as scrub and hedgerows can act as a sink for carbon, and provide ecosystem services such as absorption of water and reduction in run-off that could contribute towards reduced effects on water quality, reduced flood risk and increased adaptation to climatic change.

In-Combination, Interactions and Cumulative Effects

Implementation of policy proposal CA1 has the potential for direct, long term, positive effects on BFF SEOs, and indirect, positive long term effects on SEOs for W, CF, GSL, PHH, L and CH, in-combination with proposed policy RM1, owing to the condition that all farms in receipt of Resilience Payments be subject to adherence to FSS.

Proposed policy CA2 interacts with proposed policy RM1, as it represents the manner in which breaches of compliance with FSS that are a condition of Resilience Payments will be dealt with.

Implementation of policy proposal CA3 has the potential for direct or indirect long term, positive effects across all SEOs, in-combination with proposed policy RM1, owing to the expansion of land eligibility and implications for appropriate management of this land for all farms in receipt of Resilience Payments; and in-combination with proposed policies FNP1-4, through retention and restoration of natural habitats.

The expanded eligibility of land types for Resilience Payments, and the potential for this to increase the naturalness of the countryside, will contribute towards the objectives of the Biodiversity Strategy for Northern Ireland and the UK Post-2020 Biodiversity Framework, as well as towards Local Biodiversity Action Plans.

The potential for a reduction in GHG emissions will contribute towards the targets required under the Climate Change (2050 target) Order 2019 and the draft Green Growth Strategy for Northern Ireland.

Habitats Regulations Assessment

Policy CA1

The proposed replacement of the current system of agriculture compliance has potential to give rise to significant negative impacts upon European Sites, should the new proposed FSS fail to offer the same or greater levels of protection for such sites, through the setting of appropriate environmental standards, best practises and enforcement of these.

As discussed at RM1, the proposed FSS will apply to all claimants of the resilience payment and will comprise a range of sector specific requirements, such as protection of watercourses and protection of habitats and biodiversity. It is considered likely that these aspects of the policy proposal will address any potential for impacts upon European Sites, in line with or to a greater degree than current requirements. However the potential for negative effects will need to be assessed in respect of these standards and monitoring undertaken to ensure that no unintended loopholes are created which allow such effects to occur.

Policy CA2

This is considered to be a largely positive measure, which will seek to enforce the new standards. It is considered that there is some potential for penalties which are insufficient to deter behaviours with potential to give rise to significant negative effects upon European Sites. It is therefore considered that a system of monitoring will be required to ensure that penalties are suitable as deterrents.

Policy CA3

As discussed above at RM1 it is considered that this policy represents a positive measure which, subject to appropriate implementation, will give rise to significant potential positive effects upon European Sites.

Proposed SEA Recommendations and Mitigation Measures

The FSS in proposed Policy CA1 will act as mitigation against negative effects identified from implementation of other policies. Periodic monitoring and review of Policy CA1 should be undertaken to establish the effectiveness of these standards, and to ensure that there are no unintended negative effects on the environment relating to the change from existing standards to FSS.

Periodic monitoring and review of Policy CA2 should be undertaken to ensure that there are no negative effects on compliance from the implementation of this change in policy.

The inclusion of proposed policy CA3 as a condition of payments under policy RM1, will act as mitigation against negative effects identified from implementation of other policies.

Proposed HRA Recommendations and Mitigation Measures

Policy CA1

This policy proposal has potential, if poorly implemented to give rise to significant negative impacts on European Sites, via a range of potential pathways. It is considered that mitigation can be applied through the wording of the policy in addition to assessment of, and as required alteration of, the proposed new Farm Sustainability Standards.

Policy CA2

This is considered to be a largely positive measure however negative effects may potentially arise through insufficient deterrent effects associated with penalties. Mitigation may comprise future monitoring of non-compliance and subsequent adaptations to the policy.

Policy CA3

It is considered that this policy represents a positive measure which, subject to appropriate implementation, will give rise to significant potential positive effects upon European Sites.

7.1.12 Workstream 12 – Metrics, Monitoring and Evaluation

Policy Code	Policy Description
MME1	The high-level overarching metrics proposed for the FAPP are: Net GHG emissions for Northern Ireland agriculture and Land Use Change and Forestry (LUCF); TFP for Northern Ireland Agriculture; Nitrogen and Phosphorus balances; Ammonia emissions from farming; Indicator species; Gross Value added from agriculture and food processing; and Net farm income derived from the market.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
MME1	0	0	0	0	0	0	0	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 12 – Metrics, Monitoring and Evaluation
Policy MME1 There are not considered to be any potential for positive or negative effects on SEOs for BFF, PHH, W, AQ, CF, MA, CH or L from the implementation of proposed policy MME1. This policy sets out proposed metrics that can be used to assess the level of success of policy implementation for the draft FAPP and will not, in itself, lead to any changes in agricultural policy for Northern Ireland. This proposed policy has the potential to highlight any positive effects in the medium to long term arising from the implementation of policies within the draft FAPP, as well as to indicate whether there are any unanticipated negative effects from the implementation of these policies that would need to be addressed in future revisions of the FAPP.
In-Combination, Interactions and Cumulative Effects Proposed policy MME1 interacts with all other proposed policies of the draft FAPP, as it represents the means through which the success or otherwise of their implementation can be measured.
Habitats Regulations Assessment It is considered that this policy proposal would have very limited potential to give rise to significant negative or positive effects upon European Sites as it relates to the use of metrics for measuring and monitoring the outcomes of the FAPP. It is considered possible however that the use or creation of inappropriate metrics, which do not take into account of all potential impact pathways would have some potential to give rise to negative effects, through affecting the rest of the FAPP and associated monitoring and evaluation.
Proposed SEA Recommendations and Mitigation Measures DAERA has selected metrics that it deems to be most appropriate for assessing the level of success of implementation of policies under the draft FAPP; these metrics will form part of the mitigation for other

policies, through their ability to identify any significant negative effects on environmental factors which could require mitigation.

It is recommended that these metrics are subject to periodic review, in order to ensure that the most appropriate are being used to show effects, or to include any relevant metrics that have been developed in the interim period.

Proposed HRA Recommendations and Mitigation Measures

It is considered that this policy is likely to have very limited potential to give rise to significant effects upon European Sites. Negative impacts may potentially arise through inappropriate metrics influence on the measured outcomes of other policy proposals. This can be addressed through appropriate wording of the policy and post implementation monitoring.

7.1.13 Workstream 13 – Environmental Assessments

Workstream 13 comprises the environmental assessments to be undertaken for the draft FAPP, as follows:

- Rural needs considerations;
- Equality considerations;
- Regulatory Impact Assessment (RIA);
- Strategic Environmental Assessment (SEA); and
- Habitat Regulations Assessment (HRA).

This workstream does not outline any policy proposals, and therefore will not be subject to assessment within the SEA process.

7.1.14 Workstream 14 – Horticulture

Policy Code	Policy Description
H1	A focus on production horticulture, defined as plant propagation and cultivation to produce food / edible crops, ornamental crops and other crops (i.e. those grown for use as pharmaceutical plant products or as plant based ingredients in processed foods).
H2	Developing programmes through a collective process involving key stakeholders, other government departments and social partners.
H3	Creating improved supply chain integration through incentivising collaboration and co-operation within the supply chain where fragmentation exists, and scale is a supply barrier.
H4	Assisting in building collaborative partnerships to access Research and Development and Innovation that will benefit production horticulture growers from wherever this is available.
H5	Providing access to cutting-edge knowledge transfer and innovation support programmes to ensure those working in the industry have the required knowledge and skills to enable them to maximise market opportunities, and deliver the desired outcomes of the Framework.
H6	Facilitating learning from others through industry/supply chain visits and supporting clusters for shared/peer learning.

H7	Optimising precision of data used in decision making tools/models through data projects and incentivised high value data collation
H8	Supporting businesses transition through knowledge and support for adoption of new technology.

Policy Code	BFF	PHH	GSL	W	AQ	CF	MA	CH	L
H1	+/-	+/-	+/-	-	+/-	+/-	+	+/-	+/-
H2	+/-	+/-	+/-	-	+/-	+/-	+	+/-	+/-
H3	0	+	0	0	0	0	+	0	0
H4	0	+	0	0	0	0	+	0	0
H5	0	+	0	0	0	0	+	0	0
H6	0	+	0	0	0	0	+	0	0
H7	0	+	0	0	0	0	+	0	0
H8	0	+	0	0	0	0	+	0	0

BFF – Biodiversity, Flora and Fauna; PHH – Population and Human Health; GSL – Geology, Soils and Landuse; W – Water; AQ – Air Quality; CF – Climatic Factors; MA – Material Assets; CH – Cultural Heritage; L – Landscape and visual amenity.

Discussion: Workstream 14 – Horticulture

Policy H1 and H2

Policy proposals H1 and H2 intend for a focus on production horticulture, through the development of programmes. The draft FAPP states that it is a desired outcome for the horticulture industry, through a Production Horticulture Programme, to make an improved contribution to the Northern Ireland economy, by increasing its overall contribution to the Northern Ireland agricultural output from 5 to 10% over the next 5-7 years, and by achieving a two-fold increase in output from £100m to £200m+ over the same timeframe.

Implementation of these policies has potential for medium to long term, positive effects on MA SEO 7B, through support for the long term viability of farms, and for PHH SEO 2B, through support for the production of a clean and safe food supply. The potential for positive or negative effects on the SEO for CF is uncertain at this stage; although it is a desired outcome that the horticulture sector reduces environmental impacts and assists the agri-food industry in meeting climate change obligations, with plant-based foods that are grown and consumed within a region contributing a lower level of GHG emissions than animal-based foods, the overall cumulative effect of any changes in GHG emission will be dependent on whether land to be used is currently used for horticulture, animal-based food production or other uses that would require land use change.

The potential for overall positive or negative, long term effects on SEOs for BFF, GSL, AQ, CH ad L from implementation of these policies is uncertain at this stage. This is partly dependent on the existing land use of areas that may be used for production of horticulture, i.e. potential negative effects may occur should greenfield sites be used, however positive effects are possible on these factors from the reuse of brownfield sites. The proposed expansion of the horticulture sector and increased production that is proposed has potential for increased fertiliser and pesticide requirements, with an associated risk of negative effects on air

quality (AQ SEO 5) and soil health (GSL SEO 3A) from application of fertilisers and, through increased run-off of nutrients, on water quality (W SEO 4A) and water-dependent habitats and species (BFF SEOs).

As all land-based horticulture >10ha will be eligible for Resilience Payments (RM1), farmers under the Production Horticulture Programme with lands of this size will be required to comply with the Farm Sustainability Standards outlined in proposed policy CA1, and also to partake in the Soil Nutrient Health Scheme and Nutrient Management Planning as outlined in proposed policy STL1; these requirements will help to mitigate against the potential for negative effects on these SEOs. However, farmers with lands <10ha will not be eligible for Resilience Payments, and will therefore not be subject to these controls and mitigating factors. This represents a change in the eligibility of lands used for horticulture that can receive direct resilience payments from 3ha to 10ha. This change, as well as the target for increased production, and associated increase in fertiliser requirements, has potential to lead to negative effects on downstream water quality via run-off from these lands, which is likely to require site level measures in order to ensure that significant negative effects are effectively mitigated for.

Policies H3-H8

Policy proposals H3 to H8 support the proposed Programme, by optimising the provision of data, improving knowledge and innovation, building of collaborative partnership arrangements and improving supply chain integration. These policies have the potential for long term positive effects on MA SEO 7B, through support of the long term viability of farm businesses in Northern Ireland. Implementation of these proposed policies also has the potential for long term positive effects on PH SEO 2B, through support for the production of a clean and safe food supply.

There are unlikely to be any significant positive or negative effects on SEOs for BFF, GSL, W, AQ, CF, CH and L from the implementation of these proposed policies.

In-Combination, Interactions and Cumulative Effects

Implementation of proposed policies H1 and H2 has potential for negative, direct effects on soil health (GSL SEO 3A) and negative, indirect effects on water quality (W SEO 4A), water-dependent habitats and species (BFF SEOs) and air quality (AQ SEO 5) in-combination with the proposed policy RM, particularly in the short term, until the use of Nutrient Management Planning is successfully established for farms across Northern Ireland.

Implementation of proposed policies H3-H8 will interact with Policies H1 and H2, by supporting their successful implementation.

Habitats Regulations Assessment

Policy H1

Proposed focus on expanding the horticultural sector has potential to give rise to significant negative impacts upon European Sites through the potential for associated impacts such as through run-off associated with the application of fertiliser, inappropriate soil management and other potential effects. It is considered that care will need to be exercised in the regulation of horticultural activities to ensure that this expansion does not give rise to negative effects.

Policies H2-7

These policies are considered to be neutral and unlikely to give rise to any significant positive or negative effects upon any European Site.

Policy H8

This policy is considered to be neutral and unlikely to give rise to any significant positive or negative effects upon any European Site. Implications of new technologies and their potential environmental effects, should

be afforded individual consideration in respect to their potential to give rise to negative effects upon European Sites.

Proposed SEA Recommendations and Mitigation Measures

Farmers participating in the Production Horticulture Programme with lands >10ha, that are in receipt of Resilience Payments, will be required to comply with the FSS outlined in proposed policy CA1, and to partake in the SNHS and NMP as outlined in proposed policy STL1; these requirements will help to mitigate against potential negative effects on SEOs for BFF, GSL, W, and AQ for these lands.

During policy development, it is recommended that DAERA provides regulations or incentives for farmers with horticulture lands that are <10ha to avoid the potential for negative effects on environmental factors, or considers changing the eligibility of these lands from >10ha to >3ha. During policy development, it is also recommended that DAERA incentivises the use of lands within the Horticulture Production Programme that have potential to provide the most environmental benefit and the least risk to environmental factors.

Periodic monitoring and review should be undertaken to ensure that there are no significant negative effects on these factors from implementation of Policies under the Horticulture workstream. Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.

Proposed HRA Recommendations and Mitigation Measures

Policy H1

This policy has potential to give rise to significant negative effect upon European Sites, if inappropriately implemented. Mitigation can be delivered through proposed regulatory controls and standards or through the reliance on existing environmental legislation.

Policies H2-8

This policy is considered to be neutral and unlikely to give rise to any significant positive or negative effects upon any European Site.

7.2 Cumulative / In-Combination Effects

In general, the draft FAPP seeks to support an agricultural industry that is environmentally sustainable in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets, as an integral part of the Green Growth Strategy and associated Climate Action Plan. Therefore, effective implementation of the proposed policies under the various workstreams are envisaged to have medium to long term, positive, cumulative and in-combination effects with other associated plans and programmes (Table 4-1). In particular, the objectives of increased productivity, potential for reduction in GHG emissions and release of land for environmental management are in line with the objectives of the Green Growth Strategy and Sustainability for the Future – 'DAERA's Plan to 2050', draft Northern Ireland Peatland Strategy 2021-2040 as well as Strategic Priority Four of the draft Northern Ireland Food Strategy Framework (Protecting and enhancing our natural resources). The expanded eligibility of land types for Resilience Payments, and the potential for this to increase the naturalness of the countryside, will contribute towards the objectives of the Biodiversity Strategy for Northern Ireland and the UK Post-2020 Biodiversity Framework, as well as towards Local Biodiversity Action Plans. Further detail on the potential interactions with all relevant Plans, Programmes and legislation with the draft FAPP is given in **Appendix D**.

The proposed policies are intended to enable the delivery of future agricultural support payments that are tailored to the specific needs of the Northern Ireland agricultural industry while addressing the four strategic outcomes of increased productivity, environmental sustainability, improved resilience and an effective functioning supply chain. The desired outcomes are synergistic and the workstreams are inter-related. Consequently, there is also potential for cumulative/ in-combination interaction between the proposed policies. These potential positive interactions are summarised in **Table 7-1**, while no negative or conflicting interactions are anticipated.

Table 7-1 Cumulative/ in-combination interactions between proposed policies.

Policies	Effects
RM1, CA3	Policy proposal RM1 has the potential for in-combination, direct, long term, positive effects on BFF SEOs, and indirect, positive, long term effects on SEOs for W, CF, GSL, PHH, L and CH from the implementation of proposed policy CA3 as a condition of Resilience Payments under RM1.
RM1, STL1	Policy proposal RM1 also has the potential for in-combination, direct, long term, positive effects on soil health (GSL SEO 3A), and indirect, positive, long term effects on water quality (W SEO 4A), water-dependent habitats and species (BFF SEOs), and air quality (AQ SEO5) from the implementation of proposed policy STL1 as a condition of Resilience Payments under RM1.
RM1, LGD1, FCM1	Policy proposal RM1 also has the potential for in-combination, direct, long term positive effects on the SEO for CF, including transboundary effects, from the implementation of proposed policy LGD1 as a condition of Resilience Payments under RM1, and for cumulative, long term, positive effects on the SEO for CF with proposed policies under the Farming for Carbon Measures workstream.
RM2, KM1	Policy proposal KM1 has the potential for long term, positive, in-combination effects on MA SEO 7B with policy RM2, through the objective that farm businesses receiving financial support will have increased awareness of the need to manage risk appropriately.
HSP1, HSP2, LGD2, FCMs	Policy proposals HSP1 and HSP2 have the potential for in-combination, direct, long term positive effects on the SEO for CF from the implementation of proposed policy LGD2 as a condition of payments under the Headage Sustainability Package. There is also potential for cumulative, long term, positive effects on the CF SEO with proposed policies under the Farming for Carbon Measures workstream.
FNPs, STL1, CA3	There is potential for in-combination, long term, positive effects on these factors from the implementation of policies STL1 and CA3.
FCM1, HSP1, HSP2, CA1-3, FNPs	The implementation of the proposed policies HSP1 and HSP2 with CA1-3 will help to negate any negative effects associated with the FCM1 policy, however although there may be no subsidy associated with increased animal numbers, the potential remains for farmers to increase their animals if this is financially viable without the subsidy. In addition, the current FCM1 policy proposal could have significant, negative implications for SEOs if policies for releasing land are not managed sustainably. This should be undertaken in line with those policies proposed under the Farming for Nature Package (FNP1-4).
FCM2, FCM3, LDG4	Policies FCM2 and FCM3 have the potential for in-combination, direct, long term, positive effects on the SEOs for AQ and CF from implementation with policy LGD4.
FCM4, FCM5, FCM7, STL1	Policies FCM4, FCM5 and FCM7 have the potential for in-combination, direct, long term, positive effects on GSL SEOs and indirect, positive, long term, effects on SEOs for BFF, PHH W, CF, CH and L from the implementation of the proposed policy STL1
IM1, CA3, STL1	There is potential for in-combination, long term, direct and indirect positive effects from implementation of measures under policy IM1, such as the use of more modernised equipment, with other proposed policies, such as KM1, CA3, STL1, across all SEOs.

Policies	Effects
KM1, RMs, HSPs, FNPs, FCMs, STL1	Proposed policy KM1 has the potential for direct and indirect, long term, positive, in-combination effects across all SEOs with proposed policies of other workstreams of the draft FAPP, such as RM, HSP, FNP, FCM, STL1, through the provision of improved knowledge that can support the successful implementation of measures under these policies.
GRs, IM1, RMs, HSPs, FNPs, FCMs, STL1	There is potential for positive, long term, in-combination effects on MA SEO 7B from implementation of GR1 with proposed policy IM1, through potential improvements in on-farm capital, and across all SEOs in-combination with other proposed policies, such as RM, HSP, FNP, FCM, STL1, through the potential for successful implementation of measures under these policies.
SCMs, HSPs, RMs, IMs, KMs, LGDs	There is potential for cumulative, long term, positive effects from implementation of proposed SCM policies on MA SEO 7B (supporting the long term viability of farms) along with proposed policies of the Headage Sustainability Package, Resilience Measures, Investment Measure, Knowledge Measures and Livestock Genetics and Data workstreams.
LGD1-4, RM1, HSP1, HSP2, KM1, FNP1-4, FCMs	Implementation of policy proposals LGD1-4 have the potential for in-combination, direct long term, positive effects on GHG emissions (CF SEO) in-combination with proposed policy RM1, owing to the stipulation that sire data is recorded to support the LGD programme as a condition of Resilience Payments; in-combination with proposed policies HSP1 and HSP2, owing to the condition that specified data from suckler cows is provided to support the LGD programme as a condition of Headage Payments; in-combination with proposed policy KM1, through knowledge programmes; in-combination with proposed policies FNP1-4, through the restoration or creation of natural habitats and positive effects on carbon storage; and in-combination and synergistic with policy proposals under the FCM workstream, through various direct and indirect measures proposed to reduce GHG emissions.
CA1, CA2, RM1	Implementation of policy proposal CA1 has the potential for direct, long term, positive effects on BFF SEOs, and indirect positive long term effects on SEOs for W, CF, GSL, PHH, L and CH, in-combination with proposed policy RM1, owing to the condition that all farms in receipt of Resilience Payments be subject to adherence to FSS. Proposed policy CA2 also interacts with proposed policy RM1, as it represents the manner in which breaches of compliance with FSS that are a condition of Resilience Payments will be dealt with.
CA3, RM1, FNP1-4	Implementation of policy proposal CA3 has the potential for direct and indirect, long term, positive effects across all SEOs, in-combination with proposed policy RM1, owing to the expansion of land eligibility for and implications for appropriate management of this land for all farms in receipt of Resilience Payments; and in-combination with proposed policies FNP1-4, through retention and restoration of natural habitats.
MME1, RMs, HSPs, FNPs, FCMs, IMs, KMs, GRs, SCMs, STLs, LGDs, Hs	Proposed policy MME1 interacts with all other proposed policies of the draft FAPP, as it represents the means through which the success or otherwise of their implementation can be measured.
H1, H2, RMs	Implementation of proposed policies H1 and H2 has potential for negative direct effects on soil health (GSL SEO 3A) and negative indirect effects on water quality (W SEO 4A), water-dependent habitats and species (BFF SEOs) and air quality (AQ SEO 5) in-combination with the proposed policy RM, particularly in the short term until the use of Nutrient Management Planning is successfully established for farms across Northern Ireland.

Policies	Effects
H3-H8, H1, H2	Implementation of proposed policies H3-H8 will interact with Policies H1 and H2, by supporting their successful implementation.

8 MITIGATION AND MONITORING

8.1 SEA Mitigation

It is an overarching vision of the draft FAPP to support an industry that is environmentally sustainable in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets, as an integral part of the Green Growth Strategy and associated Climate Action Plan.

The overarching potential for negative effects associated with implementation of the draft FAPP relates to the risk of failure to implement the proposed policies in a manner that is appropriate for realising the greatest benefits and for fully achieving the FAPP vision of sustainable agriculture.

The current approach (i.e. the Do Nothing Scenario) for agricultural policy in Northern Ireland has incentivised the conversion of land into productive 'actively farmed' land in order to receive increased financial support. Existing policies are continuing to put pressure on the environment, with a significant risk that legislative objectives and targets will not be met. The draft FAPP promotes a more sustainable approach to agricultural policy, through the inclusion of separate workstreams that focus on aspects of the environment, as well as integration of environmental considerations and benefits across workstreams. There is the potential for an ad hoc, localised approach to implementation of the policies to provide for more positive environmental benefits, however to maximise the potential of the FAPP, local implementation of the policies should follow regional/ catchment planned approaches. In order to mitigate against the potential risk of failure to fully meet the FAPP vision of sustainable agriculture, it is imperative that during the next stage of policy development and implementation, policies and associated measures are applied in a manner that will best realise their full sustainable potential of the policy. With this in mind, all policies should be applied with regard to the existing environmental setting. All relevant legislation and guidance should be considered during the design and implementation of the policy proposals within the FAPP.

Mitigation measures have been recommended where there is a risk of potential negative effects from implementation of policies from the draft FAPP. FAPP-specific mitigation measures (**Table 8-1**) have been included where there is a risk of potential negative effects associated with implementation of those specific policy proposals as identified in Section 7, whereas general mitigation measures have been included where there is a risk of potential negative effects in the wider implementation of the policies on a site level from larger schemes (**Table 8-2**). Together, these mitigation measures aim to prevent, reduce and as fully as possible offset any significant negative effects on the environment due to the implementation of the policy proposals within the FAPP.

