



FOOD WISE 2025

Strategic Environmental Assessment
Environmental Report

FOOD WISE 2025

Strategic Environmental Assessment Environmental Report

Prepared on behalf of

The Department of Agriculture, Food and the Marine

This report has been prepared by Philip Farrelly & Co Limited with all reasonable skill, care and diligence within the terms of the Contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility to whatsoever third parties to whom this report, or part thereof, is made known. Any such party relies on the report at their own risk.

November 2015

Philip Farrelly & Co Limited

Unit 5A, Fingal Bay Business Park, Balbriggan, Co. Dublin

Contents

List of Figures	7
List of Tables	7
Acronyms/Abbreviations	9
1 Introduction	11
1.1 Introduction	11
1.2 The Plan.....	11
1.3 Scope of <i>Food Wise 2025</i>	12
1.3.1 Geographical	12
1.3.2 Sectors Covered	13
1.4 Objectives of <i>Food Wise 2025</i>	15
1.4.1 Dairy	16
1.4.2 Beef	16
1.4.3 Sheep.....	16
1.4.4 Pigmeat	17
1.4.5 Poultry.....	17
1.4.6 Tillage	17
1.4.7 Horticulture.....	17
1.4.8 Prepared Consumers Foods & Alcoholic Beverages	17
1.4.9 Forestry	17
1.4.10 Seafood	18
1.5 Relationship to other Plans/Programmes.....	18
1.6 Strategic Environmental Assessment (SEA) and Context.....	31
1.7 SEA and Appropriate Assessment.....	31
1.8 Alternatives Considered.....	32
1.8.1 Reasonable Alternatives Considered	33
2 The SEA Process	36
2.1 Introduction	36
2.2 Screening.....	36
2.3 Scoping.....	36
2.4 Baseline Conditions.....	37
2.5 Strategic Environmental Objectives.....	37
2.6 Analysis of Alternatives.....	42

2.7	Analysis of Plan Strategies/Actions.....	42
2.8	Develop Mitigation	42
2.9	Monitoring & Follow-up.....	43
2.10	Preparation of a Draft Environmental Report	43
3	Consultation	44
3.1	Introduction	44
3.2	Statutory Consultation.....	44
3.3	Public Consultation	44
3.4	Facilitation of Consultation	44
3.5	Consultation Questionnaire	44
3.6	Submission to Consultation	45
3.7	Summary of Environmental submissions.....	46
4	Description of the Baseline Environment	47
4.1	Introduction	47
4.2	Population and Human Health.....	47
4.3	Biodiversity, Flora and Fauna	48
4.4	Air Quality and Climate Change	53
4.5	Water (Surface Water, Groundwater and Drinking Water).....	56
4.6	Soils and Geology	60
4.7	Landscape	63
4.8	Material Assets.....	64
4.9	Cultural Heritage (including Architectural and Archaeological Heritage).....	67
4.10	Inter-Relationships.....	70
4.11	Cumulative Effects	70
4.12	Transboundary Effects	70
4.13	Data Gaps & Study Limitations	70
4.13.1	Population and Human Health.....	70
4.13.2	Biodiversity, Flora and Fauna	71
4.13.3	Air Quality and Climatic Change	71
4.13.4	Water (Surface, Ground Water and Drinking Water)	71
4.13.5	Soils and Geology	71
4.13.6	Landscape.....	71
4.13.7	Material Assets.....	72

4.13.8	Cultural Heritage (including Architectural and Archaeological Heritage).....	72
5	Assessment of Alternative Strategies	73
5.1	Introduction	73
5.2	Assessment of Alternatives.....	73
5.3	Reasons for the Selection of the Preferred Option & Rejection of Reasonable Alternatives 74	
6	Identification of Likely Significant Effects	78
6.1	Introduction	78
6.2	Population and Human Health.....	78
6.3	Biodiversity, Flora and Fauna	78
6.4	Air Quality and Climate Change	79
6.5	Water (Surface, Groundwater and Drinking Water).....	79
6.6	Soils and Geology	80
6.7	Landscape	80
6.8	Material Assets.....	80
6.9	Cultural Heritage (including Architectural and Archaeological Heritage).....	80
6.10	Inter-Relationships.....	80
6.11	Cumulative Effects	81
6.11.1	Water Framework Directive & River Basin Management Plans	82
6.11.2	EU Biodiversity Plan to 2020 & National Biodiversity Plan	82
6.11.3	GHG Commitments	83
6.11.4	National Emissions Ceilings Directive	84
6.12	Transboundary Effects	84
7	Mitigation Measures.....	86
7.1	Introduction	86
7.1.1	Failure to adopt Mitigation Measures	86
7.1.2	Dairy Sector Mitigation Measures	92
7.1.3	Beef Sector Mitigation Measures	94
7.1.4	Sheep Sector Mitigation Measures.....	96
7.1.5	Pigmeat Sector Mitigation Measures.....	97
7.1.6	Poultry Sector Mitigation Measures	98
7.1.7	Cereals/Tillage Sector Mitigation Measures	99
7.1.8	Horticulture Sector Mitigation Measures	101

7.1.9	Prepared Consumer Foods (PCF) and Alcoholic Beverages Sector Mitigation Measures	102
7.1.10	Forestry Sector Mitigation Measures	103
7.1.11	Seafood Sector Mitigation Measures.....	106
8	Monitoring	107
8.1	Introduction	107
8.2	Monitoring Proposals.....	107
9	References	113
10	Annexes.....	119
10.1	Annex I - SEA Assessment Matrices	119
10.1.1	Sustainability Actions	119
10.1.2	Dairy Sector	123
10.1.3	Beef Sector	126
10.1.4	Sheep Sector	130
10.1.5	Pigmeat Sector	132
10.1.6	Poultry Sector.....	133
10.1.7	Cereals/Tillage Sector	134
10.1.8	Horticulture Sector.....	136
10.1.9	Prepared Consumer Foods (PCF) and Alcoholic Beverages Sector	138
10.1.10	Forestry Sector	140
10.1.11	Seafood Sector	143
10.2	Annex II – Statutory & Public Consultation.....	145
10.2.1	Water	145
10.2.2	Emissions to air (including GHGs and ammonia)	146
10.2.3	Biodiversity and Flora & Fauna	147
10.2.4	General issues	148
10.3	Annex III - Attendees at the <i>Food Wise 2025</i> SEA Scoping Workshop	151
10.4	Annex IV – Stakeholders invited to provide observations on the scoping phase of this process	152
10.5	Annex V – Legislation Matrix	153
10.6	Annex VI - Schemes, Regulations and Financial Framework	155
10.6.1	Common Agricultural Policy.....	155
10.6.2	Pillar I.....	156
10.6.3	Pillar II.....	157

10.6.4	Cross Compliance	160
10.6.5	Environmental Impact Assessment (Agriculture) Regulations 2011	162
10.6.6	Regulations and Inspections	163
10.7	Annex VII - Common Fisheries Policy	164
10.7.1	Introduction	164
10.7.2	The aims of the Common Fisheries Policy	164
10.7.3	Fisheries Management.....	165
10.7.4	International Policy	165
10.7.5	Market and Trade Policy	166
10.7.6	Funding of the CFP	166

List of Figures

Figure 1-1 Ireland's Exclusive Economic Zone (EEZ)/Exclusive Fishing Zone (EFZ)	13
Figure 1-2 Conceptual Diagram of the relationships between Food Wise 2025 and other plans/programmes etc.....	19
Figure 1-3 Schematic diagram illustrating the interactions between the SEA, AA and drafting of Food Wise 2025	32
Figure 3-1 Public Consultation Questionnaire	44
Figure 4-1 Population Density.....	48
Figure 4-2 Natura 2000 Network	49
Figure 4-3 Natural Heritage Areas and Other Biodiversity Rich Land-Uses (from CORINE)	51
Figure 4-4 Air Quality Zones.....	54
Figure 4-5 Surface Water Status	57
Figure 4-6 Groundwater Status.....	58
Figure 4-7 Groundwater Vulnerability	59
Figure 4-8 Soil Associations.....	61
Figure 4-9 Geological Heritage Sites	62
Figure 4-10 Agricultural Land-Uses.....	63
Figure 4-11 Road and Electricity Infrastructure	65
Figure 4-12 Drinking Water, Wastewater and Solid Waste Treatment Infrastructure	66
Figure 4-13 Record of Monuments and Places	68
Figure 4-14 National Inventory of Architectural Heritage	69
Figure 10-1 Initiatives undertaken at Irish national level under Pillar 1 and Pillar 2 of CAP	155

List of Tables

Table 1-1 Summary Agri-Food Sector SWOT Analysis	12
Table 1-2 Objectives of a range of plans and programmes and possible implications of their interactions with Food Wise 2025.....	20
Table 1-3 Objectives of other plans and programmes and possible implications of their interactions with Food Wise 2025	29
Table 2-1 Strategic Environmental Objectives, Sub-Objectives and Potential Indicators	38
Table 5-1 Scoring Key	76
Table 5-2 Assessment of Alternatives.....	77
Table 6-1 Plans/Programmes Considered for Cumulative Effects.....	82
Table 7-1 Mitigation Table	88
Table 8-1 SEA Monitoring Framework	108
Table 10-1 Scoring Key	119
Table 10-2 Assessment Matrix Sustainability Actions	119
Table 10-3 Categorisation of Dairy Sector Actions for SEA Assessment.....	123
Table 10-4 Assessment Matrix - Dairy Sector	124
Table 10-5 Categorisation of Beef Sector Actions for SEA Assessment.....	126
Table 10-6 Assessment Matrix - Beef Sector	128
Table 10-7 Categorisation of Sheep Sector Actions for SEA Assessment	130

Table 10-8 Assessment Matrix - Sheep Sector.....	131
Table 10-9 Categorisation of Pigmeat Sector Actions for SEA Assessment.....	132
Table 10-10 Assessment Matrix - Pigmeat Sector	132
Table 10-11 Categorisation of Poultry Sector Actions for SEA Assessment	133
Table 10-12 Assessment Matrix - Poultry Sector	133
Table 10-13 Categorisation of Cereal/Tillage Sector Actions for SEA Assessment.....	134
Table 10-14 Assessment Matrix - Cereals/Tillage Sector	135
Table 10-15 Categorisation of Horticulture Sector Actions for SEA Assessment	136
Table 10-16 Assessment Matrix - Horticulture Sector	137
Table 10-17 Categorisation of PCF Sector Actions for SEA Assessment	138
Table 10-18 Categorisation of Alcoholic Beverage Sector Actions for SEA Assessment	138
Table 10-19 Categorisation of Artisan/Small Food Business Actions for SEA Assessment.....	138
Table 10-20 Assessment Matrix - PCF & Alcoholic Beverages Sector.....	139
Table 10-21 Categorisation of Forestry Sector Actions for SEA Assessment.....	140
Table 10-22 Assessment Matrix - Forestry Sector	141
Table 10-23 Categorisation of Seafood Sector Actions for SEA Assessment	143
Table 10-24 Assessment Matrix - Seafood Sector	144
Table 10-25 DAFM Expenditure on Irish Agriculture (1 January to 31 December 2014) (DAFM 2015)	156
Table 10-26 Statutory Management Requirements (SMRs) under Cross Compliance.....	160
Table 10-27 Required actions to remain Cross Compliant	161
Table 10-28 Summary of the main issues, requirements and standards applicable to GAEC.....	162