Table 8-1 Proposed FAPP-level SEA Mitigation

Policy	Potential negative effect	Mitigation through other policies	Recommendations for further development
RM1	Potential for negative effects on BFF, GSL, W, AQ, CH and L	Inclusion of Policies STL1 and CA1-3 as conditions of Resilience Payments will help to mitigate against negative effects on BFF, GSL, W, AQ, CH and L from implementation of Policy RM1. Policy STL1 stipulates soil testing and LiDAR and the use of NMPs for all eligible lands, which will help to mitigate against nutrient loss to waters from soils following excessive or inappropriately timed fertiliser or slurry application and negative effects on water-dependent habitats and species, including priority habitats and species and those of national or international importance.	Periodic monitoring and review should be undertaken to ensure that there are no significant negative effects on these factors from implementation of Policy RM1 - to ensure that there are no unintended negative effects on the environment from the change from cross-compliance standards to Farm Sustainability Standards, or from the increase in minimum claim size for receipt of Resilience Payments. Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through

		Policy CA3 stipulates that all agricultural land (excluding hard surfaces) would be eligible for Resilience Payments and these would be required to maintain a set of FSS, defined under policy CA1 and regulated under policy CA2. The proposed FSS outlined in Policy CA1 would be applicable to all farm businesses that are in receipt of Resilience Payments. These revised standards are anticipated to provide comparable measures for the avoidance of negative effects on SEOs for BFF, GSL, W, AQ, CH and L as existing cross-compliance measures, and will help to mitigate against potential negative effects from implementation of Policy RM1.	policy amendment or other incentives or regulation.
	Potential for negative effects on CF	Inclusion of Policies LGD1 and CA3 as conditions of Resilience Payments will help to mitigate against potential negative effects on CF from implementation of Policy RM1, through the broadening of eligible land that could act as a carbon sink and support of genetic selection for animals with lower enteric methane emissions.	Periodic monitoring and review should be undertaken to ensure that there are no significant negative effects on this factor from implementation of Policy RM1. Should negative effects on this factor be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.
	Potential for negative effects on MA	Implementation of policies under other workstreams and provision of funding within these, such as HSP, FNP, FCM, IM, will help to mitigate against potential negative effects on MA from a decrease in the level of funding under Policy RM1.	It is recommended that DAERA formulates official guidance that can provide clarity to farmers regarding the timescale and process through which funding will be transferred to policies of other workstreams, in order to support adaptation of the farming community.
HSP1 and HSP2	Potential for negative effects on CF	Inclusion of Policy LGD2 as a condition of Headage Payments under policies HSP1 and (in the future) HSP2, will help to mitigate against potential negative effects on CF, through provision of data to support the genetic selection for animals with lower enteric methane emissions.	DAERA plans to base payment quotas for Policy HSP1 on a historical reference period. During further policy development, it is recommended that the historical reference numbers are reviewed carefully to ensure that they correspond to numbers that are appropriate to enable the achievement of emission reduction targets. Periodic monitoring and review should be undertaken to ensure that no negative environmental behaviours are inadvertently incentivised from the implementation of Policies HSP1 and HSP2. Should negative

			effects on this factor be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.
HSP1	Potential for negative effects on BFF, PHH, GSL, W, and AQ.	To be eligible for Headage Sustainability Payments, applicants must be in receipt of the Resilience Payment. Therefore in order to receive payments, farmers must adhere to the conditions stipulated for Policy RM1, i.e. Policies STL1 and CA1-3. These policies will help to mitigate against negative effects on BFF, GSL, W, AQ, CH and L from implementation of Policy HSP1, as detailed above for Policy RM1.	Periodic monitoring and review should be undertaken to ensure that no negative environmental behaviours, including overstocking, inadvertently occur from the implementation of Policy HSP1. Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.
FNP	No potential for significant negative effects were identified in the assessment, however negative effects are possible should measures under this policy be implemented inappropriately.		During policy development, it is recommended that measures implemented as part of the FNP are tailored regionally or by catchment and implemented at individual farms on the basis of existing ecological and environmental resources, in order to ensure that they can maximise environmental benefits and do not lead to any inadvertent negative effects. For instance, in the case of native tree planting, there is a need to ensure that this is not implemented in inappropriate locations, in order to avoid any unintended negative effects on terrestrial habitats such as peatland, or ground-nesting birds that require clear lines of sight for avoidance of predators.
	Potential for adverse effects on SEOs for PHH and MA.		At the next stage of further policy development, proposed policy FNP1 should be reviewed carefully in order to ensure that the open-ended incentive to farm land for nature through the lack of an individual business cap on payments, does not lead to any issues with long term farm viability or food supply and guidance or regulation provided to ensure that the outcomes are sustainable.
FCM	No potential for significant negative effects were identified in the assessment,		The proposed policy associated with FCM1 should be carefully implemented to ensure that farmers are not provided with the opportunity to increase animal

	however negative effects are possible should measures under this policy be implemented inappropriately.		numbers (due to increased efficiencies) regardless of subsidy payments, which could lead to the unintended consequence of higher GHG and other emissions and higher nutrient loadings (from imported feeds and animal manures). Proposed policies FCM2-4 require ongoing research and modelling/monitoring to accurately assess the potential effects of implementation.
IM1	Potential for negative effects on BFF, PHH, GSL, W, AQ and L.		During policy development, it is recommended that investment measures are prioritised that will lead to improvements in environmental factors. This could include consideration of investment in innovative technologies, for example adding GPS technology to tractors with the aim of improving efficiency of slurry spreading, and avoiding hedges or other sensitive habitats. During policy development, it is recommended that DAERA provides clear guidance to applicants regarding any additional requirements or procedures that may need to be followed, depending on the types of capital investment included (e.g. planning permissions, EIA/EcIA, HRA). During policy development, it is recommended that, should capital investment measures include provision for changes to existing farm buildings, DAERA provide incentives for existing historical farm buildings to be restored, where possible, to avoid negative effects on cultural heritage.
GR1	Uncertain effects on BFF, PHH, GSL, W, AQ, CF, CH and L.		Knowledge Measures (KM1) should be applied as mitigation to ensure that the younger generation are suitably informed as to their environmental obligations. Periodic monitoring and review should be undertaken to ensure that there are no unintended negative effects on these factors from implementation of Policy GR1. Should negative effects on these factors be identified through

			monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.
STL1	No potential for significant negative effects were identified in the assessment, however additional recommendations are provided.		It is recommended that DAERA provides an indication of the anticipated timeframe in which the gathering of baseline data, and subsequent development and application of NMP for all farm businesses receiving Resilience Payments will take place, to ensure that it will be able to mitigate against negative effects on soil health and indirect effects on other elements of the environment as soon as is practicably possible. Following the roll out of NMP for all farms receiving Resilience Payments it is recommended that, during periodic monitoring and review of this policy, DAERA investigates whether smaller farm businesses <10ha not in receipt of Resilience Payments and therefore not currently covered under Policy STL1, are contributing to significant negative effects on soil quality and associated water quality. If this is the case it is recommended that DAERA consider the potential to include these smaller farms in this scheme or a similar alternative.
LGD4	Potential for negative effects on BFF, PHH, GSL, W, AQ and L from overstocking.		Farmers whose data will feed into the industry-led ruminant genetics programme, and who may benefit from the application of policies under this workstream will be in receipt of Resilience Payments. As a condition of receiving Resilience Payments, these farmers must adhere to the conditions stipulated for Policy RM1, i.e. Policies STL1 and CA1-3. These policies will help to mitigate against any potential negative effects on BFF, GSL, W, AQ, CH and L from implementation of Policies LGD4. Periodic monitoring and review should be undertaken to ensure that no negative environmental behaviours, including overstocking, indirectly and inadvertently occur from the implementation of these policies.

			Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.
	Uncertain effects on CF.		Periodic monitoring and review should be undertaken to establish the effectiveness of these policies and the industry-led programme that they support, at reducing overall GHG emissions from the ruminant sector.
CA1	Uncertain effects on BFF, PHH, GSL, W, AQ, CF, CH and L.		Periodic monitoring and review should be undertaken to establish the effectiveness of these standards, and to ensure that there are no unintended negative effects on the environment relating to the change from existing standards to FSS.
CA2	Potential for negative effects on BFF, PHH, GSL, W, AQ, CF, MA, CH and L.		Periodic monitoring and review of Policy CA2 should be undertaken to ensure that there are no negative effects on compliance from the implementation of this change in policy. Where potential problems arise the policy should be amended accordingly.
MME1			DAERA has selected metrics that it deems to be most appropriate for assessing the level of success of implementation of policies under the draft FAPP; these metrics will form part of the mitigation for other policies, through their ability to identify any significant negative effects on environmental factors which could require mitigation. It is recommended that these metrics are subject to periodic review, in order to ensure that the most appropriate are being used to show effects, or to include any relevant metrics that have been developed in the interim period.
H1 & H2	Potential for negative effects on BFF, PHH, GSL,W, AQ, CF, CH, and L.	Farmers participating in the Production Horticulture Programme with lands >10ha, that are in receipt of Resilience Payments, will be required to comply with the FSS outlined in proposed policy CA1, and to partake in the SNHS and NMP as outlined in proposed policy STL1;	During policy development, it is recommended that DAERA provides regulations or incentives for farmers with horticulture lands that are <10ha to avoid the potential for negative effects on environmental factors, or considers changing the eligibility

		these requirements will help to mitigate against potential negative effects on SEOs for BFF, GSL, W, and AQ for these lands.	of these lands from >10ha to >3ha. During policy development, it is also recommended that DAERA incentivises the use of lands within the Horticulture Production Programme that have potential to provide the most environmental benefit and the least risk to environmental factors. Periodic monitoring and review should be undertaken to ensure that there are no significant negative effects on these factors from implementation of Policies under the Horticulture workstream. Should negative effects on these factors be identified through monitoring, DAERA should apply appropriate mitigation through policy amendment or other incentives or regulation.

Table 8-2 Proposed general SEA Mitigation for schemes

Potential Effect	Proposed general SEA Mitigation
1 – Soil sampling compaction, destabilisation and damage to peat and other sensitive soils (from heavy equipment traversing an area).	Activities such as drain blocking on sensitive peatland habitats should be undertaken by an experienced professional and with appropriate machinery. Areas of previously recorded landslips/landslides should be avoided where possible. Where areas of sensitive habitat need to be crossed during restorative/maintenance works, measures to reduce the impact of vehicles on wetland or bog should be considered including the use, for example, of low pressure vehicles, wide wheel/tracks and the use of bog mats. Associated machinery should also be restricted to site roads and designated access routes. Machinery should not be allowed to access, park or travel over areas outside management zones. Where impacts cannot be avoided or reduced, further works should be carried out to compensate for these impacts, or to restore some aspect of the natural environment to an approximation of its previous condition (e.g. where disturbance of peat soils cannot be avoided, there should be some consideration given to possible re-seeding with native species to stabilise the peat and accelerate recovery of the vegetation). Proposed works should be undertaken in consultation with DAERA and local landowners/ graziers.
2 – Access difficulties in topographically unsuitable areas, such as upland and steep slope areas or areas of recorded landslips/landslides, and where transport of equipment across these areas may be problematic.	Careful route planning during the design stage to avoid topographically unsuitable areas where possible. In some cases, where access for machinery is particularly difficult due to the sensitive nature of habitats or difficult terrain, the aerial transport of materials and machinery by helicopter may be considered.

Potential Effect	Proposed general SEA Mitigation
3 – Short, medium or long term loss of crops and/or agricultural land due to management of farmland to increase sustainability.	Good site management practices and consultation with the competent and statutory authorities prior to any works should enable all impacts to be kept to a minimum over a short timescale. Consultation with landowners and/or tenants to identify speciality agricultural crops or lands that may require protection. Land within the working area should be reinstated as near as practical to its former condition.
4 – Permanent or recurring temporary direct loss of existing material assets, such as agricultural land, when pursuing sustainability increases.	Good spatial planning to minimise the potential for such impacts. Good site management practices and consultation with the competent and statutory authorities prior to any works should enable all impacts to be kept to a minimum over a short timescale.
5 – Planning and construction constraints due to the presence of existing agricultural infrastructure or other planned developments.	Constraints should be identified, and described in as much detail as possible during the early stages of a project, so that awareness of them and their potential impact can be managed. Incorporation of potential impacts and risks associated with other planned developments at the detailed planning stage. Consultation with other asset owners to establish the best possible working arrangements with the least disturbance.
6 – Permanent impacts on the setting of heritage sites and features.	Effects could be kept to a minimum through sensitive design and planning. Planning and design advice from qualified archaeologists. Statutory consents may be required prior to works.
7 – Potential for loss of or damage to known and unknown heritage features.	Effects could be kept to a minimum through sensitive design and planning. Planning and design advice from qualified archaeologists. Supervision by qualified project archaeologists, combined with sensitive methods and restoration to minimise potential for damages, in potentially sensitive areas. Statutory consents may be required prior to works. Site-specific surveys may need to be undertaken to prevent any loss to the marine archaeological resource.
8 – Permanent effects on landscape and visual amenity.	Effects could be kept to a minimum through sensitive design and planning (e.g. vegetative screening and landscape management planning). Landscape and visual assessment and advice during detailed design. Public consultation on draft designs. Landscape and Visual Assessment of options at the detailed feasibility and detailed planning stages to minimise the potential for impacts and provide site specific mitigation measures.
9 – Increases in local GHG emissions during construction phase of any site works. However, this is expected to be minimal and will be offset by a benefit in the long term.	Plan scheduling to minimise vehicle trips. Limit idling of heavy equipment unless needed for the safe operation of the equipment and verify through unscheduled inspections.

8.2 HRA Mitigation

To further improve actions contained within the FAPP and to address potential negative effects, mitigation measures have identified in the HRA for inclusion in the FAPP on the basis of the individual workstreams, as set out in **Table 8-3.**

The HRA notes that the FAPP is a strategic national policy which sets the framework for, and relies to a significant degree on, other policy, strategy and plan initiatives to achieve the objectives in a more coordinated approach to managing agricultural activities throughout the country. Many of these other policies will be subject to their own Appropriate Assessments which may give rise to the identification of specific measures which will be, implemented. The measures committed to in these derivative plans and initiatives will be essential to ensuring that the objectives of the FAPP are met, and that the FAPP does not in itself result in negative effects on the integrity of any European Site. General HRA mitigation for schemes have been identified in **Table 8-4.**

Table 8-3 Proposed FAPP-level HRA Mitigation

Policy	Proposed HRA Mitigation
RM1	Regulatory gaps which may exist following the implementation of RM1, namely environmental effects arising from agricultural activities within holdings of less than 10ha in size, should be addressed through a derivative policy, or within the wording of the policy itself to ensure that the proposed Farm Sustainability Standards, or similar, are also applicable to small agricultural holdings. Mitigation may also be captured within existing legislation namely the NAP Regulations.
HSM1	An absence of proposed stocking cap density may have potential to give rise to significant negative effects upon European Sites through the associated increases to emissions to air and water. Mitigation is recommended for derivative policies and initiatives in the form of monitoring requirements to first establish whether the lack of cap is giving rise to higher than desired grazing densities and subsequently to prevent this giving rise to increases in emissions to air and water and associated negative effects on the integrity of any European Site. Further mitigation, such as remedial policy measures, for example penalties associated with exceeding the historical reference for livestock density, may be required. Mitigation for effects associated with emissions to air and water are also likely to be at least partially if not fully covered by the requirements of the NAP Regulations.
HSM2	Proposed livestock efficiency measures may give rise to unforeseen increase in negative effects associated with emissions to air and water. Mitigation is recommended for derivative policies and initiatives in the form of monitoring requirements to first establish whether the lack of cap is giving rise to higher than desired grazing densities and subsequently to prevent this giving rise to increases in emissions to air and water and associated negative effects on the integrity of any European Site. Further mitigation, such as remedial policy measures, for example penalties associated with exceeding the historical reference for livestock density, may be required. Mitigation for effects associated with emissions to air and water are also likely to be at least partially if not fully covered by the requirements of the NAP Regulations.

Policy	Proposed HRA Mitigation
FCM1	The proposed Farming for Carbon Measures include for the potential for forestry creation. Inappropriately sited this would have potential to give rise to significant negative effects. Mitigation is recommended for derivative policies and initiatives to ensure that such proposals are not located in sensitive locations and are assessed on a case-by-case basis. Management prescriptions for such forestry and other carbon farming measures should be subject to controls to ensure that vulnerable downstream freshwater sites, particularly those designated on account of the Annex II species freshwater pearl mussel, are not subject to negative effects associated with sedimentation or pollution events.
FCM2	Any feed additive proposed for wide scale use within catchments supporting aquatic SACs or SPAs, should be subject to a robust scientific review to establish its safety for the wider environment and particularly its propensity to affect organisms of importance for the continued ecological functioning of an Annex I habitat or qualifying species population. Robust monitoring should be required to establish any environmental effects in the absence of such an evidence base.
FCM4	Proposals for wide scale use of Urease Inhibitor chemicals within catchments supporting aquatic SACs or SPAs, should be subject to a robust scientific review to establish its safety for the wider environment and particularly its propensity to affect organisms of importance for the continued ecological functioning of an Annex I habitat or qualifying species population. Robust monitoring should be required to establish any environmental effects, in the absence of such an evidence base.
FCM9	Any proposed biomethane or hydrogen initiative should be subject to separate assessment for potential negative effects to arise upon European Sites and, as required, a robust monitoring regime implemented.
IM1	Proposed initiatives for investment may be highly variable with an associated variable array of potential to give rise to negative impacts upon European sites. Initiatives should be subject to separate assessment for potential negative effects to arise upon European Sites and, as required, a robust monitoring regime implemented
GR1	Proposed generational renewal measures should include for a system of monitoring to ensure that the measure is having the intended outcome in regard to environmental protection. Knowledge measures, under KM1, should be tailored to ensure that farmers within sensitive areas, such as within freshwater SAC or SPA catchments, are aware of their obligations under both the FAPP and the NAP regulations.
CA1	Proposed control measures, to be implemented within the Farm Sustainability Standards should be sufficiently robust as to ensure that no preventable negative impacts arise to European Sites, through agriculture. A programme of monitoring should be implemented to ensure that no unforeseen negative impacts arise, and, where problematic behaviours are observed, amended to take these into account.
CA2	As per CA1, there is potential for insufficient provision of prohibitive penalties to give rise to negative effects through a lack of deterrent effect. While this is

Policy	Proposed HRA Mitigation
	considered unlikely it is recommended that monitoring recommended for CA1 takes measures under CA2 into account. Where potential problems arise the policy should be amended accordingly.
MME1	Proposed metrics and systems of monitoring should be sufficiently robust as to capture the requirements for mitigation measures identified for all workstreams as set out above.
H1	Proposed expansion of the horticulture sector should be undertaken in light of the potential for negative effects upon European sites, such as those associated with nutrient emissions to air and water. Mitigation measures for derivative policies and initiatives should set out the requirement for horticultural enterprises to abide by the proposed Farm Sustainability Standards and any other relevant environmental protection measures, as required, relative to proximity or hydrological links to European Sites.

Table 8-4 Proposed general HRA Mitigation for schemes

Potential Impact	Proposed HRA Mitigation
1 – Disturbance and displacement impacts on feature species within European sites	Birds Site clearance involving the cutting or destruction of vegetation and hedgerows shall not take place in the bird breeding season between March 1st and August 31st inclusive. Mitigation measures to reduce disturbance effects on feature species of birds may include but not be limited to: • Timing of works (e.g. avoiding works in the vicinity of SPAs with over wintering birds between the months of November and March inclusive) • Avoid working simultaneously with other projects which could also cause disturbance. • Screening of works to reduced disturbance impacts.
2 – Water quality impacts on European Sites	In all cases where works have the potential to impact on protected surface water or riparian habitats within or upstream of a European site, measures must be put in place to manage and minimise the risk of escape of elevated levels of suspended solids or polluting substances into watercourses. Develop, implement and enforce an Erosion and Sedimentation Control Plan (ESCP) where risks are identified to downstream European sites. The ESCP must include sufficient pollution control measures to prevent run-off, silt, hydrocarbons or any other harmful substances or substrates from entering any surrounding surface waters. Storage facilities would contain and prevent the release of fuels, oils and chemicals associated with machinery into the environment. All protective coatings used would be suitable for use in the aquatic environment and used in accordance with best environmental practice.

Potential Impact	Proposed HRA Mitigation
	Develop, implement and enforce a Water Pollution Prevention and Environmental Emergency Response Plan for all work sites. This should include good site practices as described in NIEA Pollution Prevention Guidance (DAERA, 2016) and applicable CIRIA Technical Guidance (CIRIA, 2001; CIRIA, 2006) including methods and procedures to deal with any spills and the timely reporting of incidents. • Silty water will be collected in settlement ponds prior to discharge to watercourses. • All works involving open cut crossings shall be carried out during the period May to September to avoid interruption of salmonid spawning runs, spawning, incubation of eggs and the early developmental stages. • Where appropriate and practical, bank vegetation and bed material which has been removed shall be stored to facilitate its replacement when channel works in the vicinity of a watercourse have been completed. • Works in the vicinity of a watercourse shall be carried out with reference to a water quality protection or surface water management plan for each site which shall ensure that: – All necessary measures shall be taken to minimise the generation and release of sediments into all watercourses. – Levels of suspended solids in watercourses shall be monitored during the works. Precautions shall be put in place to avoid spillages of diesel, oil or other polluting substances.
3 – Habitat loss within European sites	Any and all works in or in proximity to a European site will be supervised by an experienced ecologist acting as an Ecological Clerk of Works (ECoW). Direct habitat loss within European sites will be avoided for new-build infrastructure and avoided where reasonably practicable for refurbishment of infrastructure within European sites. Where activities occur within a designated site, sensitive techniques will be used to minimise the potential impact, on such as the use of bog mats for machinery access. Ecological monitoring will be undertaken at sensitive sites during works as appropriate. Such sites will be identified on a case by case basis. Restricted working areas will be imposed to ensure minimal disturbance to sensitive habitats. Re-distribute vegetation and soil stripped from the management areas to provide a seedbank and do not re-seed with Perennial Ryegrass. Land within the working area will be reinstated to its former condition or as near as is reasonably practicable.

8.3 Monitoring

The SEA Directive requires that significant environmental effects arising from implementation of a Plan or Programme are monitored in order to identify, at an early stage, any unforeseen adverse effects and in order to undertake appropriate remedial action. The proposed monitoring programme in **Table 8-5** is based on the Indicators and Targets established in the SEOs (given in Section 5). SEA monitoring should be undertaken in conjunction with any proposed review of the FAPP, in advance of an update or second cycle, to enable monitoring outcomes to influence the FAPP development. Much of the environmental monitoring proposed can be collated from ongoing environmental monitoring and reviews undertaken by bodies such as DAERA, AFBI, DfC, NISRA DfI, and NI Water. The indicators and data proposed for the monitoring of FAPP implementation are at a strategic level, to match the SEO objectives. The suggested data sources for monitoring of effects are mostly at a strategic level, are nationally consistent and all are freely available.