Acronyms/Abbreviations

AA	Appropriate Assessment
AEOS	Agri-Environmental Options Scheme
BDGP	Beef Data and Genomics Programme (BDGP)
BPS	Basic Payment Scheme
BSE	Bovine Spongiform Encephalopathy
BVD	Bovine Viral Diarrhoea
CAP	(EU) Common Agricultural Policy
CFP	(EU) Common Fisheries Policy
CSO	Central Statistics Office
DAHG	Department of Arts, Heritage and the Gaeltacht
DAFM	Department of Agriculture, Food and the Marine
DCENR	Department of Communications, Energy and Natural Resources
DECLG	Department of the Environment, Community and Local Government
DNA	Deoxyribonucleic acid
EEZ	Exclusive (Marine) Economic Zone
EFZ	Exclusive Fishing Zone
EIA	Environmental Impact Assessment
EIP	Environmental Innovation Partnerships
EPA	Environmental Protection Agency
ESRI	Economic and Social Research Institute
FAO	Food and Agriculture Organisation of the UN
FAPRI	Food & Agriculture Policy Research Institute
GAEC	Good Agricultural and Environmental Condition
GHG	Greenhouse Gases
GLAS	Green Low-Carbon Agri-Environment Scheme
GMO	Genetically Modified Organism
GSI	Geological Survey of Ireland
HNV	High Nature Value
IBIA	Integrated Biodiversity Impact Assessment
IFI	Inland Fisheries Ireland
IPC	Integrated Pollution Control
IPCC	Intergovernmental Panel on Climate Change
LCA	Life Cycle Analysis
LU	Livestock (Equivalence) Unit
MACC	Marginal Abatement Cost Curve

NBDC	National Biodiversity Data Centre
NEC	National Emissions Ceiling
NHA	Natural Heritage Areas
NIS	Natura Impact Statement
NOx	Nitrogen Oxides
NPWS	National Parks and Wildlife Service
PCF	Processed Consumer Foods (sector group)
RBMP	River Basin Management Plan
RDP	Rural Development Programme
REPS	Rural Environmental Protection Scheme
RMP	Record of Monuments and Places
RPS	Record of Protected Structures
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SFP	Single Farm Payments
SI	Statutory Instrument
SMEs	Small and Medium Enterprises
SMR	Statutory Management Requirements
SoE	State of the Environment (Reports)
SPA	Special Protection Areas
TAMS	Targeted Agricultural Modernisation Scheme
WFD	Water Framework Directive
WTO	World Trade Organisation

1 Introduction

1.1 Introduction

This document is the Environmental Report which has been prepared as part of the Strategic Environmental Assessment (SEA) of *Food Wise 2025*. The document sets out how the SEA process has been undertaken and integrated into the plan development and presents the outcomes of the environmental assessment of the plan strategies and actions as well as detailing reasonable alternatives.

The Environmental Report complies with all the requirements of the SEA Directive (2001/42/EC) as implemented in Ireland under Statutory Instrument (SI) No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended).

1.2 The Plan

The preparation of *Food Wise 2025* has been undertaken at the instigation of the Minister for Agriculture Food and the Marine, Mr Simon Coveney TD. In the autumn of 2014, the Minister established a committee representative of primary production, processing, marketing, retailing, research, and governance under the chairmanship of John Maloney, a prominent agri-food industry leader. The committee was asked to ‘set out *the key actions required to maximise the contribution of the sector to economic growth, job creation and environmental sustainability over the next decade*’.

Food Wise 2025 will be a successor to previous plans for the agri-food sector. The most recent of these plans is *Food Harvest 2020* which was published in 2010 (DAFM, 2010).

In developing the Plan the committee was conscious of the global macroeconomic situation and the EU policy framework under which the industry operates. The challenges associated with international climate change policy; the United Kingdom’s relationship with the European Union; exchange rate fluctuations; energy price volatility; and geopolitical instability were also considered. Changes in the terms of trade and product mix required as a result of international trade negotiations, demographic trends and changing dietary preferences were also examined.

When examining the national context, the Plan team pointed to the €10.5 billion in exports generated by the agri-food sector, the 140,000 farm families engaged in farming, and the 163,000 directly employed in the agri-food industry, demonstrating the importance of the sector to the overall economy. Noting the increase of 45% in agri-food related exports between 2009 and 2013 and the fact that indirect employment is spread throughout the country, particularly in rural areas, the committee pointed out the sector’s resilience during the economic recession and to its importance in contributing to future stability and growth throughout the country.

An analysis of the sector examining its strengths, weaknesses, opportunities and threats was carried out. Table 1-1 summarises the results of this analysis.