Table 8-5 Proposed Environmental Monitoring of the FAPP

SEO	Indicator	Target	Proposed Data Source(s)
Objective 1 – Biodiversity, Flora and Fauna Support International and National Environmental Designations for flora and fauna, and contribute to the protection and restoration of natural habitats and species.	• Conservation condition of designated habitats and species within European sites (SACs, SPAs, Ramsar sites). • Status of designated habitats and species within national and local sites. • Status of protected and priority habitats and species. • Naturalness and connectivity of the countryside.	• No negative change, or a positive change, in the conservation status of designated habitats and species within European sites. • No negative change, or a positive change, in the conservation status of designated habitats and species within national and local sites. • No negative change, or a positive change, in the status of protected or priority species and habitats outside of designated sites. • Improved naturalness and connectivity of the countryside.	• DAERA National Site Network reporting (every 6 years) for European sites / Article 17 Habitats Directive reporting and Article 12 Birds Directive reporting for RoI. • DAERA Condition Assessment reporting for ASSIs. • DAERA scheme level monitoring data on implementation of workstream packages.
Objective 2 – Population and Human Health Support the provision of clean and safe water and food, and contribute towards a healthy population in the countryside.	• Status of drinking, bathing and shellfish water protected areas. • Quality of animal products available for consumption. • Health statistics of the population.	• No negative change, or a positive change, in the status of areas protected for drinking water, bathing water or shellfish production. • No negative change, or a positive change, in the quality of animal products. • No negative change, or a positive change, in the health of the population living in the countryside.	• DAERA reporting of water body status for protected areas. • Food Quality Assurance schemes of products from the agri-food industry. • NISRA statistics on population health.
Objective 3 – Geology, Soils and Landuse Protect soils from pollution and prevent degradation or loss of the soil resource, and protect and enhance soil quality.	• Soil health and nutrient levels, and quality of agricultural land. • Soil resource within the agriculture sector.	• No negative change, or a positive change in soil health and land quality. • No loss of the agricultural or natural soil resource.	• DAERA data from the SNHS and scheme level monitoring data on implementation of workstream packages. • Agricultural Census in Northern Ireland (DAERA). • AFBI farm databases.

Objective 4 – Water Protect water sources from pollution by agricultural activities, and support the objectives of the Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD), and Floods Directive.	• WFD status of surface and groundwater bodies. • Status of NI seas, as reported for the MSFD. • Flood risk status.	• No negative change, or a positive change, in the status of surface water and groundwater bodies, and potential to contribute to the achievement of water body objectives under the WFD. • No deterioration in the status of NI seas, and potential to contribute to the achievement of Good Environmental Status (GES) under the MSFD. • No increase in flood risk or contribution to flood risk management.	• WFD reporting of water body status by DAERA / EPA reporting in RoI. • Monitoring undertaken by DAERA Marine and Fisheries Division under the Marine Strategy. • DfI data for the NIFRA and FRMP.
Objective 5 - Air Quality Avoid, prevent or reduce harmful effects on human health and the environment resulting from emissions to air.	• Quantity and trends of air emissions attributable to the agricultural sector.	• Reductions in the quantity of emissions to air arising from the agricultural sector.	• National Atmospheric Emissions Inventory (NAEI) reporting. • Air Pollution in Northern Ireland reporting by DAERA. • Air Pollution Information System (APIS) pollutant monitoring.
Objective 6 - Climatic Factors Reduce GHG emissions from the agricultural sector in line with national commitments.	• Quantity and trends of GHG emissions attributable to the agricultural sector and land use change sector.	• Reduction in the quantity of GHG emissions arising from the agricultural sector and land use change sector.	• Northern Ireland GHG inventory reporting. • Air Pollution Information System (APIS) pollutant monitoring.
Objective 7 - Material Assets Support economic agricultural activities.	• Agricultural outputs and productivity. • Agricultural sector income, costs and revenues.	• Sustainable increase in agricultural productivity, i.e. a more efficient use of resources. • Decrease in the reliance of farm incomes on direct payments.	• NISRA statistics. • Statistical review of NI agriculture (DAERA). • Agricultural Census in Northern Ireland (DAERA).
Objective 8 - Cultural Heritage Protect, conserve and enhance International, National and Local Heritage Designations, and their settings.	• Number, condition and setting of international, national and local heritage designations.	• No loss or negative change to the condition or setting of international, national and local heritage designations.	• Number of heritage assets recorded on the HERoNI. • Update to the CAMSAR survey of

		• Potential for protection and/or restoration of known or currently unknown heritage assets via the implementation of the policies.	the Archaeological resource for NI. • DAERA scheme level monitoring data on implementation of workstream packages.
Objective 9 - Landscape and Visual Amenity Protect and enhance the character and quality of landscapes, riverscapes, lakescapes and seascapes.	• Landscape/ Seascape Character Assessments. • Local Development Plan scenic views and Areas of High Scenic Value	• No negative change, or a positive change, in visual amenity or landscape / seascape character and local views.	• Landscape / Seascape Character Assessments, or update to the NI Countryside Survey. • DAERA scheme level monitoring data on implementation of workstream packages. • Local Development Plans.

9 SUMMARY AND CONCLUSIONS

A Strategic Environmental Assessment was undertaken of the proposed Future Agricultural Policy Proposals (FAPP) for Northern Ireland.

In general, the draft FAPP seeks to support an agricultural industry that is more sustainable in terms of its impact on, and guardianship of, air and water quality, soil health and biodiversity, while making its fair contribution to achieving net zero carbon targets, as an integral part of the Green Growth Strategy and associated Climate Action Plan. The draft FAPP promotes a more sustainable approach to agricultural policy, through the inclusion of separate workstreams that focus on aspects of the environment, as well as integration of environmental considerations and benefits across workstreams. All policies should be applied with due regard to the existing environmental setting and relevant legislation and guidance should be considered during the design and implementation of the policy proposals within the FAPP. This would ensure the effective implementation of these proposed policies, which have the potential for long term, positive effects on the wider environment.

In the short term, there is potential for both positive and negative effects on the farming population. Although resilience payments will be provided, supporting the livelihoods of farmers and rural living, the exclusion of some businesses and the lowering of payments under this policy has potential for some short term negative effects on businesses until they adjust to the changed circumstances and the requirements of payments through other policies such as those in the FNP and FCM workstreams. In addition, in the short term, the implementation of proposed policies H1 and H2 has potential for negative, direct effects on soil health and negative, indirect effects on water quality, water-dependent habitats and species and air quality in-combination with the proposed policy RM, until the use of Nutrient Management Planning is successfully established for farms across Northern Ireland or further regulation is provided for lands <10ha.

Proposed policy RM1 aims to provide for the continuation of financial support to the agriculture sector in Northern Ireland. In the medium to long term, there is potential for direct and indirect negative effects on SEOs for BFF, PHH, GSL, W, AQ, CF, CH, and L from factors that are inherent to agricultural production. DAERA proposes to increase the minimum claim size for Resilience Payments from the current 3ha to 10ha, with the consequence that these smaller, non-eligible, land holdings will not be subject to the conditions and regulations stipulated for those lands receiving Resilience Payments; this has potential for direct and indirect negative effects across SEOs in the long term, which will need to be carefully monitored and regulated.

The application of NMP based on farm soil testing across Northern Ireland should also lead to a reduction in the application of slurries and chemical fertilisers to soils, with these being used in circumstances where a requirement is outlined in the farm NMP. This has potential for indirect moderate to significant, positive secondary effects on water quality, as well as water-dependent habitats and species in the medium to long term, through an anticipated reduction in the run-off of excess nutrients into water bodies.

Generally, the overarching potential for negative effects associated with implementation of the draft FAPP relates to the risk of failure to implement the proposed policies in a manner that is appropriate for realising the greatest benefits and for fully achieving the FAPP vision of greater sustainability of the agricultural sector in Northern Ireland. In order to mitigate against the potential risk of failure to fully meet the FAPP vision of a sustainable agricultural sector, it is imperative that during the next stages of policy development and implementation, policies and associated measures are applied in a manner that will best realise the full environmental potential of the policies.

10 NEXT STEPS

Consultations on the draft FAPP, Environmental Report and HRA commence in December 2021 and run for 8 weeks. These documents will be made available for viewing digitally via the DAERA consultation website – https://www.daera-ni.gov.uk/consultations/consultation-future-agricultural-policy-proposals-northern-ireland.

Following completion of the consultation period, all comments will be collated and the draft FAPP, Environmental Report and HRA will be reviewed and revised as necessary. Provided there are no objections or comments that will significantly alter the draft FAPP, the final version of the FAPP can be drafted and adopted. This is anticipated to be in Spring 2022. Following release of the adopted FAPP, an SEA Statement will be drafted to summarise the process undertaken, and identify the manner by which environmental considerations and consultations were integrated into the final FAPP. **Table 10-1** demonstrates the proposed upcoming time stages for the FAPP, SEA and HRA.

Table 10-1 Draft Anticipated Milestones

FAPP	Dates	SEA / HRA
Development of draft FAPP	November 2021	Strategic Environmental Assessment and Appropriate Assessment. Writing of Environmental Report and HRA.
Public and statutory consultation on draft FAPP	December 2021 – January 2022	Statutory, Non-Statutory and Public Consultation on Environmental Report and HRA.
Release of Final FAPP	March 2022	SEA Environmental Statement

Following adoption of the final FAPP, the next stage of development for any of the proposed policies is further refinement and implementation, incorporating the advice and mitigation measures proposed in these environmental reports.

The contact information for any information regarding the SEA of the proposed FAPP is as follows:

By post	Richard Bingham RPS 74 Boucher Road Belfast BT12 6RZ Tel: +44 (0)28 90667914
By email	richard.bingham@rpsgroup.com

APPENDIX A

SEA Screening Responses

Northern Ireland Environment Agency
www.daera-ni.gov.uk

Natural Environment Division
Klondyke Building
Cromac Avenue
Gasworks Business Park
Malone Lower
BELFAST
BT7 2JA

Email: SEATeam@daera-ni.gov.uk

14th October 2021

Richard Bingham
Senior Associate - Water Environment and Flood
Risk Management
Elmwood House
74 Boucher Road, Belfast
Co. Antrim BT12 6RZ

Re: Strategic Environmental Assessment Screening report for Agricultural Policy Programme for Northern Ireland.

Dear Richard,

Thank-you for your email dated 17th September 2021 regarding the Strategic Environmental Assessment (SEA) Screening Report for the Agricultural Policy Programme for Northern Ireland (APP).

The SEA Team within the Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA) has considered the consultation and our opinions are set out below.

Consideration of Likely Significant Effects

DAERA SEA Team agree with the responsible authority and the conclusions of the SEA Screening Report that the Agricultural Policy Programme is likely to have significant environmental effects and therefore a Strategic Environmental Assessment should be carried out in line with the requirements of Regulation 9 of the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004.

We note that the screening has highlighted the potential for emerging policy proposals to set the framework for the development consent of projects.

We welcome that the responsible authority will undertake Habitat Regulations Assessment prior to the adoption of the APP to ensure the Programme is not likely to have significant effects on any designated sites within Northern Ireland and/or transboundary effects on sites within the Republic of Ireland.

Regulation 10 publicity of Determinations should now be initiated.

General Comments

Natural Environment Division (NED) notes that the SEA screening report highlights the potential effects of the APP on designated sites and concludes that a HRA will be carried out, we would point out that the forthcoming SEA of the APP should also consider any potential effects on priority species and habitats which fall outside of designated sites in NI.

DAERA have a map browser for NI protected sites and known priority habitat: www.daera-ni.gov.uk/services/natural-environment-map-viewer

As highlighted in the Future Agricultural Policy Framework Portfolio Agriculture can have negative impacts on many aspects of the environment, this also includes biodiversity. Particularly in relation to Outcome 1: increased productivity NED would reiterate the biodiversity duty on all public bodies as set out in The Wildlife and Natural Environment Act (Northern Ireland) 2011 (known as the WANE act) when progressing the APP and any future policies and proposals which stem from it.

Climate Change Branch

Climate Change Mitigation Branch refers Department of Agriculture, Environment and Rural Affairs (DAERA) to the requirements laid out within the Climate Change Committee's Sixth Carbon Budget publication, specifically Chapter 6 on Agriculture and land use, land-use change and forestry. A link for this can be found below.

https://www.theccc.org.uk/publication/sixth-carbon-budget/

Climate Change Mitigation Branch also refers Department of Agriculture, Environment and Rural Affairs (DAERA) to the UK's legal position on net zero greenhouse gas emissions by 2050 (The Climate Change Act 2008 (2050 Target Amendment) Order 2019).

Drinking Water Inspectorate

Drinking Water Inspectorate (DWI) based on the available information, would highlight that all catchments are considered as Drinking Water Protected Areas (DWPAs) under Article 7 of the Water Framework Directive. The nationwide basins are utilised by the primary Water Undertaker, Northern Ireland Water Limited (NI Water), to provide the public supply of water.

Consideration should be given to ensure the integrity of catchments especially when considering Outcome 1: Increased productivity and this will have impacts

on how to achieve Outcome 2: Environmental Sustainability. It is also paramount that any future policies do not impact on reservoirs or groundwater sources used for Drinking Water supply.

Marine and Fisheries Response

Agriculture activity can impact on the marine environment, as well as social and economic assets.

In developing the APP (and future policy proposals) and progressing this SEA process it is advised that appropriate account must be taken of marine policy documents in line with the obligations as outlined in Section 8 of the Marine Act (NI) 2013 (MANI) and Section 58 of the Marine and Coastal Access Act (MCAA) 2009 with respect to decisions affected by marine policy documents / a marine plan.

Current marine policy documents include the UK Marine Policy Statement 2011 and the draft Marine Plan for Northern Ireland published in April 2018. Both documents are available on the DAERA website at: Marine planning | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

The marine policy documents above provide the framework for decision making by public authorities taking decisions which affect or might affect the marine area. This applies to both authorisation and enforcement decisions and decisions related to the exercise of any function capable of affecting the marine area, such as this APP and future policy proposals.

This document does not acknowledge departmental responsibilities in respect of our historic environment, as enshrined in the Valetta convention 1992 (The European Convention on the Protection of the Archaeological Heritage) to which the UK government is a signatory.

The document should also take countenance of the enhanced level of consideration afforded to the archaeological & historic environment within the UK Fisheries Act 2020. This will be relevant to any terrestrial agricultural policies which fall within 'marine or coastal areas, or of inland waters or waterside areas' (see 52. interpretation within this Act).

To take countenance of the above we would recommend that paragraph 3.1.4 should be amended to include 'Protected Historic Environment assets', or something similar.

DAERA Inland Fisheries welcomes the opportunity to comment on the - Agricultural Policy Programme for Northern Ireland – Strategic Environmental Assessment Screening. At this stage it is difficult to assess what should be

included within any SEA as the content of any APP is still to be formalised, will there be any legislative outcomes (development consent etc.) outside of the funding program which is to be employed?

Inland Fisheries notes the aspirations within the Future Agricultural Policy Framework Portfolio with a view to protecting the environment and focusing specifically on the aquatic environment and water quality, how funding is approached and rewarding different activities has the potential to greatly impact the aquatic environment. With this in mind Inland Fisheries would suggest that Priority species and Priority habitats are considered within any SEA to be carried out, the assessments currently focus on designated sites and as many of the rivers and watercourses in Northern Ireland contain priority species and are not designated in this regard the potential impacts may not be considered. This should be included in section 3.1.4

Inland Fisheries would recommend that any potential out comings of this process consider both the Fisheries Act (NI) 1966 as amended and Convention for the Conservation of Salmon in the North Atlantic.

Inland Fisheries notes that this is in the early stages of development and will welcome the opportunity to consider any proposals which stem from this process. Inland Fisheries will continue to provide advice when required and also as a statutory consultee will assess any proposed development received through the planning system and comment on any potential impacts to inland fisheries.

The following documents provide the policy framework for public authorities in making their decisions with particular reference to the marine environment:

- The UK Marine Policy Statement (MPS);
- The Draft Marine Plan for Northern Ireland;
- Strategic Planning Policy Statement (SPPS); and
- Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026.

Decisions (authorisations and enforcement) that affect or might affect the whole or any part of the Northern Ireland marine area, must be made in accordance with marine policy documents, unless relevant considerations indicate otherwise. The marine area includes the sea (below mean high water spring tide); and estuaries, rivers or channels so far as the tide flows at mean high water spring tide (tidal waters).

Please contact the SEA Team at seateam@daera-ni.gov.uk should you have any queries or require clarification.

Yours sincerely,

p.p. *C.Nolan*
Caroline Nolan

Donna Whelan
Senior Scientific Officer
Countryside, Coast and Landscape
Northern Ireland Environment Agency
Donna.Whelan@daera-ni.gov.uk

Department for
Communities
An Roinn
Pobal
Depairtment fur
Commonities
www.communities-ni.gov.uk

Historic Environment Division

9 Lanyon Place
Town Parks
BELFAST
BT1 3LP

Telephone: (028) 90569840

Email: Liam.mcquillan@communities-ni.gov.uk

Date: 05/10/2021

DfC: HISTORIC ENVIRONMENT DIVISION, COMMENTS RE: SEA SCREENING REPORT FOR AGRICULTURAL POLICY PROGRAMME FOR NORTHERN IRELAND

DfC Historic Environment Division (HED) operate via a Service Level Agreement with colleagues in DAERA in relation to SEA, whereby we provide authoritative comment and advice in relation to matters of Cultural Heritage including archaeological and architectural heritage. We make the following comments in respect of the documentation received by our office on 20/09/2021.

HED welcome that SEA is to be carried out to assess the potential impacts of the policy programme with regard to the environment.

In reference to section 2.2 point 2 of the report HED highlight that when considering environmental sustainability, landscape and cultural heritage, including architectural and archaeological heritage must also be clearly factored as environmental components. The historic environment is intertwined with the natural environment, providing a key vein in the narrative of our landscape evolution, and through this influencing aspects such as landscape character and biodiversity, with many heritage assets providing valuable habitats.

Further in terms of transboundary considerations, we highlight that the nature of the transboundary area means that we have many shared landscape and historic environment characteristics, and some assets which transcend the boundary such as historic routeways, waterways and ancient earthworks.

HED also advise that in considering assessment in relation to policy proposals it will be key to examine how provisions under the EU CAP have related and performed in relation to cultural heritage, so that the impacts of new proposals can be robustly assessed.

Our historic environment datasets are available at the link below and will aid understanding of the breadth of our cultural heritage and spatial assessment of the potential for impact.
https://www.communities-ni.gov.uk/publications/historic-environment-digital-datasets

Should you have any queries in regard to the content of our response we can be contacted at the above address.

Yours sincerely

Liam McQuillan MCIfA
Senior Archaeologist

Naoimh Quinn RIBA
Senior Architect

HERITAGE RECORDS AND DESIGNATIONS BRANCH

Iascach Intíre Éireann
Inland Fisheries Ireland

Enda Brady,
Corporate Support Unit,
Department of Environment, Climate and Communications

5th October, 2021

Re: Agricultural Policy Programme for Northern Ireland
– Strategic Environmental Assessment Screening

Dear Sir,

Thank you for your correspondence regarding SEA Screening for the Agricultural Policy Programme for Northern Ireland.

Inland Fisheries Ireland (IFI) is a statutory agency responsible for inland fisheries in Ireland. Under section 7(1) of the Inland Fisheries Act 2010 (No. 10 of 2010) *the principal function of IFI is the protection, management and conservation of the inland fisheries resource*.

Rivers by their very nature provide natural boundaries, so it is no surprise that a significant number also form political boundaries and their catchment areas and channels cross these boundaries. There are also a significant number of lakes that straddle the border between the Republic of Ireland and Northern Ireland. It is important, therefore, that the proposed Agricultural Policy Programme for Northern Ireland includes reference to these shared natural resources and recognise the responsibilities of statutory authorities both sides of the border with regard to their protection, management and conservation.

Agricultural practices can impact both positively and negatively on water quality and aquatic habitats. Education and knowledge transfer are vital to increase understanding of the potential impacts. For example, understanding soil type and geology with effective nutrient management planning must be the cornerstone to achieving optimum productivity while protecting the environment on farms and beyond the farm boundary. Productivity and environmental protection must go hand in hand.

In determining the likely significant effects of the Agricultural Policy Programme for N.I. under the Strategic Environmental Assessment process some key issues for consideration regarding the conservation of fish and other species of fauna and flora, aquatic habitats and the biodiversity of inland and marine water ecosystems include:

- Water quality
- Surface water hydrology
- Fish spawning and nursery areas
- Passage of migratory fish
- Areas of natural heritage importance including geological heritage sites

IIE Baile Átha Cliath, 3044 Céide an Locha, Campas Gnó Larthar Na Cathrach, Baile Átha Cliath 24, D24 Y265
IFI Dublin, 3044 Lake Drive, Citywest Business Campus, Dublin 24, D24 Y265
+353(0)1 8842 600 - dublin@fisheriesireland.ie - www.fisheriesireland.ie

- Biological Diversity
- Ecosystem structure and functioning
- Sport and commercial fishing and angling
- Amenity and recreational areas

IFI are grateful for the opportunity to have our views considered in this process.

Should you require clarification on any of the above or require a consultation meeting please contact Inland Fisheries Ireland.

Inland Fisheries Ireland
3044 Lake Drive
Citywest Business Campus,
D24 Y265.

From: CorporateSupport.Unit [mailto:CorporateSupport.Unit@decc.gov.ie]
Sent: 07 October 2021 10:24
To: DAERA NI Future Agri Policy <NIFutureAgriPolicy@daera-ni.gov.uk>
Cc: CorporateSupport.Unit <CorporateSupport.Unit@decc.gov.ie>
Subject: Reply from DECC re EIS 21/358 Agricultural Policy Programme for Northern Ireland – SEA Screening

Good morning,
Please see below a reply from Ms. Trish Smullen on behalf of Geological Survey Ireland, (a division of the Department of Environment, Climate and Communications) for the subject below.

I have circulated your notice of 22/09/2021 to the SEA contacts in the Department of Environment, Climate and Communications and gave a deadline of 06/10/2021 for replies. If any further replies come in I will forward them to you.

Regards,
Enda Brady,
Corporate Support Unit,

Enda Brady, CO
Corporate Support Unit

An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

Teach Leamháin, Bóthar Ghleann an Iarla, An Cabhán, H12 A8H7
Elm House, Earlsvale Road, Cavan, H12 A8H7

M +35387 6237714 T +353 (0)1 6782308
CorporateSupport.Unit@decc.gov.ie www.gov.ie/decc

From: GSI Planning
Sent: 05 October 2021 15:47
To: CorporateSupport.Unit
Cc: GSI Planning; Clare Glanville
Subject: Re: EIS 21/358 Agricultural Policy Programme for Northern Ireland – SEA Screening

Hi Enda,
Please see text below for return to Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland.

Thanks and regards,
Trish

Dear Sir/Madam,

With reference to your email dated 22 September 2021, regarding the Agricultural Policy Programme for Northern Ireland – SEA Screening, please note that Geological Survey Ireland has no specific comment or observations to make on this matter at this time.

If you have any further queries or if we can be of further assistance, please do not hesitate to contact me Trish Smullen, or my colleague Clare Glanville at GSIPlanning@gsi.ie.

Yours sincerely,

Trish Smullen
Geological Survey Ireland

From: GSI Planning
Sent: 30 September 2021 13:49
Cc: GSI Planning
Subject: EIS 21/358 Agricultural Policy Programme for Northern Ireland – SEA Screening

EIS 21/358

Agricultural Policy Programme for Northern Ireland – SEA Screening.

Request for observations by Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland for return via the CSU Mailbox by Tuesday next 05/10/21. Document attached.

Regards,
Trish

From:	Tadhg O"Mahony
To:	DAERA NI Future Agri Policy
Cc:	Richard Bingham; Suzanne Wylde; Jonathan Derham
Subject:	RE: Agricultural Policy Programme for Northern Ireland – Strategic Environmental Assessment Screening
Date:	24 September 2021 17:15:00
Attachments:	image001.png

Dear Claire

We note your acknowledgement of the potential for significant effects on the environment of implementing the Agricultural Policy Programme for Northern Ireland and your conclusion that it is best environmental practice to undertake SEA. This is in keeping with the ongoing application of SEA to FoodVision 2030 and the CAP Strategic Plan in Ireland.

There may be merits in establishing a steering group/committee to oversee the preparation of the Programme and the associated SEA. In addition, the Programme should, as appropriate, be screened with respect to the requirements of the Habitats Directive.

Available Guidance & Resources

Our website contains various SEA resources and guidance, including:

- SEA process guidance and checklists
- Inventory of spatial datasets relevant to SEA
- topic specific SEA guidance (including *Good practice note on Cumulative Effects Assessment* (EPA, 2020), Guidance on SEA Statements and Monitoring (EPA, 2020), *Integrating climatic factors into SEA* (EPA, 2019), *Developing and Assessing Alternatives in SEA* (EPA, 2015), and *Integrated Biodiversity Impact Assessment* (EPA, 2012)). Additional Guidance on SEA and Forestry is also available while Guidance on SEA Screening and SEA and Water are in preparation.

You can access these guidance notes and other resources at: https://www.epa.ie/our-services/monitoring--assessment/assessment/strategic-environmental-assessment/sea-topic-and-sector-specific-guidance-/

EPA WFD Application

Our WFD Application provides a single point of access to water quality and catchment data from the national WFD monitoring programme. The Application is accessed through EDEN https://wfd.edenireland.ie/ and is available to public agencies. Publicly available data can be accessed via the Catchments.ie website.

State of the Environment Report – Ireland's Environment 2020

In preparing the Programme and SEA, the relevant recommendations, key issues and challenges described within our State of the Environment Report Ireland's Environment – An Integrated Assessment 2020 *(EPA, 2020)* should be considered. In particular Chapter 13 relates to the Environment and Agriculture. The chapter addresses the level of pressure that Irish agriculture has on the environment in terms of greenhouse gases, water quality and biodiversity and highlights the risk posed to Irelands reputation as a food producer as a result.

Environmental Authorities

Under the SEA Regulations, you should, where relevant, consult with the following environmental authorities during the SEA process:

- Environmental Protection Agency;
- Minister for Housing, Local Government and Heritage;
- Minister for Environment, Climate and Communications;
- Minister for Agriculture, Food and the Marine.

Should you require further information, contact us directly via sea@epa.ie.

Regards

Tadhg

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APPENDIX B

SEA Scoping Responses

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29 November 2021

Dear Mr Bingham

Re: Agricultural Policy Programme for Northern Ireland – Strategic Environmental Assessment Scoping.

Thank you for your correspondence regarding the SEA Scoping Report for DAERA's Agricultural Policy Programme for Northern Ireland. The Department of Agriculture, Environment and Rural Affairs Northern Ireland (DAERA) and (supported with a service level agreement) DfC Historic Environment Division (HED), has considered the consultation and associated documents and our opinions are set out below and in the additional attachment from HED.

Natural Environment Division Comments

NED are broadly content with the overall approach to SEA and the issues that will be addressed however we highlight some issues below.

NED are in agreement and welcome the completion of a Habitats Regulations Assessment in parallel to the SEA.

In the SEA Approach within the Framework for Assessing Environmental Effects it is not clear what elements of the APP proposals are to be assessed. The draft APP will present a portfolio of measures and cross cutting initiatives that are being developed to

address the Programme's desired outcomes whilst for each workstream, it provides a consideration of the main issues, policy proposals and design principles. However the suggested approach in 5.1 is only to assess the 'policy proposal' element of the above whilst 5.2 suggests measures will be assessed. It is recommended that the portfolio of measures and initiatives and the design principles are assessed as well as the policy proposals.

In relation to strategic alternatives we would recommend that the existing agricultural policies, associated measures and initiatives are assessed in the same way as the proposed policies, measures and initiatives. In these regards reference to any previous evaluations or scientific evidence highlighting the benefits or impacts of these existing practises would be beneficial. If such information is not available it may be worth identifying whether this was a difficulty in this process.

Although stakeholder engagement is acknowledged it is not clear what role the Agri-Policy Stakeholder group will have in relation to the Environmental Assessment. It is suggested that the meeting of this group will be looking at an assessment of local need and how best the policies at Alternative 1 and Alternative 2 meet the needs of the sector and deliver against the four key outcomes identified in the Future Agricultural Policy Framework Portfolio. This appears to have a different focus to an assessment of environmental impacts (it appears more akin to part of the work that would be undertaken to inform a sustainability appraisal and its associated social and economic considerations) so it is not clear as to why it is referred to in the section about the SEA approach in the scoping report. If the intention is to utilise this group to assess environmental impacts we would recommend that the environmental expertise within the group be significantly broadened to ensure all topic areas are adequately considered.

In relation to monitoring we would expect consideration of more bespoke monitoring if ant potential negative effects are identified. In relation to the broader countryside additional monitoring may be required to detect and monitor any impacts of APP measures for example through a repeated NI Countryside Survey or through innovative use of earth science observation.

We note in Table 3.3 that an interrelationship between Biodiversity and Cultural Heritage has not been identified and we are of the opinion that potential interrelationships exist.

Scoping Question 1. Is there any information missing from the key plans and programmes listed, relevant to the draft APP, that you think should be included, and why?

It may be worth including in your considerations the following:

- The Wildlife (Northern Ireland) Order 1985 (as amended).
- The Strategic Planning Policy Statement (SPPS) for Northern Ireland

- Planning Policy Statements (PPS – in particular PPS2 and PPS18). It should be noted that the PPS's will be superseded by Local Development Plans when they are adopted.
- Draft Environment Strategy https://www.daera-ni.gov.uk/consultations/esni-public-discussion-document
- The Draft NI peatland policy: https://www.daera-ni.gov.uk/consultations/ni-peatland-strategy-consultation.
- The Draft Green Growth Strategy Consultation on the draft Green Growth Strategy for Northern Ireland | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)
- Northern Ireland Energy Strategy 2050 Northern Ireland Energy Strategy 2050 | Department for the Economy (economy-ni.gov.uk)

Scoping Questions 2. Do you agree with the geographical and temporal scope of the assessment?

NED are content with the geographical scope which will include all potential transboundary effects and the temporal scope. We would recommend a clear statement be made regarding any likely transboundary impacts.

Scoping Question 3. Do you agree with the scoping of the environmental assessment topics?
NED are generally content with the scope proposed for environmental assessment. Heritage

Scoping Question 4. Have we identified the key environmental issues relevant to the draft APP?
NED are broadly content that the key issues have been identified.

Scoping Questions: 5. Are we proposing the most appropriate data and scale of data to be used?
NED are broadly content. See next question.

Scoping Question 6. Can you propose any other data to be used in the SEA, and why it would be beneficial?

NI Habitat and Species Action Plans Habitat and Species Actions Plans | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk) may provide some useful information.

A number of useful information sources that highlight the current state of the environment in Northern Ireland at a regional level and which could be referenced are:

Northern Ireland State of the Environment Reports: https://www.daera-ni.gov.uk/publications/state-environment-report-2013

Northern Ireland Environmental Statistics Reports: https://www.daera-ni.gov.uk/articles/northern-ireland-environmental-statistics-report

Other relevant web-links are;
Designated Scientific Sites: www.daera-ni.gov.uk/landing-pages/protected-areas

Regional Landscape Character Map viewer: https://www.daera-ni.gov.uk/services/regional-landscape-character-areas-map-viewer

DAERA have a map browser for NI protected sites and known priority habitat: www.daera-ni.gov.uk/services/natural-environment-map-viewer

Our natural environment datasets are available at the link below: www.daera-ni.gov.uk/articles/download-digital-datasets

Appropriate Assessments should refer to the status of habitats and species in the relevant reports available on the JNCC website as follows: UK Article 17 report for the Habitats Directive https://jncc.gov.uk/our-work/article-17-habitats-directive-report-2019/ and the UK Article 12 report for the Birds Directive https://jncc.gov.uk/our-work/european-reporting/#birds-directive-reporting

Historic Environment Division Digital Datasets

https://www.communities-ni.gov.uk/publications/historic-environment-digital-datasets

Scoping Question 7. Do you agree with the approach to the assessment?
NED are generally content with the approach to the assessment, however note comments above.

Scoping Question 8. Do you agree with the draft SEA objectives?
NED are content with the objectives as they will ensure no negative impacts on biodiversity and encourage restoration and enhancement.

Scoping Questions: 9. Do you agree with the proposed project timescales, and proposed consultees in the SEA process?
Consultees must be given a reasonable time to respond to the Environmental Report and SEA and we advise a minimum of 4-6 weeks.

Climate Change Unit comments

Climate Adaptation.

Page 129: UK Climate Change Risk Assessment (CCRA) Programme 2017. The first two paragraphs in the 'Key Objectives; column do not relate to the CCRA, these appear to be taken from a programme relating to emissions.

Climate Change Mitigation Branch refers Department for Agriculture, Environment and Rural Affairs (DAERA) to the requirements laid out within the Climate Change Committee's Sixth Carbon Budget publication, with particular reference to the options for reducing emissions starting at Page 11 of the Agriculture and Land Use summary. A link for this can be found below.

Sixth Carbon Budget Agriculture and Land Use

The Climate Change Committee (CCC) recently published its UK Climate Risk Independent Assessment 2021 which identifies the risk and opportunities posed by climate change over the next five years. A summary for Northern Ireland can be found below.

https://www.ukclimaterisk.org/independent-assessment-ccra3/national-summaries/

Drinking Water Inspectorate Comments

With regard to the scoping questions, the DWI have several comments which are detailed in turn below.

Scoping Question #1: Is there any information missing from the key plans and programmes listed, relevant to the draft APP, that you think should be included, and why?
Response #1: Due to potential transboundary impacts, it would be worth considering the European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014) (as amended by European Union (Drinking Water) Regulations 2017 (S.I. 464 of 2017)).

Question #2: Do you agree with the geographical and temporal scope of the assessment?
DWI Response #2: DWI agree with the geographical and temporal scope of the assessment Scoping

Question #3: Do you agree with the scoping of the environmental assessment topics?
DWI Response #3: DWI agree with the scoping of the environmental assessment topics

Scoping Question #4: Have we identified the key environmental issues relevant to the draft APP?

DWI Response #4: DWI are content that key environmental issues relating to drinking water have been identified.

Scoping Question #5: Are we proposing the most appropriate data and scale of data to be used?
DWI Response #5: DWI are content that the most appropriate data and scale is being used. We welcome the regard to Drinking Water Protected Areas and Private Water Supplies. The most up to date annual report has been referenced effectively.

Scoping Question #6: Can you propose any other data to be used in the SEA, and why it would be beneficial?
DWI Response #6: No other sources of information are proposed for use in the SEA

Scoping Question #7: Do you agree with the approach to the assessment?
DWI Response #7: DWI agree with the approach to the assessment

Scoping Question #8: Do you agree with the draft SEA objectives?
DWI Response #8: DWI agree with the draft SEA objectives

Scoping Question #9: Do you agree with the proposed project timescales, and proposed consultees in the SEA process?
DWI Response #9: DWI recommend that the Water Undertaker (Northern Ireland Water Ltd) is also consulted. DWI are content with proposed project timescale

Water Management Unit Comments

Having reviewed the SEA Scoping Report for Agricultural Policy Programme (APP) for Northern Ireland, Water Management Unit are broadly content with:

- The legislation, key plans and programmes listed
- The geographical and temporal scope of the assessment
- The environmental assessment topics
- The key environmental issues relevant to the draft APP
- The data and scale of data to be used
- The approach to the assessment and with the draft SEA objectives
- The proposed project timescales, and proposed consultees in the SEA process

Marine and Fisheries Division Response

Marine Plan Team Response

The Marine Plan team welcome the opportunity to comment on the APP SEA Screening Report and are content with the conclusions of the screening process.

Agriculture activity can impact on the marine environment, as well as social and economic assets.

In developing the APP (and future policy proposals) and progressing this SEA process it is advised that appropriate account must be taken of marine policy documents in line with the obligations as outlined in Section 8 of the Marine Act (NI) 2013 (MANI) and Section 58 of the Marine and Coastal Access Act (MCAA) 2009 with respect to decisions affected by marine policy documents / a marine plan.

Current marine policy documents include the UK Marine Policy Statement 2011 and the draft Marine Plan for Northern Ireland published in April 2018. Both documents are available on the DAERA website at: Marine planning | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

The marine policy documents above provide the framework for decision making by public authorities taking decisions which affect or might affect the marine area. This applies to both authorisation and enforcement decisions and decisions related to the exercise of any function capable of affecting the marine area, such as this APP and future policy proposals.

Marine Archaeology Response

This document does not acknowledge departmental responsibilities in respect of our historic environment, as enshrined in the Valetta convention 1992 (The European Convention on the Protection of the Archaeological Heritage) to which the UK government is a signatory.

The document should also take countenance of the enhanced level of consideration afforded to the archaeological & historic environment within the UK Fisheries Act 2020. This will be relevant to any terrestrial agricultural policies which fall within 'marine or coastal areas, or of inland waters or waterside areas' (see 52. interpretation within this Act).

To take countenance of the above I would recommend that paragraph 3.1.4 should be amended to include 'Protected Historic Environment assets', or something similar.

Inland Fisheries Response

DAERA Inland Fisheries, is a core branch within Marine and Fisheries Division of the Department of Agriculture Environment and Rural Affairs. It has a statutory remit for the conservation, protection, development and improvement of salmon and inland fisheries under the Fisheries Act (NI) 1966 (as amended). DAERA Inland Fisheries is the implementing authority under the Convention for the Conservation of Salmon in the North Atlantic. This treaty requires signatory states to develop programmes of work to

conserve, rationally manage and improve Atlantic salmon populations and their habitats within their jurisdiction. This work is scrutinised by the North Atlantic Salmon Conservation Organisation (NASCO). DAERA Inland Fisheries welcomes the opportunity to comment on the - Agricultural Policy Programme for Northern Ireland – Strategic Environmental Assessment Screening

At this stage it is difficult to assess what should be included within any SEA as the content of any APP is still to be formalised, will there be any legislative outcomes (development consent etc.) outside of the funding program which is to be employed? Inland Fisheries notes the aspirations within the Future Agricultural Policy Framework Portfolio with a view to protecting the environment and focusing specifically on the aquatic environment and water quality, how funding is approached and rewarding different activities has the potential to greatly impact the aquatic environment. With this in mind Inland Fisheries would suggest that Priority species and Priority habitats are considered within any SEA to be carried out, the assessments currently focus on designated sites and as many of the rivers and watercourses in Northern Ireland contain priority species and are not designated in this regard the potential impacts may not be considered. This should be included in section 3.1.4

Inland Fisheries would recommend that any potential out comings of this process consider both the Fisheries Act (NI) 1966 as amended and Convention for the Conservation of Salmon in the North Atlantic.

Inland Fisheries notes that this is in the early stages of development and will welcome the opportunity to consider any proposals which stem from this process. Inland Fisheries will continue to provide advice when required and also as a statutory consultee will assess any proposed development received through the planning system and comment on any potential impacts to inland fisheries.

Marine Conservation and Recording Response

The following policies and plans should be considered as part of the screening process;

Relevant Policies and Plans

The following documents provide the policy framework for public authorities in making their decisions with particular reference to the marine environment:

- The UK Marine Policy Statement (MPS);
- The Draft Marine Plan for Northern Ireland;
- Strategic Planning Policy Statement (SPPS); and
- Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026.

Decisions (authorisations and enforcement) that affect or might affect the whole or any part of the Northern Ireland marine area, must be made in accordance with marine policy documents, unless relevant considerations indicate otherwise.

The marine area includes the sea (below mean high water spring tide); and estuaries, rivers or channels so far as the tide flows at mean high water spring tide (tidal waters).

Marine Conservation and Reporting

Marine Conservation Advice recommend that further consideration of climate change impacts should be included in the document, in particular the impacts of coastal erosion on farmland and the impact of continued coastal protection measures on the marine environment. The following policies should be used to guide this part of the assessment.

Relevant Policies and Plans

The following documents provide the policy framework for public authorities in making their decisions with particular reference to the marine environment:

- The UK Marine Policy Statement (MPS);
- The Draft Marine Plan for Northern Ireland;
- Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026.

Decisions (authorisations and enforcement) that affect or might affect the whole or any part of the Northern Ireland marine area, must be made in accordance with marine policy documents, unless relevant considerations indicate otherwise.

The marine area includes the sea (below mean high water spring tide); and estuaries, rivers or channels so far as the tide flows at mean high water spring tide (tidal waters).

UK Marine Policy Statement

The UK MPS includes a number of high level principles for decision making that should be taken into account (see section 2.3.2).

The two most applicable sections relating to managing coastal change are:

- section 2.6.7 Climate change adaptation and mitigation, and
- section 2.6.8 Coastal change and flooding.

Section 2.6.7.4 under Climate change adaption and mitigation states "*Adapting to the impacts of climate change will also be a priority for terrestrial planning at the coast. Marine planning will need to be compatible with these impacts. This will include ensuring inappropriate types of development are not permitted in those areas most vulnerable to coastal change, or to flooding from coastal waters, while also improving resilience of existing developments to long term climate change*."

Section 2.6.8. under Coastal change and flooding points towards the consideration of terrestrial planning policy and management policies for coastal development in relation to avoiding inappropriate development in areas of highest vulnerability to coastal change and flooding. It states:

- Section 2.6.8.4 "*Marine plan authorities should be satisfied that activities and developments will themselves be resilient to risks of coastal change and flooding and will not have an unacceptable impact on coastal change. A precautionary and risk-based approach, in accordance with the sustainable development policies of the UK Administrations, should be taken in terms of understanding emerging evidence on coastal processes*".

- Section 2.6.8.5 "*Marine plan authorities should consider existing terrestrial planning and management policies for coastal development under which inappropriate development should be avoided in areas of highest vulnerability to coastal change and flooding. Development will need to be safe over its planned lifetime and not cause or exacerbate flood and coastal erosion risk elsewhere.*"

- Section 2.6.8.6 "*Account should be taken of the impacts of climate change throughout the operational life of a development including any de-commissioning period. Marine plan authorities should not consider development which may affect areas at high risk and probability of coastal change unless the impacts upon it can be managed. Marine plan authorities should seek to minimise and mitigate any geomorphological changes that an activity or development will have on coastal processes, including sediment movement*".

Draft Marine Plan for Northern Ireland

All public authorities are responsible for implementing the Plan through existing regulatory and decision-making processes. As well as public authorities, all applicants, third parties and advisors should also consider the Plan. Proposals should conform with all relevant policies, taking account of economic, environmental and social considerations.

In particular, the following policies should be considered in relation to this proposal;

Core Policy: Climate Change

The Core Policy on **climate change** states *"public authorities, where appropriate, must consider the proposals ability to adapt to a changing climate."*

In relation to **Climate Change Adaptation**, the Core Policy states "*Where climate change has the potential to impact on a proposal during its lifetime, a public authority may require the proposer to demonstrate:*

a) *How the impact has been considered; and*
b) *Measures to address the adverse impact, where appropriate."*

- Paragraph 97 states *"Public Authorities must consider if any actions are necessary to adapt the proposal to a changing climate, through decision making processes."*

Core Policy: Coastal Processes

The Core Policy on **Coastal Processes** states *"public authorities must consider any potential impact from proposals on coastal processes."*

"Where a proposal has the potential to adversely impact on coastal process, a public authority will require the proposer to demonstrate:

a) *the adverse impact is avoided; or*

b) *where adverse impact is unavoidable, it is minimised, and where appropriate mitigated; or*

c) *where adverse impact cannot be avoided or minimised, it is mitigated.*

If it is not possible to avoid, minimise and/or mitigate any adverse impact, a proposal will only be allowed where the public benefit clearly outweighs the adverse impact."

In relation to **Resilience to Coastal Processes**, the Core Policy states "*Where coastal processes have the potential to impact on a proposal during its lifetime a public authority may require the proposer to demonstrate:*

a) *How the impact has been considered; and*
b) *Measures to address the adverse impact, where appropriate."*

- Paragraph 114 states "*Public authorities must consider the potential impact of proposals on coastal processes and conversely, how coastal processes may impact upon proposals over their lifetime, through decision making processes. The nature of coastal processes may require that attention is given to potential transboundary effects."*

- Paragraph 117 and 118 further state that "*proposers should ensure that proposals do not cause or exacerbate coastal change elsewhere and allow the continued functioning of existing services and activities. It is important to minimise and/or mitigate potential changes to coastal processes."*

- Furthermore, paragraph 123 states *"public authorities should only authorise a proposal if they are satisfied that there are no unacceptable adverse impacts on coastal processes."*

Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026

This strategy is intended to set out long-term objectives for achieving sustainable coastal management, through improvements to existing management systems, the development of new management systems and identifying and dealing with potential areas of conflict.

The strategy is based around 4 broad themes, consistent with the principles of sustainable development. Most relevant to this work is Priority 2**: Safeguarding and**

improving the environment within the coastal zone and Priority 4: **integration of planning and effort**. Each theme has a set of aims for delivery.

Priority 2: Environment

Under this environment theme the relevant strategy aims are as follows:

- To maintain and enhance Northern Ireland's natural resources within the coastal zone and protect, maintain and enhance the condition of designated nature conservation sites.

- To conserve, protect and where possible enhance the estuarine and coastal environment and terrestrial ecosystems dependent on this such as marine wetlands and salt marshes.

Priority 4: Integration

Under this theme the relevant strategy aim is as follows:

- To provide statutory mechanisms to develop and implement integrated planning for the coastal zone including the area below the low tide mark, and to control inappropriate development and activity on land and sea within the zone.

Northern Ireland Climate Change Adaptation Programme 2019-2024

Northern Ireland is required by the Climate Change Act 2008 to develop a rolling programme of climate change risk assessments and adaptation programmes. The current Climate Change Adaptation Programme is for the period 2019-2024. The Adaptation Programme sets out Northern Ireland's preparation of climate change impacts which are already happening and puts in place plans for future impacts. The ultimate aim of the programme is to build a more resilient Northern Ireland.

The actions identified in the Adaptation Programme are in response to the risks identified in the Climate Change Risk Assessment 2017. The Climate Change Risk Assessment 2017 identified risks to coastal communities, infrastructure, habitats and heritage form coastal erosion, storms and sea level rise. To manage these risks the Climate Change Adaptation Programme has the following outcome objective:

- Natural Capital Outcome 2 - "to *have coastal communities, habitats, landforms and infrastructure that are resilient to the impacts of climate change*".

Yours sincerely

Donna Whelan
Senior Scientific Officer
DAERA SEA team

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Date: 26/11/2021

DFC: HISTORIC ENVIRONMENT DIVISION COMMENTS RE: STRATEGIC ENVIRONMENTAL ASSESSMENT SCOPING FOR AGRICULTURAL POLICY PROGRAMME FOR NORTHERN IRELAND

DfC Historic Environment Division (HED) operate via a Service Level Agreement with colleagues in DAERA in relation to SEA, whereby we provide authoritative comment and advice in relation to matters of Cultural Heritage including archaeological and architectural heritage.
We make the following comments in respect of the documentation received by our office on 12/11/2021 and ask that they be considered alongside the comments we provided at screening stage.

At the outset of our response HED highlight the need for robust assessment in relation to potential impacts of the plan/programme in relation to the historic environment. We acknowledge the comment in 4.4.7 page 75, that the implementation of the draft APP and policy proposals therein, has the potential to lead to positive or negative effects on the condition or setting of heritage assets alone, or in combination with, (these) existing pressures. HED advise that existing measures such as cross compliance have been of paramount importance in maintaining the archaeological resource in Northern Ireland, much of which is located on farmland. We consider that removal without replacement with a comparable measure has the potential for specific associated significant adverse impacts on cultural heritage. In our reading of the framework document we have noted that there is no specific reference to the historic environment or heritage assets in discussion of key outcomes in relation to environmental sustainability, or elsewhere in the document in relation to environmental outputs. HED advise that our responses in relation to SEA can help to inform the development of policy in this regard.

Comments on report
Glossary – reference to HERONI – the Historic Environment Record of Northern Ireland would be appropriate. We welcome the reference to the NISMR, given its specific context with existing agricultural policy provisions but highlight the wider suite of heritage assets located across Northern Ireland's landscape.

In relation to the questions posed in the screening report

1. **Is there any information missing from the key plans and programmes listed, relevant to the draft APP that you think should be included and why**.