Table 1-1 Summary Agri-Food Sector SWOT Analysis

Strengths <ul style="list-style-type: none"> ▪ Sustainable production systems (grass based) ▪ Favourable animal health status ▪ EU Single Market access ▪ Benchmark industry leaders ▪ Research eco-system ▪ Proximity to productive fishing grounds 	Weaknesses <ul style="list-style-type: none"> ▪ Scale including lack of raw material for seafood, beverages, forestry sectors ▪ Land mobility ▪ Levels of R&D investment by private sector ▪ Cost competitiveness ▪ Skills gaps - Capability and availability all along supply chain ▪ Access to finance
Opportunities <ul style="list-style-type: none"> ▪ Growth in global demand for nutritious food ▪ Growth in demand for new products associated with latest consumer trends ▪ Green/sustainable reputation ▪ Expansion in dairy, meat, PCF and seafood sectors ▪ Potential for new Foreign Direct Investments (FDI) 	Threats <ul style="list-style-type: none"> ▪ Price volatility/Lack of profitability ▪ Foreign exchange fluctuation ▪ Supply chain disruption due to potential disease or food safety risks ▪ Challenging GHG and air emission targets ▪ Global competition ▪ Biodiversity loss and reduced water quality ▪ Fish stock depletion

Having considered the global, EU and national situation and completed a SWOT analysis, the Plan committee determined that sustainability would be the foremost objective of the future Plan.

The Plan recognises that *“Ireland faces significant challenges in meeting national and international targets for air quality, biodiversity and water quality. Agriculture has a key role to play in meeting these targets, meeting GHG and ammonia emission reduction targets will be particularly challenging but arresting biodiversity losses and continuing the improvement of water quality while increasing production will be equally demanding.”*

In the above context it is proposed that continuing growth in the sector must be based on *“sustainable intensification”* which is interpreted to mean *“improving productivity while using natural resources in a manner which protects them in to the future”*. To achieve this The Plan calls for *“continued investment in monitoring system; investment in science based research which demonstrates that Irish production systems are environmentally sustainable; the rollout of new technologies and production processes; the transfer of knowledge to all actors in the supply chain so that the necessary productivity efficiencies are achieved while being focussed on delivering sustainability and maximising enhanced economic, social and environmental benefits from the sector.”*

1.3 Scope of Food Wise 2025

1.3.1 Geographical

The Irish agri-food industry is comprised of the agriculture; food and beverage; fishery; fish processing; forestry; and forestry processing sectors. The industry is the main indigenous industry in Ireland using Irish raw materials. The industry is predominantly in Irish ownership and its activities are undertaken geographically widely across the country.

The Environmental Protection Agency (EPA) estimate that in 2013 44.68% of non-ETS Irish GHG emissions were attributed to the agri-food sector (EPA 2015), and farming practices directly influence biodiversity, flora and fauna - as they do surface and ground waters, drinking water and air quality. The landscape character is a product of past farming practices, and farming contributed directly to the maintenance of soil quality and the survival of significant parts of our rural architectural and archaeological heritage. Acknowledging the industry's key positions in terms of economic and environmental consideration, the Plan Committee are tasked with preparing their plan with the objective of *"optimising the potential economic contribution of the sector, supporting employment and the creation and retention of jobs in rural areas whilst at the same time recognising the need for delivery on national and international environmental objectives"*.

1.3.2.1 Dairy

Although present in every county in Ireland the dairy industry is largely concentrated in the south, south eastern and to a lesser extent eastern part of Ireland. The dairy sector consists of approximately 18,000 individual farmers along with milk purchasing/processing companies which manufacture a diverse range of fresh and processed products ranging from fresh milk to cream liquors.

The dairy sector is highly export-orientated achieving exports of over €3 billion worth of dairy products and ingredients in 2014.

1.3.2.2 Beef

The beef sector is represented in every county of Ireland, with over 100,000 farms contributing to output. The specialist beef herd is based on approximately 1 million specialist beef cows with additional stock being derived from the dairy herd. The beef processing sector is highly export-orientated. The €2.7 billion worth of exports achieved by the sector in 2014 made Ireland the fifth-largest beef exporter in the world.

1.3.2.3 Sheep

The sheep sector relies on exports for approximately two-thirds of its €250 million output. While the sheep sector is widely dispersed throughout the country, the majority of sheep farmers are located in the western and north western regions and county Wicklow. Sheep farming is usually a subsidiary enterprise on farms, with mixed grazing of sheep and other cattle being practised. There are approximately 34,500 sheep farmers in Ireland.

1.3.2.4 Pigmeat

The pigmeat sector is dominated by approximately 440 commercial pig producers accounts for approximately 7% of agri-food output. The sector is regulated through Integrated Pollution Control (IPC) Licensing by the EPA. The sector is highly dependent upon exports and remains vulnerable to high feed, energy and compliance costs.

1.3.2.5 Poultry

The poultry sector is predominantly located in the north east accounts for 2% of agricultural output and about 6,000 jobs, primarily in rural areas. The principal market for poultry output (chicken fillets

and eggs) is the domestic, retail and food processing sectors. Like the pigmeat sector the poultry sector is heavily dependent upon imported protein feedstuffs.

1.3.2.6 Tillage

With cereals grown on approximately 400,000 hectares, the sector consists of the output of approximately 11,000 growers, with associated milling, processing and food companies. While cereals are grown in every county of Ireland the principal cereal areas are the east and south east. The majority of the output is used for the production of animal feedstuff. However, speciality crops for the food and drinks industry are also important

1.3.2.7 Horticulture

The horticulture sector contributed over €400 million to farm-gate output in 2014. The sector's principal markets are domestic. However, there are significant export markets for mushrooms, Christmas trees, nursery stock and foliage. While horticultural production occurs throughout the country there is particular focus on north county Dublin and the Cavan/Monahan region.

1.3.2.8 Prepared Consumer Foods & Alcoholic Beverages

The Prepared Consumer Foods (PCF) sector employs over 20,000 people has a gross output of €4 billion. The sector is comprised of small, medium and large companies located in every county of Ireland.