   In relation to cultural heritage HED acknowledge reference to the Granada and Valletta Conventions, and also the inclusion of the Historic Monuments and Archaeological Objects (NI) Order 1995. We highlight that the Planning Act (NI) 2011 provides for the listing of buildings of special architectural interest. We also suggest inclusion of Archaeology 2030 - A Strategic Approach for Northern Ireland.pdf (niheritagedelivers.org), as the APP has potential effects around the maintenance of heritage
   Further we highlight RG11 in RDS 2035 which specifically articulates the strategic context for the protection, conservation and enhancement of Northern Ireland's environment, the definition of which includes cultural heritage, a definition also provided in regional strategic policy in the SPPS.
   We acknowledge these two documents are referred to elsewhere in the table, but consider their specific regional strategic relevance to cultural heritage worthy of recognition when assessing environmental impact.

2. **Do you agree with geographical and temporal scope of the assessment?**

   In relation to transboundary matters HED refer to our previous comments at screening stage where we have highlighted that the nature of the transboundary area means that we have many shared landscape and historic environment characteristics, including interrelated heritage assets and settings, and some assets which transcend the boundary such as historic routeways, waterways and ancient earthworks

3. **Do you agree with the scoping of the environmental topics?**

   HED welcome that archaeological and cultural heritage has been scoped in for assessment.

4. **Have we identified the key environmental issues relevant to the draft APP?**

   In relation to the drafted potential issues around cultural heritage HED highlight the need to consider additionally, potential for changes to historic landscape character through changes brought about through the programme, These could be through policy related changes to landuse, removal of historic or ancient boundaries, loss or removal of historic planting or removal of vernacular buildings.

5. **Are we proposing the most appropriate data and scale of data to be used**
6. **Can you propose any other data to be used in the SEA and why would it be beneficial?**

   We offer comments on the following sections which we advise should be considered carefully and taken into account in the assessment.

   Table 3.3 Potential Inter-relationships between SEA topics.
   HED disagree with the perception here of no relationship between the topics of Biodiversity Flora and Fauna and Cultural Heritage. For example and specifically in relation to many field monuments, their uncultivated state means that they provide important reservoirs of natural wilderness in often otherwise cultivated or improved land. Vernacular buildings, Industrial Heritage and Defence Heritage assets can provide

important habitats for species of birds and bats. Most of the hedgerows in our landscape are historic in nature and key habitats for flora and fauna outside cultivated and farmed lands.

HED also disagree with the perception of no inter-relationship between cultural heritage and Climatic Factors. We advise that the historic environment can be influenced or impacted on by climatic factors such as flooding. Conversely re-use of historic structures has a key role in limiting our carbon footprint (this could be a consideration in the Carbon Farming measures being considered in the APP) and historic planting including designed landscapes and hedgerows have an important role in removing carbon.

Table 4.1
HED advise that the National Monuments and Buildings Record is now known as the Historic Environment Record of Northern Ireland. We advise that the reference to Parks and Gardens should read the "Register of Historic Parks, Gardens and Demesnes

Table 4.3 Summary of Current State of the Environment in Northern Ireland.
HED consider the key findings in relation to Cultural Heritage to be too narrow. These are solely focused on the designation of scheduled monuments, but could be broader and consider the wider portfolio of cultural heritage which should be considered in assessment, including non-scheduled monuments, listed buildings and so on. Is the key risk in the content here identified from specific reports such as CAMSAR?

Table 4.4 As per our comments in relation to question 2 we emphasise the transboundary nature of the historic environment and landscape.

Section 4.4.7.1 Designated Heritage Features
HED highlight that not all heritage assets discussed in the first paragraph have specific statutory designation. We therefore suggest the alternate heading "Heritage Assets". This section should reflect that HERoNI is a growing archive with new assets added as information comes to light. In this regard and of further relevance in relation to assessment it may be worthy of observation that numerous previously unidentified heritage assets were reported under previous agri environment policies and good farming practice initiatives due to the incentives provided. In relation to the figures we suggest reference to NI Heritage Statistics (communities-ni.gov.uk) . Although figures in this document are from 2019, they will provide a more accurate reflection of the Heritage Resource –see for example Industrial Heritage, which is still undergoing mapping.
.
We welcome the recognition of risks identified from reports such as CAMSAR and we highlight that our post medieval vernacular heritage is also at risk from some practices and development.

7. Do you agree with the approach to the assessment?

HED agree with the general approach outlined in this and advise that considering and addressing the issues we have highlighted in the questions above will help to make assessment more robust in relation to cultural heritage.

8. Do you agree with the draft SEA objectives?
No

Table 5.1 Draft Strategic Environment Objectives Indicators and Targets
In relation to cultural heritage HED advise that the wording for the objective and sub objective be amended to read "protect conserve and enhance", aligning with language in regional strategic guidance and policy relating to the historic environment, as found in the Regional Development Strategy 2035 RG11 and SPPS 2015
I*ndicators* -HED would seek clarity on how it is intended to monitor the condition of the archaeological resource. We advise that total figures of designated assets would not be sufficient for this purpose.
Target – Positive outcomes could include enhancement through re-use of existing vernacular and historic farm buildings, positive maintenance of historic monuments and

retention of historic boundaries, field systems and enhancement of landscape character.

Should you wish to contact us to discuss any of the content of our response we can reached via the email address above.

Yours sincerely

Liam McQuillan MCIfA
Senior Archaeologist

Naoimh Quinn RIBA
Senior Architect

HERITAGE RECORDS AND DESIGNATIONS BRANCH

APPENDIX C

SEA Guidance

Northern Ireland

A Practical Guide to the Strategic Environmental Assessment Directive. September 2005. Office of the Deputy Prime Minister. https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance

Guidance on Sustainability Appraisal and Strategic Environmental Assessment for the Historic Environment. June 2018. Department for Communities – Historic Environment Division. https://www.communities-ni.gov.uk/sites/default/files/publications/communities/heritage-guidance-on-sustainability-appraisal-and-strategic-environmental-assessment-for-the-historic-environment.pdf

Strategic Environmental Assessment. Services and Standards for Responsible Authorities. Environment and Heritage Service. https://www.daera-ni.gov.uk/publications/strategic-environmental-assessment

Other

Article 8 (Decision Making) of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA) as amended. DoECLG Circular (PL 9/2013).

Developing and Assessing Alternatives in Strategic Environmental Assessment. 2015. Environmental Protection Agency. http://www.epa.ie/pubs/advice/ea/SEA-Alternatives-157-Published_web.pdf

Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. Synthesis Report. 2001. Environmental Protection Agency. https://www.epa.ie/pubs/advice/ea/EPA_development_methodology_SEA_synthesis_report.pdf

Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA). DoECLG Circular (PSSP 6/2011).

GISEA Manual, Improving the Evidence Base in SEA, 2016. Environmental Protection Agency.

http://www.epa.ie/pubs/advice/ea/EPA%20GISEA_web.pdf

Implementation of SEA Directive (2001/42/EC). Assessment of Certain Plans and Programmes on the Environment. Guidelines for Regional Planning Authorities. November 2004. Department of Environment, Heritage and Local Government. http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownLoad,1616,en.pdf

SEA Scoping Guidance Document. 2016. Environmental Protection Agency. http://www.epa.ie/pubs/advice/ea/seascopingguidance.html

Strategic Environmental Assessment (SEA) Checklist - Consultation Draft. January 2008. Environmental Protection Agency. http://www.epa.ie/downloads/consultation/strategic_environmental_assessment_jan086.pdf

Guidance on Consideration of Air in Strategic Environmental Assessment. April 2017. Scottish Environment Protection Agency.

Guidance on Consideration of Climatic Factors within Strategic Environmental Assessment. March 2010. Scottish Environment Protection Agency.

Guidance on Consideration of Material Assets in Strategic Environmental Assessment. August 2016. Scottish Environment Protection Agency.

Guidance on Consideration of Soil in Strategic Environmental Assessment. April 2017. Scottish Environment Protection Agency.

APPENDIX D

Plans and Programmes

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
International / European			
UN Convention on Biological Diversity (1992)	Maintenance and enhancement of Biodiversity, and strategies to ensure a fair and equitable sharing of the benefits from the use of genetic resources.	• Conservation of biological diversity (or biodiversity); • Sustainable use of its components and • Fair and equitable sharing of benefits rising from genetic resources; • Development of national strategies for the conservation and sustainable use of biological diversity.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
Ramsar Convention on Wetlands of International Importance (1971 and amendments)	Protection and conservation of wetlands.	• Objectives include protection and conservation of wetlands, particularly those of importance to waterfowl as Waterfowl Habitat.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
Bern Convention (Convention on European Wildlife and Natural Habitats) (1982)	The Bern Convention is a binding international legal instrument in the field of nature conservation, covering most of the natural heritage of the European continent and extending to some States of Africa.	• Objectives are to conserve wild flora and fauna and their natural habitats, as well as to promote European co-operation in this field. • The treaty also takes account f the impact that other policies may have on natural heritage.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.
The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (1992)	The current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. Objectives include the protection of the marine environment.	• Prevention and elimination of pollution, and protection of the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystem.	Environmental protection objectives of the Convention are reflected in the SEOs for Water.
Bonn Convention [L210, 19/07/1982 (1983)]	The Bonn Convention focuses on preserving the habitats used by migratory species and aims to enhance the conservation of terrestrial, marine and avian species on a global scale throughout their range.	• Establishes a legal foundation for internationally coordinated conservation measures throughout a migratory range. • Migratory species threatened with extinction are listed on Appendix I of the Convention.	Environmental protection objectives of the Convention are reflected in the SEOs for Biodiversity, Flora and Fauna.

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		CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. • In Europe, legislation to ensure that the provisions of the Bonn convention are applied includes the Birds Directive and the Habitats Directive.	
EU Biodiversity Strategy to 2030 [COM(2020)380]	Aims to put Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet. The strategy aims to build societies' resilience to future threats such as: the impacts of climate change, forest fires, food insecurity and disease outbreaks.	The strategy contains specific commitments and actions to be delivered by 2030: • Establishing a larger EU-wide network of protected areas on land and at sea. Enlarging of existing Natura 2000 areas with strict protection for areas of very high biodiversity and climate value. • Launching an EU nature restoration plan. Including concrete commitments and actions (and proposed binding nature restoration targets) to restore degraded ecosystems by 2030 and manage them sustainably, addressing the key drivers of biodiversity loss. • Introducing measures to enable the necessary transformative change. Unlocking funding for biodiversity, and setting in motion a new, strengthened governance framework. • Introducing measures to tackle the global biodiversity challenge. In particular, working towards adoption of an ambitious global biodiversity framework under the Convention on Biological Diversity.	Environmental protection objectives of the strategy are reflected in the SEOs for Biodiversity, Flora and Fauna.
Birds Directive [2009/147/EC]	Protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to	• Preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Annex I.	Environmental protection objectives of the Directive are reflected in the

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
	classify Special Protection Areas (SPAs) to protect birds which are rare or vulnerable in Europe, as well as all migratory birds which are regular visitors.	• Preserve, maintain and establish biotopes and habitats to include the creation of protected areas (Special Protection Areas); ensure the upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones, re-establish destroyed biotopes and creation of biotopes • Measures for regularly occurring migratory species not listed in Annex I is required as regards their breeding, moulting and wintering areas and staging posts along their migration routes. The protection of wetlands and particularly wetlands of international importance.	SEOs for Biodiversity, Flora and Fauna. The draft FAPP should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft FAPP, to ensure that it implementation will not adversely affect SPAs and SACs.
EU Habitats Directive [92/43/EEC]	Builds on the Birds Directive (see above) by protecting natural habitats and other species of wild plants and animals. Together with the Birds Directive, it underpins a European network of protected areas known as Natura 2000: Special Protection Areas (SPAs, classified under the Birds Directive) and Special Areas of Conservation (SACs, classified under the Habitats Directive).	• Propose and protect sites of importance to habitats, plant and animal species. • Establish a network of Natura 2000 sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range. • Carry out comprehensive assessment of habitat types and species present. • Establish a system of strict protection for the animal species and plant species listed in Annex IV.	Environmental protection objectives of the Directive are reflected in the SEOs for Biodiversity, Flora and Fauna. The draft FAPP should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft FAPP, to ensure that it implementation will not adversely affect SPAs and SACs.
Seveso Directive [2012/18/EU]	Prevention of harmful effects on humans and the environment through major accidents involving dangerous substances.	Objectives seek to prevent major accidents involving dangerous substances and limit their consequences for man and the environment,	The draft FAPP has an indirect link to this Directive, owing to the inclusion of certain fertiliser production facilities as COMAH establishments in NI.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		with a view to ensuring high levels of protection throughout the Community.	
Biocidal Products Directive [98/8/EC and 2007/107/EC]	Prevention of harmful effects on human health and the environment from biocidal products.	A biocide is classified as a substance (whether chemical or biological) designed to destroy or render harmless a harmful organism (e.g. disinfectants, preservatives etc.). These products have a high degree of regulation owing to the potential effects on human health and the environment. The directive is regularly updated as new products are manufactured and authorised.	Environmental protection objectives of the Directive are reflected in the SEO for Population and Human Health.
Paris Agreement (UNFCCC, 2016)	To strengthen the global response to the threats of climate change by keeping this century's global temperature rise below 2 degrees Celsius.	The Paris Agreement and the outcomes of the UN climate conference (COP21) cover all the crucial areas identified as essential for a landmark conclusion: • Mitigation – reducing emissions fast enough to achieve the temperature goal; • A transparency system and global stock-take – accounting for climate action; • Adaptation – strengthening ability of countries to deal with climate impacts; • Loss and damage – strengthening ability to recover from climate impacts; and • Support – including finance, for nations to build clean, resilient futures.	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.
UN Kyoto Protocol, The United Nations Framework Convention on Climate Change (UNFCC, 1997)	Objectives seek to alleviate the impacts of climate change and reduce global emissions of GHGs.	• An international environmental treaty, who's objective is to "stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• Does not set binding limits on GHG emissions for individual countries or contain enforcement mechanisms, but outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to set binding limits on greenhouse gases.	
EU 20-20-20 Climate and Energy Package Agreement (2007)	Objectives seek to alleviate the impacts of climate change and reduce global emissions of GHGs.	To meet the EU's obligation under international law and in line with European ambition. Member States are required to: • 20% cut in GHG emissions collectively (from 1990 levels) • 20% of EU energy produced from renewables • 20% improvement in energy efficiency The collective EU target of reducing emissions by 20 % by 2020 is to be achieved by: The EU Emissions Trading System, the backbone of the EU mitigation effort, which sets a cap on emissions from the most polluting sectors, including over 11 000 factories, power plants and other installations, including airlines. By 2020, the cap should result in a 21 % reduction relative to 2005 levels. The EU ETS covers about 40 % of all EU emissions. The 'effort sharing decision', which operates outside the EU ETS and establishes annual binding GHG emission targets for individual Member States for the 2013-2020 period. These concern emissions from sectors such as waste, agriculture, buildings, etc. The '20-20-20' targets are supported by the long term target of 85-90 % reduction in GHG emissions against 1990 levels by 2050.	Environmental protection objectives of the Directive are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
The European Green Deal 2019	The European Green Deal is a plan to make the EU's economy sustainable.	The growth strategy outlines transformation of the EU to a resource-efficient and competitive economy where: • There are no net emissions of GHGs by 2050; • Economic growth is decoupled from resource use; and • No person and no place is left behind. The Deal provides an Action Plan to: • Boost the efficient use of resources by moving to a clean circular economy; and • Restore biodiversity and cut pollution.	The draft FAPP will need to have regard for this strategy. Environmental protection objectives of the strategy are reflected in the SEOs for Climatic Factors; Biodiversity, Flora and Fauna; Geology, Soils, and Landuse; Water; Air Quality; and Material Assets.
EU Methane Strategy 2020	The EU Methane Strategy forms part of the European Green Deal. It recognises the importance of methane as the second biggest contributor to climate change, and aims to tackle methane emissions to reach 2030 climate targets and the 2050 climate neutrality goal, as well as contributing to the Commission's zero-pollution ambition.	• Sets out measures to cut methane emissions in Europe and internationally. • Presents legislative and non-legislative actions in the energy, agriculture and waste sectors, which account for around 95% of methane emissions associated with human activity worldwide. • Includes improved reporting of emissions from agriculture, through better data collection, and promotion of opportunities to reduce emissions with support from the Common Agricultural Policy. The main focus will be on best practice sharing for innovative methane-reducing technologies, animal diets, and breeding management. Non-recyclable organic human waste and agricultural waste and residue streams can be used to produce biogas, biomaterials and biochemical, generating additional revenue and avoiding methane emissions.	The draft FAPP will need to have regard for this strategy. Environmental protection objectives of the strategy are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
EU Farm to Fork Strategy 2020	The EU Farm to Fork Strategy is at the heart of the European Green Deal, aiming to make food systems sustainable. Introduces a new approach to ensure that agriculture, fisheries and aquaculture, and the food value chain, contribute appropriately to reduction in GHG emissions, and to the objective for a climate neutral EU in 2050.	The strategy aims to accelerate the transition to a sustainable food system that should: • Have a neutral or positive environmental impact; • Help to mitigate climate change and adapt to its impacts; • Reverse the loss of biodiversity; • Ensure food security, nutrition and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food; and • Preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade.	The draft FAPP will need to have regard for this strategy. Environmental protection objectives of the strategy are reflected in the SEOs for Climatic Factors; Biodiversity, Flora and Fauna; Geology, Soils, and Landuse; Water; Air Quality; and Material Assets.
Renewable Energy Directive (2009/28/EC)	This Directive establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. The Member States are to establish national action plans which set the share of energy from renewable sources consumed in transport, as well as in the production of electricity and heating, for 2020.	It requires the EU to fulfil at least 20% of its total energy needs with renewable by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020.	The draft FAPP should have regard for the environmental protection objectives of this Directive in terms of cumulative GHG emissions from the agricultural sector and other sources.
EU Strategy on Adaptation to Climate Change	The Adaptation Strategy recognise how important impact assessment is for climate proofing, identifies the key priorities for action and how EU policies can encourage effective adaptation action.	The strategy was adopted by the EC in April 2013. It outlines the measures for taking climate change preparedness to a new level. The strategy has three main objectives: • Promote climate action in Member States through encouraging the adoption of adaptation strategies; • The promotion of informed decision-making through addressing knowledge gaps and the development of the European Climate	The draft FAPP will need to have regard for this strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		Adaptation Platform for better knowledge dissemination; and • Promoting adaptation in key vulnerable sectors.	
Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change 2021[COM(2021)82]	The Strategy outlines a long term vision for the EU to become a climate-resilient society, fully adapted to the unavoidable impacts of climate change by 2050, and complements the EU's goal of becoming climate neutral by this date. Deepens and expands upon adaptation actions in the 2013 EU Adaptation Strategy.	This strategy aims to reinforce the adaptive capacity of the EU and the world, and minimise vulnerability to the impacts of climate change, in line with the Paris Agreement and the proposal for European Climate Law. It seeks to step up action across the economy and society in synergy with other Green Deal policies such as biodiversity protection and sustainable agriculture. The Strategy has three objectives, and proposes a range of actions in order to meet them: • To make adaptation smarter - improving knowledge and availability of data, while managing the inherent uncertainty brought upon us by climate change; securing more and better data on climate-related risk and losses; and making Climate-ADAPT the authoritative European platform for adaptation knowledge. • To make adaptation more systemic - supporting policy development at all levels of governance, society and the economy and in all sectors by improving adaptation strategies and plans; integrating climate resilience in macro-fiscal policy, and promoting nature-based solutions for adaptation. • To speed up adaptation across the board – by accelerating development and rollout of adaptation solutions; reducing climate-related risk; closing the climate protection gap; and	The draft FAPP will need to have regard for this strategy.

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		ensuring the availability and sustainability of fresh water.	
Second European Climate Change Programme (ECCP II) 2005.	Objectives seek to develop the necessary elements of a strategy to implement the Kyoto protocol.	Develop a framework for a low carbon economy which will be achieved through a National Mitigation Plan (to lower GHG emissions) and a National Adaptation Framework (to provide for responses to changes caused by climate change). This includes: • Reform of the EU Emissions Trading System (EU ETS) to include a cap on emission allowances in addition to existing system of national caps • Agreement of national targets for non-EU ETS emissions from countries outside the EU • Commitment to meet the national renewable energy targets of 16% for Ireland by 2020 • Preparation of a legal framework for technologies in carbon capture and storage	Environmental protection objectives of the Programme are reflected in the SEO for Climatic Factors.
EU Green Infrastructure Strategy (COM(2013) 249 final).	Aims to develop preserve and enhance healthy green infrastructure to help stop the loss of biodiversity and enable ecosystems to deliver their many services to people and nature. The greater the scale, coherence and connectivity of the green infrastructure network, the greater its benefits. The EU Strategy on green infrastructure aims to outline how to deploy such a network and encourages action at all levels.	The Green Infrastructure strategy is a key step towards the success of the EU Biodiversity Strategy. It is made up of four main elements: • Promoting Green Infrastructure in the main EU policy areas • Supporting EU-level GI projects • Improving access to finance for GI projects • Improving information and promoting innovation.	Environmental protection objectives of the Programme are reflected in the SEOs for Biodiversity, Flora and Fauna.
Stockholm Convention (2004)	The Stockholm Convention is an international treaty with the aim of eliminating or restricting the production and use of persistent organic pollutants (POPs).	The main objective of the treaty is in seeking to protect human health and the environment from POPs.	The draft FAPP will need to have regard for this strategy with regard to pesticide use.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
WHO Air Quality Guidelines – global update (2005).	Objectives seek the elimination or minimisation of certain airborne pollutants for the protection of human health.	• Air Quality Guidelines (AQGs) were published by the WHO in 1987 and revised in 1997 and most recently in 2005. • These offer guidance on threshold limits for key air pollutants that pose health risks and provide a reference for setting air pollution targets at regional and national levels to improve air quality. • The 2005 guidelines offer recommended exposure levels for particulate matter (PM10 and PM2.5), ozone, nitrogen dioxide and sulphur dioxide, as well as a set of interim targets to encourage a progressive improvement in air quality.	The draft FAPP should have regard for the environmental protection objectives of these guidelines, in terms of cumulative emissions affecting air quality from the agricultural sector and other sources.
The Gothenburg Protocol (1999), as amended in 2012.	The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) is a multi-pollutant protocol designed to reduce acidification, eutrophication and ground-level ozone by setting emissions ceilings for sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia to be met by 2010. The protocol was updated and amended in 2012.	• The 1999 Protocol set national emission ceilings for 2010 for four pollutants: sulphur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOCs) and ammonia (NH_3); • As amended in 2012, the Protocol includes national emission reduction commitments to be achieved by 2020 and beyond; • Includes specific measures for the control of ammonia emissions from agricultural sources; • Parties must report on their emissions annually, and are required to provide projections of their future emissions.	The draft FAPP should have regard for the environmental protection objectives of the Protocol, particularly those relating to the control of ammonia emissions from agriculture. These environmental protection objectives are reflected in the SEO for Air Quality.
Ambient Air Quality and Cleaner Air for Europe	Set air quality standards for protection of human health and the environment. Address air pollution	• The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was	The draft FAPP should have regard for the environmental protection