The Alcoholic Beverages sector is involved in the production of whiskey and other spirits, cream liquors, beer and cider. It is mainly concentrated within large enterprises and gives direct employment to approximately 3,500 people.

1.3.2.9 Forestry

Forestry is important, both economically and socially, with many recreational and tourist facilities located within forests. The annual output of the industry is approximately €2.3 billion. Approximately 12,000 people are employed in the forestry sector. Approximately 11% of the land area of the country is occupied by forests. This is substantially lower than the European average which stands at 37%.

1.3.2.10 Seafood

The seafood sector, valued at €850 million, represents about 5% of total food and beverage exports. The output of the industry includes fisheries (both wild and farmed), seafood production facilities and marine biotechnology.

1.4 Objectives of Food Wise 2025

Under the guiding principal that the agri-food industry must adopt the values of sustainability and increases in output must be attained primarily through sustainable intensification the plan initially sets out its objectives under the heading **Sustainability**.

This overarching sustainability objective is further incorporated into the broader objectives for each of the sub-sectors within the agri-food industry. The attainment and implementation of many

objectives will be achieved through actions which are in addition to, or complimentary to, structures, regulations, and codes under which the industry in general and individual farm production units in particular already operate. These structures, regulations and codes are principally derived from the Common Agricultural Policy (CAP) and relevant EU Directives. The principal relevant EU Directives include: the Water Framework Directive (2000/60/EC), the Nitrate Directive (91/676/EEC), the Habitats Directive (92/43/EEC), the Birds Directive (79/147/EU) and related national statutory instruments.

Refer to Annex IV for further details of the legislative and regulatory framework which impacts the agri-food sector. Refer to Annex V for further details of the schemes, regulations and the financial framework under which the primary agricultural sector operates.

1.4.1 Dairy

With the abolition of milk quotas on March 31st this year the industry is anticipating over 15% growth in output for 2015, mainly as a result of managing the existing herd to its full potential. *Food Wise 2025* points to further anticipated output increases resulting from investment in on-farm and processing facilities in the past five year lead up period to quota abolition estimated at €2 billion.

Food Wise 2025 defines the principal objectives of the dairy sector as:

- A low cost milk production sector, based on grass, but focused on market returns and environmental sustainability. Unbridled expansion is not encouraged while better grass utilisation and an increase in milk solids from grass are the goals.
- A sector which leverages the competitive advantage conferred by a natural grass-based production system and a strong international reputation for high standards in quality and food safety.
- Improve processing competitiveness through scale, shifting to higher-value nutrition focussed foods and becoming best in class in terms of safe, high quality and sustainably-produced food.

1.4.2 Beef

Food Wise 2025 envisages the maintenance and improvement of the national suckler herd, with increased output based on added value, better quality and increased numbers from an expanding dairy herd. The principal objectives are enhancing reputation and value through emphasis on grass fed, low carbon and proven sustainability of production methodologies. Increased outputs should be achieved through improvements in genomics; grassland utilisation; R&D and product development in the processing sector; and sustainable utilisation of increased output from the dairy herd.

1.4.3 Sheep

The objectives for the sheep sector include: maintaining the national flock at present levels as a minimum; increasing the value of output by a focus on better market returns by adding value through processing; and attaining new markets. *Food Wise 2025* envisages an improvement in on-farm performance and breeding through the application of knowledge transfer, better grassland management techniques and improvements through genomics. The Sheep Technology Adoption Programme is to be strengthened. The Beef and Lamb Quality Assurance Scheme is also to be promoted.

1.4.4 Pigmeat

The objectives of the pigmeat sector include: better cooperation with tillage farmers as a means of adding value and encouraging safe disposal of pig manures; along with encouraging investment in more energy efficient pig rearing facilities. Increases in output are sought through new product development and targeted research. Cost reductions through alternative waste disposal options and improved feed supply from the tillage sector are sought.

1.4.5 Poultry

Food Wise 2025 objectives for poultry include further improvements in animal health & welfare and biosecurity. The Plan suggests cost reductions achieved by increased scale through the development of chicken complexes involving feed manufacturers, hatcheries, growers and processors should be considered.

1.4.6 Tillage

The objectives for the tillage sector include augmenting profit margins, through annual yield increases achieved by the application of best technology. A rebalancing of the areas devoted to individual crops to take advantage of emerging grain markets for brewing and distilling is sought. Better use of resources through appropriate cultivation methods, cultural weed control and maximising the value of organic manure is encouraged to increase output and reduce cost. Opportunities for increased seed potato production, the use of native potatoes in manufacturing and the potential reintroduction of the sugar beet crop for ethanol production are noted.

1.4.7 Horticulture

The Plan considers maintenance and expansion of the area devoted to horticulture for the production of clean, healthy and native food as important. The continued growth through improved marketing and promotion along with Origin Green labelling is targeted.

1.4.8 Prepared Consumers Foods & Alcoholic Beverages

The PCF has as its objective continued product development to achieve further sales in the domestic and export markets. *Food Wise 2025* envisages that output increases can be achieved through the early identification of, and nurturing of small niche operators. The requirement for significant investment in research and development, new technologies and innovation programmes to achieve growth is recognised. The Plan suggests the key objective of import substitution will require smarter relationships with retailers.

In the alcoholic beverages sector *Food Wise 2025* targets the emergence of niche brewers and distillers as an opportunity which should be built upon, as should the maintenance of quality supply of milk and grains to the brewing and distilling industries.

1.4.9 Forestry

The forestry sector has as its objective continued development and new afforestation using sustainable forest management principles. New afforestation up to 10,000Ha per annum is provided for under the Rural Development programme 2014 – 2020, the annual target from 2021 onwards is 15,000 Ha per annum. The sector seeks to play its full role in rural development while expanding

timber-based exports. The sector's role in land based climate change mitigation; the reduction in reliance on fossil fuels; and the transition to Ireland's low carbon economy are central to future development. *Food Wise 2025* envisages that the sector's objective of improving the environment and public goods; expanding wood output; and forest protection and health can be achieved through dedicated research and knowledge transfer programmes.

1.4.10 Seafood

The Plan recognises that the objective of unlocking Ireland's vast seafood potential is dependent upon:

- Expanding the raw material base;
- Enhancing the industry's structure, scale, competitiveness and skills;
- Optimising product added value; and
- Improving environmental sustainability.

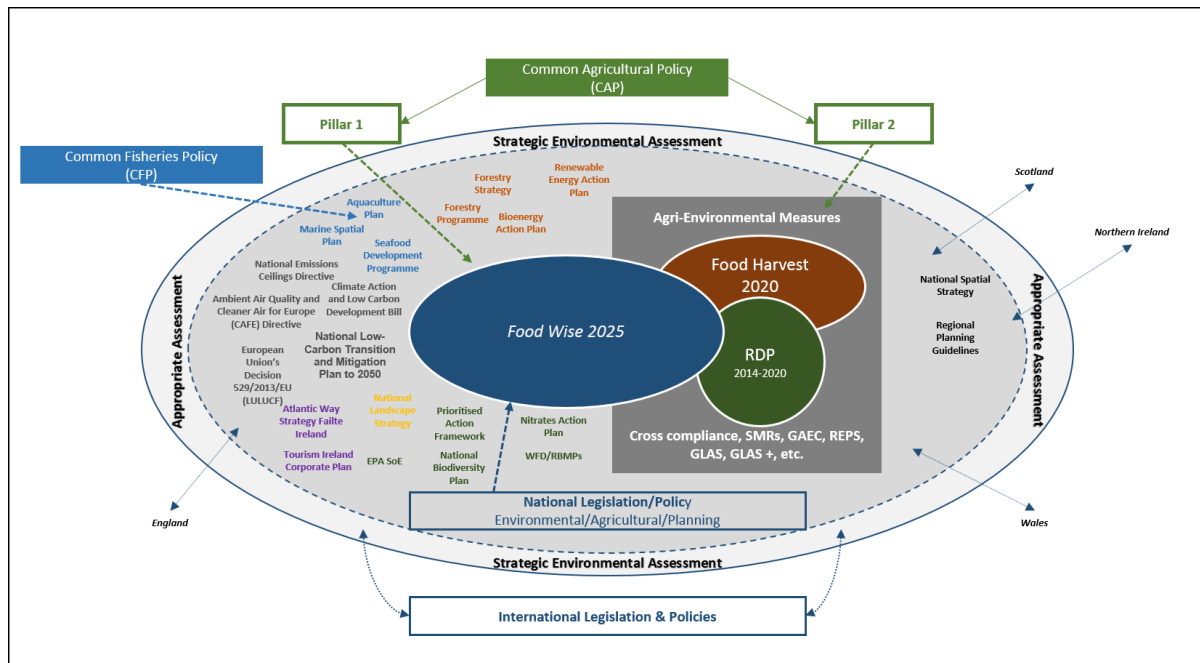
The Plan targets increased returns achieved through targeted research, development of the sub-sectors and an increased emphasis on processing to reduce the amount of product sold on the commodity market.

1.5 Relationship to other Plans/Programmes

Food Wise 2025 is not a stand-alone strategy and will both influence and be influenced by a range of International European and National plans and programmes. At a global level, organisations such as United Nations, World Health Organisation and World Trade Organisation initiate strategies aimed at enhancing lives across the planet. Likewise, the EU Commission prepares over-arching plans and strategies intended for the benefit of all citizens and these are issued in the form of directives. These directives are then transposed into National Legislation. In Ireland each Government Department, in addition to regulating its day-to-day affairs, engages in the process of long-term planning.

Figure 1-2 details some of the plans and programmes with which *Food Wise 2025* will co-exist, and Table 1-2 sets out the objectives of a range of those plans and programmes and possible implications of their interactions with the Plan.

Figure 1-2 Conceptual Diagram of the relationships between Food Wise 2025 and other plans/programmes etc.



Food Wise 2025 is an overarching strategy promoting sustainability and change within the agri-food industry. It is anticipated that the Plan may impact on all terrestrial, coastal and inland aquatic areas in Ireland. Each county council holds responsibility for administration and development within their respective administrative areas, and each prepares periodic development plans that are subject to AA and SEA. At industry level many county councils have already sanctioned agri-food industry related projects involving a total expenditure up to €2 billion in anticipation of in-the-pipeline increases in production within the agri-food industry.

Food Wise 2025 is being prepared with the benefit of knowledge of the working of the CAP for the period 2014-2020 (refer to Annex V). In negotiations for the post-2020 EU Budget, there may be pressure to reduce CAP funding and perhaps for further changes to CAP payments. It is too early to predict the outcome of these negotiations, but Ireland will be seeking to maintain funding levels for CAP beyond 2020. Over the next decade, bilateral and multi-lateral (WTO) trade agreements are likely to significantly reduce trade barriers, providing both opportunities and challenges for increased international trade. With a very export-focused agri-food sector, Ireland stands to benefit from increased opportunities for trade. The Department of Agriculture, Food and the Marine (DAFM) will ensure that key offensive and defensive interests are fully represented in trade negotiations.