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(CAFE) Directive [2008/50/EC] & 4th Daughter Directive of the Air Quality Framework Directive [2004/107/EC]	at the level of zones, while the complementary NEC Directive addresses total emissions	published in May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives. • Sets limit and target values for certain pollutants. Covers in particular nitrogen dioxide (NO2) and particulate matter or fine dust (PM10), which is emitted by traffic and combustion engines. • Lays down limit values to be respected by Member States in their zones. • The 4th Daughter Directive relates to arsenic cadmium, mercury, nickel and polycyclic aromatic hydrocarbons.	objectives of these Directives, in terms of cumulative emissions affecting air quality from the agricultural sector and other sources.
Industrial Emissions Directive [2010/75/EU]	• Aims to achieve a high level of protection of human health and the environment taken as a whole by reducing harmful industrial emissions across the EU, in particular through better application of Best Available Techniques (BAT) • Around 50,000 installations undertaking the industrial activities listed in Annex I of the Industrial Emissions Directive (IED) are required to operate in accordance with a permit (granted by the authorities in Member States).	The IED is based on several pillars, in particular (1) an integrated approach, (2) use of best available techniques, (3) flexibility, (4) inspections and (5) public participation: • The integrated approach means that the permits must take into account the whole environmental performance of the plant. • The permit conditions including emission limit values must be based on the Best Available Techniques (BAT). • The IED allows competent authorities some flexibility to set less strict emission limit values. • The IED contains mandatory requirements on environmental inspections. Member States shall set up a system of environmental inspection and draw up inspection plans accordingly. • The IED ensures that the public has a right to participate in the decision-making process,	The draft FAPP should have regard for the environmental protection objectives of the Directive, which includes protection from emissions from certain agricultural installations, in terms of cumulative emissions affecting air quality.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		and be informed of its consequences, by having access to permit applications, permits and the results of the monitoring releases.	
National Emissions reduction Commitments (NEC) Directive [2016/2284/EU]	This Directive seeks to limit the national emissions of certain airborne pollutants for the protection of human health and the environment. Implements at the EU level obligations under the Geneva Convention and Gothenburg Protocol. It replaced the earlier National Emission Ceilings for Certain Atmospheric Pollutants Directive (2001/81/EC).	It sets the limits on total national emissions from four pollutants - sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia. These can cause acidification (e.g. the chemical composition of the sea acidifies), water and soil pollution (eutrophication) and ground-level ozone (ozone resulting from the reaction of the four pollutants with heat and sunlight).	The draft FAPP should have regard for the environmental protection objectives of the Directive, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.
Geneva Convention (1979) on Long-range Transboundary Air Pollution (LRTAP)	International agreement with the aim of limiting problems of air pollution on a broad regional basis.	• First international legally binding instrument dealing with problems of air pollution on a broad regional basis. It was signed in 1979 and entered into force in 1983. It has since been extended by eight specific protocols. • Under the Convention, the parties commit to working together to limit, to gradually prevent, and to reduce their discharges of air pollutants in order to combat the resulting transboundary pollution. • The Convention has substantially contributed to the development of international environmental law and has created the essential framework for controlling and reducing the damage to human health and the environment caused by transboundary air pollution.	Environmental protection objectives of the Convention are reflected in the SEOs for Air Quality and Climatic Factors.
EU Common Agricultural Policy (CAP) (1962)	Aims to provide farmers with a reasonable standard of living, consumers with quality food at fair prices and to preserve rural heritage.	The CAP is a common policy for all EU countries, managed and funded at European level from the EU budget. It aims to:	The draft FAPP represents the future agricultural policy for Northern Ireland following EU exit.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• Support farmers and improve agricultural productivity, ensuring a stable supply of affordable food; • Safeguard EU farmers to make a reasonable living; • Help tackle climate change and the sustainable management of natural resources; • Maintain rural areas and landscapes across the EU; and • Keep the rural economy alive by promoting jobs in farming agri-foods industries and associated sectors.	Existing environmental protection objectives associated with the CAP have been considered during development of the draft FAPP.
Seventh Environmental Action Programme to 2020 of the European Community	The Programme guides European environment policy until 2020, and sets out a vision beyond that, of where it wants the EU to be by 2050.	Objectives seek to make the future development of the EU more sustainable. It identifies three key objectives: • To protect, conserve and enhance the Union's natural capital; • To turn the Union into a resource-efficient, green, and competitive low-carbon economy; and • To safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing. Two additional horizontal priority objectives complete the programme: • To make the Union's cities more sustainable; and To help the Union address international environmental and climate challenges more effectively.	Environmental protection objectives of the Programme are reflected in the SEOs Biodiversity, Flora and Fauna; Population and Human Health; Geology, Soils and Landuse; Water; Air Quality; and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
EUROPE 2020 A strategy for smart, sustainable and inclusive growth (COM/2010/2020)	Europe 2020 is a 10-year growth strategy proposed by the European Commission in 2010 for advancement of the EU economy. It aims at "smart, sustainable, inclusive growth", with greater coordination of national and European policy. It follows the Lisbon Strategy for the period 2000–2010.	The Strategy set five overarching objectives to be reached by 2020: • Employment: 75% of population aged 20-64 should be employed; • Innovation: 3% EU's GDP should be invested in R&D; • Climate Change: 20/20/20 climate/energy targets should be met (including an increase to 30% of emissions reduction if conditions are right); • Education: Share of early school leavers should be under 10% and at least over 40% of the younger generation should have a tertiary degree; and • Poverty: At least 20m fewer people in at-risk-of-poverty and social exclusion.	Environmental protection objectives of the Strategy, with regard to climate change objectives, are reflected in the SEO for Climatic Factors.
SEA Directive [2001/42/EC]	To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	• Requires that Plans & Programmes take into account protection of the environment and integration of the Plan into the sustainable planning of the country as a whole. • Eleven sectors are specified in the Directive and Competent Authorities (Plan/ Programme makers) must subject specific Plans and Programmes for these sectors to an environmental assessment where they are likely to have significant effects on the environment.	The draft FAPP will be subject to the SEA process. This is being undertaken through this Scoping Report and subsequent Environmental Report.
EIA Directive [85/337/EEC] [2014/52/EU]	Objective is to require Environmental Impact Assessment of the environmental effects of those public and private projects, which are likely to have significant effects on the environment. Aims to assess and implement avoidance or mitigation measures to eliminate environmental	• All projects listed in Annex I are considered as having significant effects on the environment and compulsorily require an EIA. • For projects listed in Annex II, a "screening procedure" is required to determine the effects of projects on the basis of	Certain agricultural projects will be subject to EIA.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
	effects, before consent is given of projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.	thresholds/criteria or a case by case examination. The competent authority may give a decision on whether a project requires EIA. • Requirement for identification, description and assessment in an appropriate manner, in the light of each individual case, on the direct and indirect effects of a project on the following factors: human beings, fauna and flora, soil, water, air, climate and the landscape, material assets and the cultural heritage, the interaction between each factor. • Requirement for consultation with relevant authorities, stakeholders and public allowing sufficient time to make a submission before a decision is made. • Establishment of a recognised structure and content for the Environmental Impact Statement, which is the document submitted as a written account of the EIA. • Inclusion of proposed flood risk management schemes in EIA screening process	
EU Thematic Strategy for Soil Protection [COM/2006/231] and Report on its implementation [COM/2012/046]	Strategy for the protection of soils across the EU.	The Strategy consists of: • A communication from the commission, explaining why further action is needed to ensure a high level of soil protection, sets the overall objective of the strategy and explains the kinds of measures that must be taken. It establishes a 10-year work programme for the Commission; • A proposal for a framework Directive, setting out common principles for protecting soils across the EU. Within this common framework, Member States can decide how	Environmental protection objectives of the Strategy are reflected in the SEO for Geology, Soils and Landuse.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		best to protect soil and how to use it in a sustainable way; and • An impact assessment, analysing the economic, social and environmental impacts of the different options considered in preparation of the Strategy and the measures retained. The 2012 report outlines implementation of the Strategy and ongoing activities, the blocking of progress on the proposed framework Directive, current soil degradation trends and future challenges.	
Integrated Pollution Prevention Control Directive [96/61/EC], as amended by Directive 2008/1/EC	To achieve a high level of protection of the environment through measures to prevent or, where that is not practicable, to reduce emissions to air, water and land from industrial sources.	The Directive provides an integrated approach to establish pollution prevention from stationary "installations". This codified act includes all the previous amendments to the Directive 96/61/EC and introduces some linguistic changes and adaptations.	The draft FAPP should have regard for the environmental protection objectives of the Directive, which includes protection from emissions from certain intensive agricultural holdings. Environmental protection objectives of the Directive are reflected in the SEOs for Geology, Soils and Landuse; Water; Air Quality; and Climatic Factors.
Water Framework Directive (2000/60/EC), (as amended by Decision 2455/2001/EC and Directives 2008/32/EC, 2008/105/EC and 2009/31/EC.	Aims to improve water quality and quantity within rivers, estuaries, coasts and aquifers. Aims to prevent the deterioration of aquatic ecosystems and associated wetland by setting out a timetable until 2027 to achieve good ecological status or potential. Member States are required to manage the effects on the ecological quality of water which result from changes to the physical characteristics of water bodies.	• Identification and establishment of individual river basin districts. • Preparation of individual river basin management plans for each of the catchments. These contain the main issues for the water environment and the actions needed to deal with them. • Establishment of a programme of monitoring water quality in each RBD. • Establishment of a Register of Protected Areas (includes areas previously designated	Successful implementation of the draft FAPP is a crucial measure contributing to the environmental protection objectives required by the WFD. Environmental protection objectives of the Directive are reflected in the SEOs for Water; Biodiversity, Flora and Fauna; and Population and Human Health.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
	Action is required in those cases where these "hydro-morphological" pressures are having an ecological impact which will interfere with the ability to achieve WFD objectives. The following Directives have been subsumed into the Water Framework Directive : • The Drinking Water Abstraction Directive • Sampling Drinking Water Directive • Exchange of Information on Quality of Surface Freshwater Directive • Shellfish Directive • Freshwater Fish Directive • Groundwater (Dangerous Substances) Directive • Dangerous substances Directive	under the Freshwater Fish and Shellfish Directives which have become sites designated for the protection of economically significant aquatic species under WFD and placed on the Protected Areas register). • Promotion of sustainable management of the water environment by carefully considering current land use and future climate scenarios, minimising the effects of flooding and drought events and facilitating long term improvements in water quality, including the protection of groundwater near landfill sites, as well as minimising agricultural runoff.	
Marine Strategy Framework Directive (2008/56/EC)	• Establishes a framework whereby the necessary measures are undertaken to achieve or maintain good environmental status in the marine environment by the year 2020. • Requires the development and implementation of marine strategies in order to protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected. • It aims to prevent and reduce inputs in the marine environment, with a view to phasing out pollution as defined in Article 3(8), so as to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.	• Preparation of an assessment of the current environmental status of the waters concerned and the environmental impact of human activities. • Establishment of a series of environmental targets and associated indicators. • Development of a programme of measures designed to achieve or maintain good environmental status, by 2020. • Establishment of a monitoring programme for ongoing assessment and regular updating of targets. • Cooperation with transboundary Member States to implement these measures.	Environmental protection objectives of the Directive are reflected in the SEO for Water.
Floods Directive (2007/60/EC)	This Directive provides a framework for the assessment and management of flood risks, aiming to reduce the adverse consequences	Member States must:	The draft FAPP should have regard for the environmental protection objectives of this Directive, in terms of

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
	associated with flooding for human health, the environment, cultural heritage and economic activity.	• Assess the risk of flooding of all water courses and coast lines, • Map the flood extent and assets and humans at risk in these areas at River Basin level and in areas covered by Article 5(1) and 13(1); and • Implement flood risk management plans and take adequate and coordinated measures to reduce this flood risk. Member States are required to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk of flooding. For such zones they would then need to draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by the end of 2015. The public must be informed and allowed to participate in the planning process.	cumulative effects on surface water bodies.
Bathing Water Directive (2006/7/EC)	The overall objective of the revised Bathing Water Directive remains the protection of public health whilst bathing. It: • Imposes stricter standards for water quality and the implementation of new method of assessment. • Establishes a more pro-active approach to the assessment of possible pollution risks, and to the management of bathing waters; and • Places considerable emphasis on promoting increased public involvement, and for improved dissemination of information on bathing water quality to the general public.	• Updates the way in which water quality is measured, focusing on fewer microbiological indicators, and setting different standards for inland and coastal bathing sites. • Reduces the health risks linked to bathing by setting scientifically based minimum water quality standards. • Makes changes to monitoring and sampling frequency. • Allows a limited number of water samples to be disregarded during short term pollution incidents, if the event is predicted and the public warned beforehand.	Environmental protection objectives of the Directive are reflected in the SEO for Population and Human Health.

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		• Provides better information to the public, allowing more informed choices to be made about the risk of bathing. • Improves the overall management of bathing water quality by requiring an assessment of potential sources of pollution. • Is compatible with other EU water related legislation, in particular the Water Framework Directive.	
Groundwater Directive [80/68/EEC] and Daughter Directive [2006/118/EC]	• Aims to protect groundwater from pollution by controlling discharges and disposals of certain dangerous substances to groundwater. • Made under the Water Framework Directive, the Daughter Directive aims to prevent and limit inputs of pollutants to groundwater.	• Establishment of criteria for assessing good groundwater status and for the identification of significant and sustained upwards trends and the starting points for trend reversal. • Threshold values adopted for the pollutants, groups of pollutants and indicators of pollution which have been identified as contributing to the characterisation of bodies or groups of bodies of groundwater as being at risk.	Environmental protection objectives of the Directive are reflected in the SEO for Water.
Drinking Water Directive (98/83/EC)	• Aimed at the improvement and maintenance of the quality of water intended for human consumption. • Aims to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.	• Sets values applicable to water intended for human consumption for a defined range of parameters. • Requires implementation of all measures necessary to ensure that regular monitoring of the quality of water intended for human consumption is carried out, in order to check that the water available to consumers meets the requirements set out in the legislation. • Any failure to meet the required standards is immediately investigated in order to identify the cause. • Any necessary remedial action is taken as soon as possible to restore its quality and gives priority to their enforcement action.	Environmental protection objectives of the Directive are reflected in the SEO for Population and Human Health.

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		• Undertake remedial action to restore the quality of the water where necessary to protect human health. • Notification of consumers when remedial action is being undertaken, except where the competent authorities consider the non-compliance with the required standards value to be trivial.	
Urban Waste Water Treatment Directive [91/271/EEC]	The Directive's objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of domestic waste water, mixture of waste water and waste water from certain industrial sectors.	The Directive requires that: • The collection and treatment of waste water in all agglomerations of >2000 population equivalents (p.e.). • Secondary treatment of all discharges from agglomerations of >2000 p.e., and more advanced treatment for agglomerations >10,000 p.e. in designated sensitive areas and their catchments. • A requirement of pre-authorisation of all discharges of urban wastewater, of discharges from the food processing industry and of industrial discharges into urban wastewater collection systems. • Monitoring of the performance of treatment plants and receiving waters. • Controls of sewage sludge disposal and re-use, and treated waste water re-use whenever it is appropriate.	The draft APP should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface water bodies.
Sewage Sludge Directive [86/78/EEC]	The Directive promotes the use of sewage sludge in agriculture but regulates its use to prevent harmful effects on soil, vegetation, animals and people.	The aims of the Directive are: • To protect humans, animals, plants and the environment by ensuring that heavy metals in soil and sludge do not exceed set limits;	The draft FAPP will need to have regard for this Directive with regard to the use of sewage sludge as a fertiliser source.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• To increase the amount of sewage sludge used in agriculture.	Environmental protection objectives of the Directive are reflected in the SEO for Geology, Soils and Landuse.
Nitrates Directive [91/676/EEC]	The Directive has the objective of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution.	Aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. Outlines the following steps: • Identification of water polluted, or at risk of pollution; • Designation of nitrate vulnerable zones; • Establishment of codes of good agricultural practice to be implemented by farmers on a voluntary basis; • Establishment of action programmes to be implemented by farmers within NVZs on a compulsory basis; • Limits to the application of nitrogen from manure; and • National monitoring and reporting.	The draft FAPP must take into account any environmental objectives as established by the Directive. Environmental protection objectives of the Directive are reflected in the SEO for Water.
Environmental Quality Standards Directive (Directive 2008/105/EC) (also known as the Priority Substances Directive), as amended by Directive 2013/39/EU.	Establishes environmental quality standards (EQS) for priority substances and certain other pollutants as provided for in Article 16 of the Water Framework Directive and aims to achieve good surface water chemical status in accordance with the provisions and objectives of Article 4 of the Water Framework Directive.	• Apply the EQS laid down in Part A of Annex I to this Directive for bodies of surface water. • Determine the frequency of monitoring in biota and/or sediment of substances. • Monitoring shall take place at least once every year, unless technical knowledge and expert judgment justify another interval. • Notify the European Commission if the substances for which EQS have been established if a deviation of the monitoring is	The draft FAPP should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on surface water bodies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		planned along with the rationale and approach. • Establish an inventory, including maps, if available, of emissions, discharges and losses of all priority substances and pollutants listed in Part A of Annex I to this Directive for each river basin district.	
Environmental Liability Directive [2004/35/EC]	• Establishes a framework for environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage. • Relates to environmental damage caused by occupational activities (listed in Annex III), and to any imminent threat of such damage occurring by reason of any of those activities; damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities, whenever the operator has been at fault or negligent.	• Describes procedures for circumstances where environmental damage has occurred. Requires the polluter to take all practicable steps to immediately control, contain, remove or otherwise manage the relevant contaminants and/or any other damage factors in order to limit or to prevent further environmental damage and adverse effects on human health or further impairment of services and the necessary remedial measures. • Establishes measures for cases where environmental damage has not yet occurred, but there is an imminent threat of such damage occurring. • The regulations make the polluter financially liable and allow the competent authority to initiate cost recovery proceedings where appropriate.	The draft FAPP will be obliged to comply with the requirements of the Directive and to prevent environmental damage. Policy proposals outlined in the draft FAPP should aim to cause no damage and to enhance the wider environment.
A Blueprint to Safeguard Europe's Water Resource [COM(2012/673]	The Blueprint aims to improve implementation of existing water policy, to integrate water considerations into other policy areas and indicate where further measures may be necessary for water efficiency and adaptation to climate change.	• Outlines actions that relate to better implementation of current water legislation, integration of water policy objectives into other policies and filling gaps particularly in relation to water quantity and efficiency. • These actions are to ensure that water of sufficient quantity and good quality is available to service the needs of people as	The draft FAPP should have regard for this Blueprint. Environmental protection objectives are reflected in the SEO for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		well as the environment and the EU's economy. • The Blueprint's time horizon is closely related to the EU 2020 Strategy particularly the Resource Efficiency Roadmap, of which the Blueprint is the water milestone. However, the Blueprint covers a longer time span, up to 2050, and is expected to be the driver of long-term EU water policy rural development programme.	
Waste Framework Directive [2008/98/EC], as amended in 2018 [2018/51/EU]	• Sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. • Explains when waste ceases to be waste and becomes a secondary raw material (so called end-of-waste criteria), and how to distinguish between waste and by-products.	The Directive requires that: • Waste is managed without endangering human health • Waste is managed without harming the environment. • Waste is managed without harming water, air, soil, plants or animals. • Waste does not cause a nuisance a nuisance through noise or odours, or to countryside or places of special interest.	The draft FAPP should have regard for the environmental protection objectives of this Directive, in terms of cumulative effects on water, soil and air.
Use and Disposal of Animal By-products (Commission Regulation 2011/EU142)	Outlines health rules as regards animal by-products not intended for human consumption.	The Regulation lays down strict rules for the collection, transport, storage, handling, processing and use or disposal of all animal by-products.	The draft FAPP should have regard for the environmental protection objectives of this Regulation.
Valletta Convention (1992)	Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992). The Valletta Treaty aims to protect the European archaeological heritage "as a source of European collective memory and as an instrument for historical and scientific study	Sets guidelines for the funding of excavation and research work and publication of research findings. Deals with public access, in particular to archaeological sites, and educational actions to be undertaken to develop public awareness of the value of the archaeological heritage. The Convention constitutes an institutional framework for pan-European co-operation on the archaeological heritage, entailing a	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.

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		systematic exchange of experience and experts among the various States. The Committee responsible for monitoring the application of the Convention assumes the role of strengthening and co-ordinating archaeological heritage policies in Europe.	
Granada Treaty (1985)	Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985). The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It also affirms the need for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties.	• Conservation of European architectural heritage.	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.
World Heritage Convention [WHC-2005/WS/02]	Objectives seek to ensure the identification, protection, conservation, presentation and transmission to future generations of cultural and natural heritage and ensure that effective and active measures are taken for these. The Convention recognises the way in which people interact with nature and encourages signatories to integrate the protection of cultural and natural heritage into regional planning programmes, set up staff and services at their sites, undertake scientific and technical conservation research and adopt measures which give this heritage a function in the day-to-day life of the community.	• Establishment of measures for the protection of monuments of national importance by virtue of the historical, architectural, traditional, artistic or archaeological interest attaching to them. Includes the site of the monument, the means of access to it and any land required to preserve the monument from injury or to preserve its amenities. • World Heritage Sites in Ireland are specific locations that have been included in the UNESCO World Heritage Programme list of sites of outstanding cultural or natural importance to the common heritage of humankind. Two such sites in Ireland have been designated	Environmental protection objectives of the Treaty are reflected in the SEO for Cultural, Architectural and Archaeological Heritage.
European Landscape Convention [ETS No. 176]	• Promotion of the protection, management and planning of European landscapes and organising European co-operation on landscape issues.	• Respond to the public's wish to enjoy high-quality landscapes and to play an active part in the development of landscapes. • Each administrative level (national, regional and local) should draw up specific and/or	Environmental protection objectives of the Treaty are reflected in the SEO for Landscape and Visual Amenity.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
	• Applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. • Inclusion of landscapes that might be considered outstanding as well as everyday or degraded landscapes. • Aimed at the protection, management and planning of all landscapes and raising awareness of the value of a living landscape. • Complements the Council of Europe's and UNESCO's heritage conventions.	sectoral landscape strategies within the limits of its competences. These are based on the resources and institutions which, when co-ordinated in terms of space and time, allow policy implementation to be programmed. The various strategies should be linked by landscape quality objectives.	

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National			
Biodiversity Strategy for Northern Ireland to 2020	A strategy for Northern Ireland to meet its international obligations and local targets to protect biodiversity	The strategy sets out the proposals for action to help halt the loss of biodiversity and the degradation of ecosystems up to 2020. 1. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society 2. Reduce the direst pressures on biodiversity and promote sustainable development 3. To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. Successful implementation of the draft FAPP should promote maintenance and, where possible, enhancement of biodiversity.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		4. Enhance the benefits to all from biodiversity and ecosystem services 5. Enhance implementation through participatory planning, knowledge management and capacity building.	
UK Post-2020 Biodiversity Framework	Succeeds the UK Biodiversity Action Plan and 'conserving Biodiversity – the UK Approach'. Sets out the UK's response to the CBD's 'Strategic Plan for Biodiversity 2011-2020' and its 20 'Aichi Targets' (2010), and the EU Biodiversity Strategy (2011).	The Framework demonstrates how the work of the four countries and the UK contributes to achieving the Aichi Targets, and identifies the activities required to complement the country biodiversity strategies in achieving the Targets. The following are the Strategic Goals of the Framework: • Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; • Reduce the direct pressures on biodiversity and promote sustainable use; • To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; • Enhance the benefits to all from biodiversity and ecosystems; and • Enhance implementation through participatory planning, knowledge management and capacity building	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. Successful implementation of the draft FAPP should promote maintenance and, where possible, enhancement of biodiversity.
Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995, and amendment Regulations	These Regulations give effect to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and the Minister to designate special areas of conservation (endangered species and habitats of endangered species) as a contribution to an EU Community network to be known as NATURA 2000.	Protects certain birds, plants, animals, marine life and their habitats, including Natura 2000 sites, through creating criminal offences and changing planning requirements.	Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna. The draft FAPP should ensure that European Sites are suitably protected from loss or damage. Appropriate Assessment is being undertaken for the draft FAPP, to ensure

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	See EU Habitats Directive.		that it implementation will not adversely affect SPAs and SACs.
Wildlife and Natural Environment Act (Northern Ireland) 2011	Amended the Wildlife (Northern Ireland) Order 1985 by giving protection to a wider range of plants, animals and birds, and providing additional enforcement powers and increased penalties for wildlife related offences. The Act also introduced a statutory duty on all public bodies to further the conservation of biodiversity.		The draft FAPP will have a 'Duty of Care' to conserve biodiversity. Environmental protection objectives of the Act are reflected in the SEOs for Biodiversity, Flora and Fauna.
The Environment (Northern Ireland) Order 2002	Covers several environmental issues, including pollution prevention control, assessment and management of air quality, and designation of areas of special scientific interest (ASSIs).		Environmental protection objectives of the Regulations are reflected in the SEOs for Biodiversity, Flora and Fauna, and for Air Quality.
DAERA Conservation Management Plans for SACs (in prep.)	Series of Management Plans for SACs in Northern Ireland, determining the pressures and threats to habitats and species at the sites, and identifying the management actions required to address these pressures.	In line with obligations under The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), measures must be put in place to maintain and, where needed, improve the ecological health of NI SACs (58 no.) In 2017, NIEA began a 4 year work programme to develop a series of Management Plans.	The draft FAPP should ensure that European Sites are suitably protected from loss or damage, with regard to the information provided in these Conservation Management Plans. Environmental protection objectives to protect European designated sites are reflected in the SEOs for Biodiversity, Flora and Fauna.
UK National Ecosystem Assessment (2011)	Provides a comprehensive overview of the state of the natural environment in the UK and a new way of estimating our national wealth. Northern Ireland covered in Chapter 18. The four key components are: 1. environmental spaces; 2. cultural practices; 3. cultural values; and		The draft FAPP should ensure that the natural environment is suitably protected from loss or damage in its implementation.