Table 1-2 Objectives of a range of plans and programmes and possible implications of their inter-actions with Food Wise 2025

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
Our Sustainable Future (DECLG, 2012)	<p>Our Sustainable Future – A Framework for Sustainable Development for Ireland sets out its objectives with regard to Agriculture and the Marine as follows:</p> <ul style="list-style-type: none"> • Continued Support for Sustainable Agricultural and Forestry Development in Ireland, achieved by: <ul style="list-style-type: none"> – actively pursuing the implementation of environmental policies as they relate to those envisaged under Food Harvest 2020 by: promoting sustainable pasture-based farming and soil management contributing to sustainable energy requirements; contributing to the protection of biodiversity and ensuring environmentally sustainable production practices for seafood and aquaculture; – focus on and support for farmers to remain in farming and to increase productivity; – focus on maintaining the maximum number of active farmers in rural areas engaged in food production by ensuring that the necessary ingredients for the development and maintenance of sustainable communities are in place; – continue to invest in the afforestation programme to support the sustainable development of the forestry and forest products sectors; – implement recommendations arising from the national forest policy review; – identify measures to reduce food waste, including associated consumer awareness measures. • Research and Knowledge Transfer, achieved by identifying research measures to ensure a focused approach in the agricultural sector nationally that: <ul style="list-style-type: none"> – ensures high quality environmental research relating to climate change and water quality is undertaken; – has a greater emphasis on public/private partnerships carrying out required research; – ensures research bodies in food production will have a role to play in developing agri-food business opportunities and focusing measures to reduce GHG emissions from agriculture; – ensures outputs of research are successfully adopted at farm level 	<ul style="list-style-type: none"> • Ensuring compatibility between targets in <i>Food Wise 2025</i> and Our Sustainable Future
Draft National Peatlands Strategy (NPWS, 2014)	<p>The Strategy applies to all peatlands, including peat soils. This stretches to 1.47 million hectares. The strategy is aimed at peatland owners, users and the broader community which benefit from the services that peatlands provide.</p> <p>The national plan addresses the key pressures identified for SAC-designated raised bog through the application of selected measures from a national measures toolkit, to a programme of measures forming a strategy nationally for our raised bogs. It also sets the national conservation objective for raised bogs as: <i>To restore the favourable conservation status of active raised bog in Ireland.</i></p>	<ul style="list-style-type: none"> • Carbon sequestration opportunities under revised carbon accounting structures • Interaction with Forest Strategy • Preservation of Habitats within farms

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
National Strategic Plan for Aquaculture Development	<p>The draft plan sets out its objectives as:</p> <p>Aiming for Growth</p> <ol style="list-style-type: none"> 1. Build capacity and scale in the industry 2. Dedicated supports to new entrants to the sector 3. Support organic certification of aquaculture production 4. Aid shellfish producers significantly affected by biotoxin closures <p>Knowledge, Innovation and Technology</p> <ol style="list-style-type: none"> 5. Foster knowledge, innovation and technology transfer. 6. Enhance the skills base to foster a knowledge economy. 7. Provision of expert advice to improve environmental and business performance and enhanced strategic planning by aquaculture enterprises. 8. Support best husbandry and disease management practice. 9. Applied research and collaborations between industry, scientific and development bodies. 10. Development of commercial scale growing systems for novel species. <p>Ensuring Sustainability</p> <ol style="list-style-type: none"> 11. Application of Guiding Principles for the Sustainable Development of Aquaculture. 12. Application of scale limits and phasing in relation to the development of individual offshore salmon farms. 13. Development of an industry Code of Practice for Invasive Alien Species. 14. Continuation of Invasive Species Ireland Project in relation to aquaculture. 15. Quantify the environmental contribution of aquaculture. 16. Ensure that aquaculture monitoring is consistent with the requirements of the Marine Strategy Framework Directive. <p>Coordinated Spatial Planning</p> <ol style="list-style-type: none"> 17. Develop opportunities and constraints mapping for aquaculture taking specific account of environmental issues, Natura 2000 sites and inshore fisheries. 18. Identify marine tourism opportunities from aquaculture. 19. Study on integrated multi-trophic aquaculture and possible synergies with offshore wind farms or other marine renewable energy. 20. Study on how aquaculture contributes to communities in rural areas. <p>Aquaculture Licensing</p>	<ul style="list-style-type: none"> • Ensure compatibility of Food Wise 2025 with National Strategy for Aquaculture