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	4. benefits need to be considered if CES are to be fully addressed in the ecosystem service framework		
Northern Ireland Species and Habitat Action Plans	Northern Ireland Species and Habitat Action Plans are published to assist delivery of the Northern Ireland Biodiversity Strategy, for the protection and enhancement of Northern Ireland Priority Species populations and areas of Priority Habitats which in turn supports Nature Recovery Networks and Green Growth Strategies.	A wide range of actions for these habitats and species continues to be undertaken, e.g. through the management of designated sites, planning regulation, agri-environment schemes and grant-aided projects, but have not been specifically designed to fully implement these action plans or any overarching Habitat and Species Action Plan.	Environmental protection objectives to protect European designated sites and species are reflected in the SEOs for Biodiversity, Flora and Fauna.
Fisheries Act 2020	Provides a framework for fisheries management for the UK following exit from the EU.q	The Act has the following eight fisheries objectives: 1. Sustainability – Fisheries are environmentally, economically and socially sustainable. 2. Precautionary – Stocks are harvested in a way that 'restores and maintains populations...above biomass levels capable of producing Maximum Sustainable Yield' 3. Ecosystem – An ecosystem-based approach to management is used, and bycatch of sensitive species is minimised and, where possible, eliminated. 4. Scientific Evidence – Data is collected and shared between authorities, and the best scientific advice is used to develop management measures. 5. Bycatch – By catch of undersized fish is minimised and avoided, catches are recorded and accounted for, and bycatch of commercial species is still landed but disincentivised. 6. Equal Access – British fishing boats have access to fish in all UK waters.	The draft FAPP should contribute towards the achievement of objectives in the Act.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		7. National Benefit- The fishing activities of UK boats bring economic and social benefits to UK communities. 8. Climate Change – The impacts of fisheries on climate change 9e.g. through emissions) is reduced, and fisheries are able to adapt to the effects of climate change (e.g. shifting stocks). The Act creates a legal requirement for the UK's our national fisheries policy authorities to produce a Joint Fisheries Statement (JFS), that will lay out how these objectives will be met.	
Fisheries Act (NI) 1966 as amended	The Fisheries Act 1966 makes provision for the development and improvement of fisheries in Northern Ireland, consolidating amendments to the previous Fisheries Acts (Northern Ireland) from 1842 to 1954	The Fisheries Act (Northern Ireland) 1966 was originally designed to extend the functions of the Ministry of Agriculture in relation to fisheries and to make provision for the development and improvement of fisheries by that Ministry.	The draft FAPP should contribute towards the achievement of objectives in the Act.
Convention for the Conservation of Salmon in the North Atlantic	This convention recognises that salmon originating in the rivers of different States intermingle in certain parts of the North Atlantic ocean.	The key objectives of the convention are the desire to promote the acquisition, analysis and dissemination of scientific information pertaining to salmon stocks in the North Atlantic Ocean and the desire to promote the conservation, restoration, enhancement and rational management of salmon stocks in the North Atlantic Ocean through international cooperation	The draft FAPP should contribute towards the achievement of the desires of the convention and the Articles therin.
Draft 3rd cycle River Basin Management Plans (RBMP) for the North Western, Neagh Bann and North Eastern River Basin Districts 2021-2027	Describes existing condition of waters in the River Basin Districts, the objectives for improving their condition and the measures to be used to deliver these improvements. • Establish a framework for the protection of water bodies at River Basin District (RBD) level.	• Aims to improve water quality and quantity within inland surface waters (rivers and lakes), transitional waters coastal waters and groundwater and meet the environmental objectives outlined in Article 4 of the Water Framework Directive;	The draft FAPP aims to contribute to protecting and enhancing water status in line with the WFD. Environmental Protection Objectives of the Plans are reflected in the SEO for Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
	• Preserve, prevent the deterioration of water status and where necessary improve and maintain "good status" of water bodies in that RBD. • Promote sustainable water usage.	• Identifies and manages water bodies in the RBD; • Establishes a programme of measures for monitoring and improving water quality in the RBD; • Involves the public through consultations; RBMPs are prepared and reviewed every six years. The most recent is the draft 3rd cycle RBMP, which runs from 2021-2027.	
Delivering Our Future, Valuing Our Soils: A Sustainable Agricultural Land Management Strategy (SALMS) For Northern Ireland 2016	The SALMS for Northern Ireland outlines how the ambitions to address the issue of agricultural ammonia and its impact on nature and sensitive environmental sites in Northern Ireland could be achieved in a way which improves farm incomes and environmental performance simultaneously.	The Strategy recommends the following first steps for implementation: • Building a detailed baseline of current productive and environmental performance (GPS soil sampling and analysis of all agricultural land; aerial LIDAR survey of NI; real-time water quality monitoring; establishment of a central database; online cloud-based decision support tool); • Improved soil health(appropriate application of lime to optimise pH; prioritising fields at low P levels for nutrient application; increase in slurries and manures applied using efficient methods; slurry/manure nutrient and biosecurity analysis; research into soil technologies e.g. potentiometers; capital support to separate P from slurries/manures); and • Establishment of a culture whereby farmers have the confidence to implement these sustainable land management practices.	Objectives of the Strategy have been taken into account in the draft FAPP. Environmental Protection Objectives of the Strategy are reflected in SEOs for Geology, Soils and Landuse, Water; Air Quality and Biodiversity, Flora and Fauna.
Soil Nutrient Health Scheme for Northern Ireland	This is a scheme for soil sampling and carbon analysis.	The scheme aims to build from the ground up, by putting an increased emphasis on improved soil nutrient health and farm carbon. It will be available to all farmers. It will provide farmers	Objectives of the Scheme have been taken into account in the draft FAPP.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		with detailed information on soil nutrient levels for every field on their farm, along with an estimate of the amount of carbon stored in their soils, hedgerows and trees.	Environmental Protection Objectives of the Scheme are reflected in SEOs for Geology, Soils and Landuse.
Northern Ireland's second Climate Change Adaptation Programme (NICCAP2) 2019 – 2024	The NICCAP2 contains the NICS Departments response to the risks and opportunities relevant to Northern Ireland, as identified in the UK Climate Change Risk Assessment 2017 (CCRA 2017). It sets out preparation for climate change impacts that are already happening, and puts in place plans for future impacts.	• NICCAP2 focusses on priority areas identified in the NI Evidence Report as requiring urgent adaptation action over the next 5 years: • Sets the strategies, policies and actions by which government departments will deliver on the agreed outcome objectives	The draft FAPP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives are reflected in SEOs for Climatic Factors and Geology, Soils and Landuse, particularly Natural Capital Outcome 2 of the Climate Change Adaptation Programme which is 'to have coastal communities, habitats, landforms and infrastructure that are resilient to the impacts of climate change'.
Northern Ireland Strategic Energy Framework (SEF) (2010)	The Strategic Energy Framework (SEF 2010) is the result of examining the drivers, strengths, opportunities and threats to Northern Ireland's energy landscape and attempting to balance many diverse social, environmental and economic issues alongside their associated risks.	The framework's four goals are to: • Build competitive markets; • Ensure security of supply; • Enhance sustainability; and • Develop energy infrastructure.	The draft FAPP should have regard for the environmental protection objectives of the Framework, which includes a contribution to reduced carbon emissions, in terms of cumulative emissions affecting air quality and climate.
(Northern Ireland) Sustainable Energy Action Plan, 2012-2015 and beyond (2012)	The Action Plan outlines the various initiatives being undertaken by the Northern Ireland Executive and includes a statement of leadership from the Executive, demonstrating a united and long-lasting commitment to sustainable energy. This Plan builds from the Strategy Energy Frameworks, 2010. • Building energy markets	The aim is underpinned by three strategic objects: • Reduce greenhouse gas emission from transport. • Protect biodiversity • Reduce water, noise and air pollution	The draft FAPP should have regard for the environmental protection objectives of the Plan, in terms of cumulative effects on air quality and climate, biodiversity and water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
	• Ensuring security supple • Enhancing sustainability and development of competitive energy markets • Increasing the level of electrify and heat from renewable sources		
UK Climate Change Act 2008	The Climate Change Act, the first of its kind in any country, set out a framework for moving the UK to a low-carbon economy.	The key component of the legislation requires a mandatory 60% cut in the UK's carbon emissions by 2050. Two key aims underpinning the Act: 1. Improve carbon management and help the transition towards a low carbon economy in the UK 2. Demonstrate strong UK leadership internationally, signalling that we are committed to taking our share of responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen in 2009.	The draft FAPP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives of the Act are reflected in the SEO for Climatic Factors.
The Climate Change Act 2008 (2050 Target Amendment) Order 2019	Sets a legal requirement to reduce the UK's emissions of GHGs by 100% relative to 1990 levels by 2050.	Legislative basis for achieving the 'net zero' target by 2050, increasing the previous target committed to within UK legislation.	The draft FAPP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives of the Act are reflected in the SEO for Climatic Factors.
UK Climate Change Risk Assessment (CCRA) Programme 2017	The UK Government is required, under the Climate Change Act, to publish a CCRA every 5 years, setting out the risks and opportunities facing the UK from climate change.	he first CCRA was published by the Department for Environment, Food and Rural Affairs (Defra) in 2012, second in 2017 and third in 2021. These assessments identify the risk and opportunities posed by climate change over the next 5 years. Evidence Reports feed into the UK National Adaptation Programme, and national	The draft FAPP aims to contribute towards climate change mitigation and resilience. Environmental Protection Objectives are reflected in SEOs for Climatic Factors and Geology, Soils and Landuse.

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		adaptation programmes of devolved administrations (i.e. the NICCAP2).	
The National Emissions Ceiling Regulations 2018	Implement in the UK Directive 2016/2284/EU relating to national emission ceilings for certain atmospheric pollutants.	The Regulations require: • Preparation of an annual inventory of emissions of certain pollutants occurring in the UK, and projections of such emissions; • Ensure from 2010-2019 that anthropogenic emissions of sulphur dioxide, nitrogen oxides, VOCs and ammonia occurring within the UK do not exceed specified amounts; • Ensure from 2020-2029 that anthropogenic emissions of sulphur dioxide, nitrogen oxides, VOCs, ammonia and fine particulate matter occurring within the UK do not exceed specified amounts, and from 2030 that they do not exceed additional specified amounts; • Ensure emissions in 2025 are following a linear reduction trajectory between 2020 and 2030 targets; • Preparation of a national air pollution control programme, to which public authorities must have regard; • Locate sites representative of specified ecosystems and habitats in order to monitor the negative impacts of air pollution.	The draft FAPP should have regard for the environmental protection objectives of the Regulations, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.
UK National Air Pollution Control Programme (NAPCP) 2019	Programme required under The National Emission Ceilings Regulations 2018. The NAPCP sets out how the UK can meet the legally binding 2020 and 2030 emission reduction commitments.	• Emission reduction commitments apply for 5 pollutants: nitrogen oxides, ammonia, non-methane VOCs, particulate matter and sulphur dioxide. • Policies and Measures (PaMs) are included for agriculture, including: Funding for low emission equipment; Regulation to reduce urea-based fertiliser emissions and	Measures proposed for the agriculture sector in the Programme have been incorporated into the draft FAPP. Environmental Protection Objectives are reflected in the SEOs for Geology, Soils and Landuse, Air Quality and Climatic factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		regulation to reduce emissions from fertiliser use; Requiring covers on slurry & digestate, stores and requiring spreading by trailing hose, trailing shoe or injection; Incorporation of manures within 12 hours; Mandatory standards for livestock housing; Environmental permitting for dairy & intensive beef units.	
Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007	The Air Quality Strategy sets out air quality objectives and policy options to improve air quality in the UK from current to long term. As well as direct benefits to human health, these options are intended to provide important benefits to quality of life and to help protect the environment.	The Strategy sets out the UK Government and devolved administrations' air quality objective and the measures selected to achieve desired improvements in air quality. The overall aim is a steady decrease in ambient levels of pollutants towards the objectives over the period of implementation. These objectives are a statement of policy intentions or targets and are not legally binding in themselves. The main sources, hazards and strategy's objectives are provided for the following pollutants: particulate matter, oxides of nitrogen, ozone, sulphur dioxide, polycyclic aromatic hydrocarbons, benzene, 1,3-butadiene, carbon monoxide, lead and ammonia.	The draft FAPP should have regard for the environmental protection objectives of the Strategy, particularly those relating to nitrogen oxides and ammonia. These environmental protection objectives are reflected in the SEOs for Air Quality and Climatic Factors.
Air Quality Standards Regulations (Northern Ireland) 2010, and amendments (2017)	Transpose the EU Air Quality Directives and place a duty on the NI government departments to monitor levels of air pollutants specified in the Air Quality Directives and ensure compliance with limit values for these pollutants.	Designate zones in which ambient air will be protected by limiting the concentration of pollutants within them.	The draft FAPP should have regard for the environmental protection objectives of the Regulations, particularly those relating to nitrogen oxides and cumulative effects of pollutants on air quality. Environmental protection objectives are reflected in the SEO for Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013, and amendments up to 2018	Transpose Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control).	The Regulations revoked 18 sets of previous regulations relating to industrial emissions and consolidated all the provisions f the Industrial Emissions Directive into a single set of regulations. They control the operation of any installation or mobile plant that carries out activities listed in Part 1 of Schedule 1 to the Regulations.	The draft FAPP should have regard for the environmental protection objectives of the Regulations, which includes protection from emissions from certain agricultural installations, in terms of cumulative emissions affecting air quality.
Clean Air Strategy for Northern Ireland – A Public Discussion Document, 2020	Discussion document in advance of developing the first Clean Air Strategy for Northern Ireland.	Presents evidence and research on a range of ambient air pollutants and outline policy and legislation currently in place to control air pollution.	The draft FAPP should have regard for Environmental Protection Objectives of this Strategy.
Making Ammonia Visible (Annex to the SALMS for NI) 2017	Aim is to satisfy the joint need of bringing ammonia emissions from agriculture down to a level that lets the agricultural sector expand and deliver, while allowing Priority Habitats to recover.	Provides recommendations for the medium to long term, and recommends 6 guiding principles and approaches to alleviate acute pressure in the short term, which DAEREA should apply in considering applications for development.	The draft FAPP should have regard for the environmental protection objectives of the report. Environmental Protection Objectives are reflected in the SEO for Air.
Environmental Farming Cuts Greenhouse Gases Implementation Plan 2016-2020	Plan for the agriculture and forestry sector to reduce GHG emissions.	Focus on supporting the implementation of on-farm efficiency measures designed to reduce the carbon intensity of food products, while simultaneously improving productivity and profitability. Priority on-farm actions are founded in the key themes identified in Phase 1: • Better Nutrient Management; • Better livestock management; • Improving land and carbon management; and • Increasing energy efficiency.	The draft FAPP should have regard for the environmental protection objectives of the report. Environmental Protection Objectives are reflected in the SEOs for Geology, Soils and Landuse; and Climatic Factors.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
Northern Ireland Greenhouse Gas Inventory 1990-2018 statistical bulletin	This statistical bulletin is updated annually and outlines key NI figures from the GHG Inventories for England, Scotland, Wales and Northern Ireland.		Provides environmental baseline information on which the draft FAPP could have impacts upon.
Draft Ammonia Strategy for Northern Ireland (in development)	DAERA has been developing a comprehensive draft Ammonia Strategy for consultation, with publication expected soon.	The draft Ammonia Strategy consultation sets targets for 2030 and beyond for ammonia reduction, and proposes three pillars as part of a strategic approach to addressing ammonia: • An ambitious and verifiable ammonia reduction programme for implementation on farms; • A programme of restoration and management of our most valuable habitats to alleviate the symptoms of ammonia and nitrogen exceedance; and • A revised Operational Protocol for the assessment of impacts from atmospheric nitrogen pollution.	The draft FAPP is being developed in alignment with the draft Ammonia Strategy. Environmental Protection Objectives are reflected in the SEO for Air.
Northern Ireland State of the Environment Report 2013	The second report on the State of the Environment in Northern Ireland brings together recent information on how the NI environment is performing across land, water, sea and air.	Updates the first state of the environment report and provides commentary on 44 environmental indicators across 8 themes. The report draws together in one place an overall picture of our environment and identifies cross-cutting issues.	Provides environmental baseline information on which the draft FAPP could have impacts upon.
Environment Strategy for Northern Ireland 2019 (in development)	A NI Environment Strategy is required to form the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment.		The draft FAPP should have regard for this Strategy.
Rural Development Programme for Northern Ireland 2014-2020 &	The Northern Ireland Rural Development Programme (NIRDP) is supported through Pillar 2 of the EU Common Agricultural Policy (CAP), focussed on improving the structural and	The NIRDP has 3 objectives for the development of NI rural areas: • Competitiveness;	The draft FAPP represents the future agricultural policy for Northern Ireland following EU exit.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
Annual Implementation Report 2019	environmental performance of agriculture and promoting local/rural development.	• Environment; and • Development of rural areas. The NIRDP includes associated agri-environmental schemes: Environmental Farming Schemes (EFS), Areas of Natural Constraint (ANC) and Forestry Schemes. The Annual Implementation Report outlines progress that has been made towards each of these objectives.	Existing environmental protection objectives associated with the RDP have been considered during development of the draft FAPP. Environmental Protection Objectives are reflected in SEOs for Geology, Soils and Landuse; and Material Assets.
Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004	Implements the SEA Directive (2001/42/EC) in Northern Ireland. To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	See SEA Directive.	The draft FAPP will be subject to the SEA process. This is being undertaken through this Scoping Report and subsequent Environmental Report.
Food Wise 2025 (Republic of Ireland strategy)	Food Wise is sets out the strategic plan for the development of the Republic of Ireland's agri-food sector over the next decade.	Growth projections include increasing the value added in the agri-food, fisheries and wood products sector by 70% to in excess of €13 billion. Sustainable production at its core setting out a range of specific recommendations aimed at managing the projected growth in a sustainable way. There is a strong commitment to the measurement and monitoring of the sustainability credentials of the sector as the strategy rolls out.	The draft FAPP should have regard for the environmental protection objectives included in the Strategy.
Northern Ireland Executive Programme for Government 2016-2021	The Programme for Government identifies the actions the Executive stated purpose – Improve wellbeing for all – by tackling disadvantage, and driving economic growth.	List of Programme for Government Outcomes • We prosper through a strong, competitive, regionally balanced economy.	The draft FAPP will have regard to this programme and will (in combination with other users and bodies) cumulatively contribute towards the achievement of the objectives of this programme.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• We live and work sustainably - protecting the environment. • We have a more equal society. • We enjoy long, healthy, active lives. • We are an innovative, creative society where people can fulfil their potential. • We have more people working in better jobs. • We have a safe community where we respect the law and each other. • We care for others and we help those in need. • We are a shared, welcoming and confident society that respects diversity. • We have created a place where people want to live and work, to visit and invest. • We connect people and opportunities through our infrastructure. We give our children and young people the best start in life.	
Draft Northern Ireland Executive Programme for Government 2021	The Northern Ireland Executive is currently developing a new strategic, outcomes-based Programme for Government. Two of the key outcomes in the draft PfG that are most relevant to agricultural policy are: 'an economy that is globally competitive, regionally balanced and carbon neutral'; and 'that we live and work sustainably – protecting the environment'.	Key priority areas have been identified as: • Providing the tools under a future agricultural policy to increase productivity, enhance environmental sustainability, improve resilience and supply chain integration of the agri-food industry; and • Protecting and enhancing biodiversity and the natural environment, supporting sustainable practices and resource use in the energy, agri-food, fishing and forestry sectors and ensuring human, animal and plant health.	The draft FAPP will have regard to this programme and will (in combination with other users and bodies) cumulatively contribute towards the achievement of the objectives of this programme.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
Strategic Planning Policy Statement for Northern Ireland 2015	This planning policy sets out the Department's regional planning policies for securing the orderly and consistent development of land in Northern Ireland under the reformed two-tier planning system. The provisions of the SPPS must be taken into account in the preparation of Local Development Plans, and are also material to all decisions on individual planning applications and appeals.	There are two new Core Planning Principles included in the SPPS: • Supporting Sustainable Economic Growth, and • 'Preserving and Improving the Built and Natural Environment	The draft FAPP will have consideration for these planning policies.
The Regional Development Strategy 2035 – Shaping Our Future - Updates the Regional Development Strategy for Northern Ireland 2025	The strategy aims to take account of the economic ambitions and needs of the Region, and put in place spatial planning, transport and housing priorities that will support and enable the aspirations of the Region to be met.	The over-arching vision of the Regional Development Strategy is: "An outward-looking, dynamic and liveable Region with a strong sense of its place in the wider world; a Region of opportunity where people enjoy living and working in a healthy environment which embraces the quality of their lives and where diversity is a source of strength rather than division. " The aims of the RDS 2025 remain valid: • Support strong, sustainable growth for the benefit of all parts of Northern Ireland • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West • Support our towns, villages and rural communities to maximise their potential • Promote development which improves the health and well-being of communities • Improve connectivity to enhance the movement of people, goods, energy and information between places • Protect and enhance the environment	The draft FAPP will consider landuse changes and spatial planning impacts.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• Take actions to reduce our carbon footprint and facilitate adaptation to climate change Strengthen links between north and south, east and west, with Europe and the rest of the world	
UK Sustainable Development Strategy, Agenda 21	The strategy aims to take account of the economic ambitions and needs of the Region, and put in place spatial planning, transport and housing priorities that will support and enable the aspirations of the Region to be met.	The over-arching vision of the Regional Development Strategy is: "An outward-looking, dynamic and liveable Region with a strong sense of its place in the wider world; a Region of opportunity where people enjoy living and working in a healthy environment which embraces the quality of their lives and where diversity is a source of strength rather than division. " The aims of the RDS 2025 remain valid: • Support strong, sustainable growth for the benefit of all parts of Northern Ireland • Strengthen Belfast as the regional economic driver and Londonderry as the principal city of the North West • Support our towns, villages and rural communities to maximise their potential • Promote development which improves the health and well-being of communities • Improve connectivity to enhance the movement of people, goods, energy and information between places • Protect and enhance the environment • Take actions to reduce our carbon footprint and facilitate adaptation to climate change	The draft FAPP should have regard for the environmental protection objectives of the Strategy.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• Strengthen links between north and south, east and west, with Europe and the rest of the world.	
10X Economy – An Economic Vision	In May 2021, the Department for the Economy launched its economic vision for the next 10 years, called 10x Economy - an economic vision for a decade of innovation.	The concept embraces innovation to deliver a ten times (10X) better economy with benefits for all the people of Northern Ireland. Ten guiding principles have been identified to underpin this vision and a number of these are central to agriculture, such as delivering positive economic, environmental and societal outcomes; supporting a greener, sustainable economy; position Northern Ireland amongst the most competitive small advanced economies in the world; and focussing on increasing innovation in high value-added areas and priority clusters. "*Agri-Tech"* has been identified as one of the priority sectors.	The draft FAPP should have regard for the environmental protection objectives of the vision.
Sustainability for the Future – 'DAERA's Plan to 2050'	Sustainability for the Future, published in May 2021, presents DAERA's strategic priorities up to 2050.	The Plan outlines the following strategic priorities: • To enhance our food, forestry, fishery and farming sectors using efficient and environmentally sustainable models which support economic growth; • To protect and enhance our natural environment now and for future generations whilst advocating its value to and wellbeing for all; • To champion thriving rural communities that contribute to prosperity and wellbeing; and • To be an exemplar, people focused organisation, committed to making a difference for the people we serve.	Future agricultural policy has a significant role in delivering against these priorities and is underpinned by our purpose of '*Sustainability at the heart of a living, working, active landscape valued by everyone'*. The draft FAPP will have regard for the Environmental Protection Objectives of the Plan.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
Draft Green Growth Strategy for Northern Ireland	Green Growth is an over-arching multi-decade Strategy, led by DAERA, which sets out the long-term vision and a solid framework for tackling the climate crisis by balancing climate action with the need for a clean, resilient environment and economy. It has been developed by all Ministers and Government departments working together, in collaboration with external stakeholders from local government, the private sector, voluntary and community sectors and others.	The cross-cutting strategy will be delivered through a series of Climate Action Plans, which will set out the actions to meet sector-specific greenhouse gas emission targets to deliver a cleaner environment rich in biodiversity; delivering a more efficient use of resources within a circular economy; and green jobs.	The draft FAPP has been developed as a Foundation Programme under the umbrella of the draft Green Growth Strategy for Northern Ireland. Successful implementation of the draft FAPP will contribute towards the achievement of Environmental Protection Objectives of the Strategy.
Draft Northern Ireland Food Strategy Framework	DAERA has been leading on the development of a Northern Ireland Food Strategy Framework. This Framework has been developed collaboratively with officials across Northern Ireland Departments and other interested parties and is complementary to the Agricultural Policy Framework, extending issues relating to food production and consumption out into other areas of government policy.	The draft Food Strategy Framework recognises the interconnectedness between food, health, the economy and the environment. It proposes a new strategic food systems approach for Northern Ireland, and sets out a long-term vision, high level principles and areas for strategic focus. The vision is a transformed food system that protects natural resources for future generations, is economically and environmentally sustainable and provides safe, nourishing, accessible food to people, who make informed healthy choices.	The draft NI Food Strategy is complementary to the draft FAPP
Draft Environment Strategy for Northern Ireland (in development)	The Environment Strategy will set out Northern Ireland's environmental priorities for the coming decades and will form part of the Executive's Green Growth Delivery Framework. It will be used to form the basis for a coherent and effective set of interventions that can deliver real improvements in the quality of the environment.		The draft FAPP has been developed as a Foundation Programme under the umbrella of the draft Green Growth Strategy for Northern Ireland. Successful implementation of the draft FAPP will contribute towards the achievement of Environmental Protection Objectives of the Strategy.
Draft Rural Policy Framework for Northern Ireland	The overall aim of the policy framework is to create a sustainable rural community where people want to live, work and be active.	The framework comprises five key thematic pillars, and nineteen associated priority interventions. The thematic pillars are: • Innovation and entrepreneurship;	Successful implementation of the draft FAPP will contribute towards the achievement of the objectives of the framework.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• Sustainable tourism; • Health and wellbeing; • Employment; and • Connectivity	
Northern Ireland Energy Strategy 2050	In June 2019 the UK became the first major economy to commit to a 100 per cent reduction in greenhouse gas emissions by 2050. This 'net zero' target represents a significant step-change in the commitment to addressing the climate crisis. This Northern Ireland Energy strategy 2050 will seek to meet this commitment.	The Department for the Economy has begun the process of developing a new energy strategy to decarbonise the Northern Ireland energy sector by 2050 at least cost to the consumer. A new energy strategy will be published by the end of 2021.	Successful implementation of the draft FAPP will contribute towards the achievement of greenhouse gas emission targets of the Strategy.
Draft Northern Ireland Peatland Strategy 2021-2040	The strategy outlines a range of strategic objections and actions considered necessary to ensure that semi-natural peatlands are conserved and restored to functioning ecosystems.	The objectives of the Northern Ireland Peatland Strategy 2021-2040 include: • By 2040, all peatlands supporting semi-natural vegetation being managed for their peatland biodiversity and ecosystem function; • By 2030, degraded peatland habitats prioritised for restoration to favourable conservation status; • By 2040, all high priority degraded peatlands under restoration management; and also by 2040, that high priority degraded peatlands in Northern Ireland are under sustainable management.	Successful implementation of the draft FAPP will contribute towards the achievement of Environmental Protection Objectives of the Strategy.
DAERA Science Strategy Framework 2020-2035	The Framework will guide how DAERA can optimise its use of science to help deliver Departmental and Programme for Government objectives, as part of the Science Transformation Programme.	The Framework: • Outlines a Vision for DAERA science; • Defines high level principles to be adopted; • Describes the desired end-state goals to be achieved in terms of providing leadership, understanding needs,	The Science Strategy Framework will support the policies of the draft FAPP.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		optimising investment in resources and having effective governance. It then defines objectives to reach the goals in terms of: • Providing better leadership for science; • Becoming more intelligent customers of science; • Better targeting of science funding; • Pursuing value for money; and • Ensuring impact of science products.	
Climate Change (No.1) Bill	The Bill sets down in legislation the net-zero carbon target for Northern Ireland.	The purpose of the Bill is: • To enable the mitigation of the impact of climate change in Northern Ireland; • Establish a legally binding net-zero carbon target for Northern Ireland; • Provide for the establishment and powers of the Northern Ireland Climate Commissioner and Northern Ireland Climate Office; • Guarantee existing environmental and climate protections; and • For connected purposes.	Successful implementation of the draft FAPP will contribute towards the achievement of the net-zero carbon target of the Bill.
Climate Change (No.2) Bill	The Bill sets down in legislation the carbon targets for Northern Ireland.	The purpose of the Bill is: • To set targets for the years 2050, 2040 and 2030 for the reduction of GHG emissions; • To provide for reporting and statements against those targets and budgets;	Successful implementation of the draft FAPP will contribute towards the achievement of the carbon targets of the Bill.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• To confer power to impose climate change reporting duties on public bodies; • To provide for reports and advice from the Committee on Climate Change; and • For connected purposes.	
Nutrient Action Programme Regulations (Northern Ireland) 2019 and Nutrients Action Programme 2019-2022	The Nutrients Action Programme (NAP), and implementing Regulations aims to provide protection of water quality from pollution by agricultural sources.	The Nitrates Action Programme includes: • A limit on the quantity of livestock manure to be applied to agricultural land annually; • Set periods during which land spreading was prohibited owing to pollution risk; and • Set capacity levels for livestock manure storage. Modifications were made to the most recent (2019) NAP Regulations were added to address the following: • Water Protection; • Phosphorus Reduction and Efficiency; • Nitrogen Efficiency; • Slurry and Manure Storage; and • Controls on the use of Anaerobic Digestate.	The draft FAPP will have regard for the Environmental Protection Objectives of the NAP. These are reflected in the SEOs for Geology, Soils and Landuse; and Water.
Water Environment (Floods Directive) Regulations (Northern Ireland) 2009, and amendment Regulations 2018	Implement EU Floods Directive 2007/60/EC on the risk and management of flood risk in Northern Ireland.	Main purpose is to establish a framework for the assessment of adverse consequences of flooding on human health, the environment, cultural heritage and economic activity.	The draft FAPP should have regard for the environmental protection objectives of these Regulations, in terms of cumulative effects on surface water bodies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017	Transpose the Water Framework Directive (2000/60/EC) into NI legislation.	• Place a responsibility on NI to try to ensure that all inland and coastal waters reach at least "good status" (or good ecological potential for artificial or heavily modified water bodies); • Implementation of management planning at river basin level, to achieve this target, linking with other key policy areas such as agriculture, land use, biodiversity, tourism and flood protection through a river basin management plan (RBMP). This sets out a programme of measures to be implemented over 6-year cycles aimed at improving water body status.	Successful implementation of the draft FAPP is a crucial measure contributing to the environmental protection objectives required by the WFD. Environmental protection objectives of the Directive are reflected in the SEOs for Water; Biodiversity, Flora and Fauna; and Population and Human Health.
Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015	Transpose Directive 2013/39/EU which revised environmental standards for some priority substances and added a further twelve additional substances to the list of priority substances introduced by the original Priority Substances Directive (2008/105/EC). Consolidate all the current legislation which set out the Water Framework Classification Schemes.	• Consolidate all the current legislation which set out the Water Framework Classification Schemes. • Sets environmental quality standards for priority substances. • Outlines standards required for Shellfish waters.	The draft FAPP should have regard for the environmental protection objectives of these Regulations for priority substances, in terms of cumulative effects on surface water bodies. Environmental protection objectives are reflected in SEOs for Biodiversity, Flora and Fauna; Population and Human Health; and Water.
The Quality of Bathing Water Regulations (Northern Ireland) 2008	These Regulations set quality standards for bathing water.	• Require regular testing of bathing waters, to ensure that they are of high enough quality for the general public to bathe in; • Require a Profile to be prepared for each designated bathing water site, giving detailed information on the physical characteristics and assessing the pollution risk to each site • Set quality standards for a number of issues, the most important of which relate to coliform and streptococcal groups of bacteria, which	The draft FAPP should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEO for Population and Human Health.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		can indicate the mount of sewage or other faecal contaminants present.	
Drainage (Environmental Impact Assessment) Regulations (Northern Ireland) 2017	Implement Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, in respect of drainage schemes and drainage works.		The draft FAPP should have regard for the environmental protection objectives of these Regulations, in terms of cumulative effects on surface water bodies.
Water Resources (Environmental Impact Assessment) Regulations 2017	Revoke and replace the Water Resources (EIA) Regulations (NI) 2005 and provide (in relation to relevant water management projects for agriculture in Northern Ireland) for the assessment of the effects of such projects on the environment. They impose procedural requirements in relation to the consideration of applications or proposals for consent for a relevant project.		The draft FAPP should have regard for the environmental protection objectives of these Regulations relating to certain water management projects for agriculture, in terms of cumulative effects on surface water bodies.
Private Water Supplies Regulations (Northern Ireland) 2017	Protection from contamination of water used for human consumption.	Aim to protect human health from the adverse effects of any contamination of water intended for human consumption from private supplies by ensuring that the water meets water quality standards and revoke and replace the 2009 Regulations (as amended).	The draft FAPP should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEOs for Population and Human Health; and Water.
Water Supply (Water Quality) Regulations (Northern Ireland) 2017	Protection from contamination of water used for human consumption.	Aim to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that the water meets water quality standards within the public water supply and revoke and replace the 2007 regulations (as amended).	The draft FAPP should have regard for the environmental protection objectives of these Regulations. Environmental protection objectives are reflected in SEOs for Population and Human Health; and Water.
Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (NI) 2003	Reduction of water pollution from agricultural activities.	Establishes construction and storage standards for silage making and storage, slurry	The draft FAPP should have regard for the environmental protection objectives of these Regulations.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		storage systems and agricultural fuel oil stores, with aim of reducing water pollution.	Environmental protection objectives are reflected in SEO for Water.
Environmental Liability (Prevention and Remediation) Regulations 2009 and amendment	Implement the Environmental Liability Directive (2004/35/EC) in Northern Ireland.	• Brings into force rules to force polluters to prevent and repair damage to water systems, land quality, species and their habitats and protected sites. • The polluter does not have to be prosecuted first, so remedying the damage should be faster.	The draft FAPP will be obliged to comply with the requirements of the Directive and to prevent environmental damage. Policy proposals outlined in the draft APP should aim to cause no damage and to enhance the wider environment.
Groundwater Regulations (Northern Ireland) 2009 and amendments	Protection of groundwater from pollution.	Introduces classification systems in line with EU developments, makes it an offence to discharge listed substances without an authorisation, controls issuing and reviewing authorisations and consents. Covers enforcement, codes of practice and penalties.	Environmental protection objectives of the Directive are reflected in the SEO for Water.
Pollution Control and Local Government (Northern Ireland) Order 1978		Regulates waste on land, abandoned vehicles, noise nuisance, noise abatement zones, sulphur content of oil fuel used in furnaces and engines, cable burning, and pollution of the atmosphere and water. Other aspects have been revoked.	The draft FAPP should have regard for the environmental protection objectives of this Order, in terms of cumulative effects on surface water bodies and air quality.
Protection of Water Against Agricultural Nitrate Pollution (Northern Ireland) Regulations 2004	Implement the requirement of the Nitrates Directive (91/676/EEC) to formulate an “Action Programme”, for the protection of water from nitrate pollution from agricultural activities.	Establishes that an Action Programme must be established and applied throughout the territory of Northern Ireland.	These Regulations establish the requirement for the NAP for Northern Ireland. The draft FAPP will have regard for the Environmental Protection Objectives of the NAP. These are reflected in the SEOs for Geology, Soils and Landuse; and Water.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990	Bans the use of sewage sludge from treatment plants in agriculture, unless certain requirements are met including specified pH levels, no fruit or vegetable harvesting and no soil and groundwater pollution.		Environmental protection objectives of the Regulations are reflected in the SEOs for Geology, Soils and Landuse and Water.
Urban Waste Water Treatment Regulations (Northern Ireland) 2007	Implements the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) in Northern Ireland, designed to reduce the pollution of freshwater, estuarine and coastal waters by domestic sewage and industrial wastewater.	Revokes and replaces the Urban Waste Water Treatment Regulations (Northern Ireland) 1995, to reflect new arrangements for sewerage services set out in the Water and Sewerage Services (Northern Ireland) Order 2006.	The draft FAPP should have regard for the environmental protection objectives of the Regulations, in terms of cumulative effects on surface water bodies
Waste and Contaminated Land (Northern Ireland) Order 1997 (including updates)	Sets out the waste management regime covering waste carrier registration and identifying and remedying contaminated land.		The draft FAPP should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on soils and surface water bodies.
Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 and amendment Regulations 2007	Sets out a control regime for regulating the abstraction of water from underground strata and waterways and for constructing, altering or operating impounding works.		The draft FAPP should have regard for the environmental protection objectives of the Regulations, in terms of cumulative effects on surface water bodies.
Water (Northern Ireland) Order 1999 (including amendments up to 2004)	Revokes and replaces the Water Act (Northern Ireland) 1972 and makes provision for discharge consents. Enables the DoE to set water quality objectives and prevent pollution from anti-pollution works.		The draft FAPP should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on surface water bodies.
Water and Sewerage Services (Northern Ireland) Order 2006	Establishes government-owned companies' obligations for water supply, drinking water quality, trade effluent and sewage disposal, water and sewerage charges and customer service.		The draft FAPP should have regard for the environmental protection objectives of the Order, in terms of cumulative effects on surface water bodies and quality of drinking water supplies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
NI Water Our Strategy 2021-2046	Strategy for the provision of a high quality water supply. The Strategy covers a longer term view over a quarter of a century (2021-2046).	The Strategy centres around 5 strategic priorities: • Customer – delivering an exceptional customer experience; • Water – delivering great tasting, clean and safe water to meet customer need; • Economy – efficiently delivering infrastructure to underpin sustainable growth; • Nature – protecting and enhancing the natural environment; and • People – providing a great place to work.	The draft FAPP should have regard for the environmental protection objectives of the Strategy, in terms of cumulative effects on surface water bodies and quality of drinking water supplies.
NI Flood Risk Management Plan, 2021-2027	The NI Flood Risk Management Plan (FRMP) is a key requirement of the Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) and is aimed at reducing the potential adverse consequences of significant floods on human health, economic activity, cultural heritage and the environment.	The objectives set, in relation to each area of impact are: Economic Activity • To reduce the cost of potential future flood damages to properties and infrastructure; • To reduce the economic costs caused by disruption to essential infrastructure and services; and, • To optimise the economic return on flood risk management investment. Human Health and Social • To reduce the risk to life, health and wellbeing. • To increase awareness and understanding of flooding and its adverse consequences and improve community resilience.	The draft FAPP should have regard for the environmental protection objectives of the Plan, in terms of cumulative effects on surface water bodies.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
		• To reduce the impact on people caused by the disruption to essential infrastructure and services. • To improve recreation and public amenities. Environmental • To consider the impact of Climate Change across all areas of impact; • To support the objectives of the Water Framework Directive and contribute to the achievement of good ecological potential/status for water bodies; To protect and enhance the natural environment.	
Marine and Coastal Access Act 2009 / Marine Act (NI) 2013	New Marine Licensing legislation came into operation in Northern Ireland on the 6th April 2011. It replaced licensing under the Food and Environment Protection Act 1985 (FEPA). The purpose of this licensing system is to aid industry and encourage investment by enabling more strategic decisions to be made about what activities are permissible in the marine environment. The overall objective of marine licensing is to regulate sustainable development in a cohesive and fair manner. The Marine Act sets out a new framework for Northern Ireland's seas based on: a system of marine planning that will balance conservation, energy and resource needs; improved management for marine nature conservation and the streamlining of marine licensing for some electricity projects.	The key features of the new system include • The definition of marine licensable activities; • exempt activities; • fees and charges; • implementation of measures for sanctioning and enforcement; and] • making appeals against licensing decisions, statutory notices and monetary penalties. The Marine Act enables DAERA to prepare a marine plan for the inshore region and to designate areas as Marine Conservation Zones (MCZ).	The draft FAPP should consider the implications of these Acts with policy proposals that may impact on coastal and marine areas.

Plan / Programme	High Level Description	Key Objectives, Actions etc.	Relevance to the draft FAPP
UK Marine Policy Statement 2011	The Marine Policy Statement (MPS) is the framework for preparing Marine Plans and taking decisions affecting the marine environment.	• Achieve integration between different objectives; • Recognise that the demand for use of our seas and the resulting pressures on them will continue to increase; • Manage competing demands on the marine area, taking an ecosystem-based approach; • Enable the co-existence of compatible activities wherever possible; and • Integrate with terrestrial planning.	The draft FAPP will have to consider the policies of the MPS in the strategic planning for agricultural policies. The MPS includes a number of high level principles for decision making that should be taken into account, particularly in relation to those impacts associated with Section 2.6.7 Climate change adaptation and mitigation and Section 2.6.8 Coastal change and flooding.
Draft Marine Plan for Northern Ireland 2018	The Marine Plan for Northern Ireland will inform and guide the regulation, management, use and protection of our marine area. It is a single document made up of two plans, one for the inshore region and one for the offshore region. All public authorities are responsible for implementing the Plan through existing regulatory and decision-making processes. As well as public authorities, all applicants, third parties and advisors should also consider the Plan.	The Marine Plan will be used by Public Authorities in taking decisions which affect or might affect the marine area, including: • Authorisation or enforcement decisions Decisions that relate to the exercise of any function capable of affecting the marine area.	The draft FAPP will have to consider the policies of the Marine Plan in the strategic planning for agricultural policies. Proposals should conform with all relevant policies, taking account of economic, environmental and social considerations. In particular, policies which should be considered as part of the draft FAPP include: core policy on climate change; and the core policy on coastal process.
Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026	The Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026 is based around 4 broad themes, consistent with the principles of sustainable development.	• The Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026 is intended to set out long-term objectives for achieving sustainable coastal management, through improvements to existing management systems, the development of new management systems and identifying and dealing with potential areas of conflict.	The draft FAPP will have to consider these strategies, with particular relevant to priority 2: safeguarding and improving the environment within the coastal zone and priority 4: integration of planning effort.
Northern Ireland Waste Management Strategy, 2012	The Waste Management Strategy sets out in detail those proposed policies, including specific actions to be taken. Strategy development is a	The proposals of this Strategy are as follows:	The draft FAPP should have regard for the environmental protection objectives

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	continuous process and the Waste Management Strategy for Northern Ireland is considered as a living document, requiring regular review and revision to ensure that it remains relevant and the policies and actions therein remain appropriate.	• The development of a Waste Prevention Programme; • A new 60% recycling target for local authority collected municipal waste (LACMW); • The introduction of a statutory requirement on waste operators to provide specified data on commercial and industrial waste; • New and more challenging collection and recycling targets for packaging and WEEE; • The introduction of a landfill restriction on food waste; • The potential for the devolution of landfill tax; • The implementation of legislation on carrier bags; The development of detailed proposals for an Environmental Better Regulation Bill.	of the Strategy, with regard to waste arising from agriculture.
Waste Management Plan 2013 – 2020	The Waste Management Plan 2013-2020 outlines how it will efficiently manage waste for the Councils it represents with the overall goal of creating a system that 'meets the region's needs and contributes towards economic and sustainable development'. Subject to review every five years the Plan details how NI will fulfil its statutory obligations under the EU Waste Framework Directive and The Waste and Contaminated Land (Northern Ireland) Order 1997.	The Action Plan proposes to: • Deliver a communications campaign to build public awareness, understanding of and confidence in recycling. • Undertake a Recycling Gap study to identify kerbside recycling options. • Provide £2.5m to the Rethink Waste Capital fund in 2016/17 with further government support planned for successive years. • Support the development of strategic infrastructure for treating and recovering waste; and • support separate treatment of food waste	The draft FAPP should have regard for the environmental protection objectives of the Plan, with regard to waste arising from agriculture.

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Historic Monuments and Archaeological Objects (NI) Order 1995	The Order allows for Monuments to be protected by taking them into State Care, or by Scheduling, and also places restrictions on searching for archaeological material	The purpose of designation is to ensure that policies are created and action taken to: • Conserve or enhance the natural beauty or amenities of that area; • Conserve wildlife, historic objects or natural phenomena within it; • Promote its enjoyment by the public; and • Provide or maintain public access to it.	Environmental Protection Objectives of the Order are reflected in the SEO for Cultural Heritage.
Nature conservation and Amenity Lands Order(NI 1985	Provides for designation of the finest landscape areas as either Areas of Outstanding Natural Beauty (AONB) or National Parks land, and takes steps to manage them for both conservation and recreation.		Environmental Protection Objectives of the Plans are reflected in the SEOs for Biodiversity, Flora and Fauna; and Landscape and Visual Amenity.
Regional			
Local Biodiversity Action Plans (LBAPs)	Local Biodiversity Action Plans are a way of encouraging people to work together and deliver a programme of continuing action for biodiversity at a local level. They set out practical steps that aim to help protect biodiversity, enhance and improve biodiversity where possible, and promote biodiversity at a local level.		The draft FAPP will have regard for these local plans. SEOs for Biodiversity, Flora and Fauna should contribute towards the Environmental Protection Objectives of LBAPs.
County Development Plans and Local Development Plans	Development Plans set out how an area should look in the future by deciding the type and scale of development and where building should be allowed. Each Council must prepare a development plan for their area in consultation with the local community.	When preparing a development plan the council should consider • The council's Community Plan, a long-term vision for the social, environmental and economic well-being of the area and its citizens; • The council's Statement of Community Involvement (SCI) which sets out who, how,	The draft FAPP will have regard for these plans, and reflect the general Environmental Protection Objectives in SEOs for Biodiversity, Flora and Fauna; and Water.

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		where and when consultation and policy making is to take place; • The RDS 2035, as the spatial strategy for NI; • Planning Policy and guidance; and • A sustainability appraisal prepared by the council so that economic and social factors are considered alongside environmental factors when developing the plan.	
Living With Water in Belfast 2020	An integrated plan for drainage and wastewater management for the Greater Belfast area.	• Aims to deliver a new, strategic, long-term approach to drainage and wastewater management to protect from flooding, provide a cleaner and greener environment and support growth of the Greater Belfast area.	Environmental Protection Objectives of the Plan are reflected in the SEO for Water.