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
	<p>21. Progressively remove the current aquaculture licensing backlog.</p> <p>22. Review and revision of the aquaculture licensing process, including the applicable legal framework.</p> <p>23. In the context of a reviewed process and revised legal framework, consider the phased introduction of appropriate timescales for licence determination.</p> <p>24. Develop a data management and information system with online aquaculture licence application and tracking functionality and spatial mapping of aquaculture sites and exclusion areas.</p>	
Seafood Development Programme 2014-2020 (DAFM, 2015b)	The Seafood Development Programme 2014-2020 is a new €241 million development programme for the seafood sector for the period up to 2020. The new Programme will be co-funded by the EU through the European Maritime and Fisheries Fund and is subject to adoption by the European Commission. A public consultation on the new Programme and a strategic environmental assessment are currently underway.	<ul style="list-style-type: none"> • Ensure compatibility of <i>Food Wise 2025</i> with Seafood Development Programme
Water Framework Directive (EC, 2000a)	<p>Specifically the Water Framework Directive aims to:</p> <ul style="list-style-type: none"> • protect/enhance all waters (surface, ground and coastal waters) • achieve "good status" for all waters by December 2015 • manage water bodies based on river basins (or catchments) • involve the public • streamline legislation 	<ul style="list-style-type: none"> • WFD requirement to achieve good status in catchments may preclude intensification in some catchments • Implications for achieving sustainability at farm level while increasing production • Farm practice role in achievement of "good water status"
River Basin Management Plans (DEHLG, 2008)	<p>The purpose of the Water Framework Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which:</p> <ul style="list-style-type: none"> • prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems; • promotes sustainable water use based on a long-term protection of available water resources; • aims at enhanced protection and improvement of the aquatic environment, <i>inter alia</i>, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances; • ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and • contributes to mitigating the effects of floods and droughts 	<ul style="list-style-type: none"> • Ensuring farm management practices are fit for purpose with regard to RBDMP objectives. • Linkages in monitoring requirements particularly in relation to the Nitrates Directive with respect to groundwater pollution

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
	<i>River Basin Management Planning – A Practical Guide for Local Authorities</i> sets out the required content of plans and describes in practical terms the legal obligations arising under the Directive, such as interpretation of the requirements relating to environmental objectives. It also explains the application of the exemption provisions of the Directive (i.e. the provisions allowing the phasing of objectives and ‘less stringent environmental objectives’ in some circumstances) and how these exemptions might properly be applied in real situations.	
EU Biodiversity Strategy to 2020 (EC, 2011)	<p>On 3 May 2011, the European Commission adopted a new strategy to halt the loss of biodiversity and improve the state of Europe’s species, habitats, ecosystems and the services they provide over the next decade, while stepping up the EU’s contribution to averting global biodiversity loss. It focuses on six major targets to address the main pressures on nature and ecosystem services in the EU and beyond, and lays down the policy foundations for EU-level action over the next ten years.</p> <p>The EU strategy is built around six mutually supportive and inter-dependent targets which address the main drivers of biodiversity loss. They aim to reduce key pressures on nature and ecosystem services in the EU by stepping up efforts to fully implement existing EU nature legislation, anchoring biodiversity objectives into key sectoral policies, and closing important policy gaps. Global aspects are also addressed to ensure the EU contributes fully to implementing international biodiversity commitments.</p> <p>The six targets covered by the EU strategy focus on:</p> <ul style="list-style-type: none"> • The full implementation of the EU nature legislation; • Better protection and restoration of ecosystems and the services they provide; • greater use of green infrastructure; • More sustainable agriculture and forestry; • Better management of EU fish stocks and more sustainable fisheries; • Tighter controls on Invasive Alien Species; and <p>A greater EU contribution to averting global biodiversity loss.</p>	<ul style="list-style-type: none"> • Crossover between farm practices and preservation of biodiversity
National Biodiversity Plan (DAHG, 2011a)	<p>The National Biodiversity Plan defines its vision as: <i>“That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally.”</i> The overarching target of the Plan is: <i>“That biodiversity loss and degradation of ecosystems are reduced by 2016 and progress is made towards substantial recovery by 2020.”</i></p> <p>The plan sets out its strategic objectives as:</p> <ul style="list-style-type: none"> • To mainstream biodiversity in the decision-making process across all sectors • To substantially strengthen the knowledge base for conservation, management and sustainable use of biodiversity • To increase awareness and appreciation of biodiversity and ecosystems services • To conserve and restore biodiversity and ecosystem services in the wider countryside • To conserve and restore biodiversity and ecosystem services in the marine environment • To expand and improve the management of protected areas and legally protected species 	<ul style="list-style-type: none"> • Crossover between farm practices and preservation of biodiversity

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
	<ul style="list-style-type: none"> To substantially strengthen the effectiveness of international governance for biodiversity and ecosystem services 	
National Landscape Strategy (DAHG, 2015)	<p>The National Landscape Strategy describes its context and sets its objectives as follows: <i>The Irish landscape is an integral component of our surroundings and well-being, a visual expression of the diversity of our shared cultural and natural heritage, and intrinsic to our identity as an island nation. The Government recognises the past, present and on-going influences on the landscape from a broad range of sectors and the need to support sustainable landscape change and better promote landscape management, protection and planning.</i></p> <p><i>The objectives of this draft National Landscape Strategy are to:</i></p> <ul style="list-style-type: none"> implement the European Landscape Convention by integrating landscape into our approach to sustainable development; establish and embed a process of gathering, sharing and interpreting scientific, technical and cultural information in order to carry out evidence-based identification and description of the character, resources and processes of the landscape; provide a policy framework, which will put in place measures at national, sectoral - including agriculture, tourism, energy and marine - and local level, together with civil society, to manage, protect and properly plan through high quality design for the sustainable stewardship of our landscape; ensure that we take advantage of opportunities to implement policies relating to landscape use that are complementary and mutually reinforcing and that conflicting policy objectives are avoided in as far as possible. <p><i>A National Landscape Strategy will be implemented and co-ordinated by the Department of Arts, Heritage and the Gaeltacht in partnership with all key stakeholders.</i></p>	<ul style="list-style-type: none"> Preserving the landscape while allowing for increased productivity Maintaining landscape character while increasing area under forest
One World, One Future – Ireland's Policy for International Development	<p>One World, One Future sets out its vision as:</p> <ul style="list-style-type: none"> <i>A sustainable and just world, where people are empowered to overcome poverty and hunger and fully realise their rights and potential</i> <p>The policy sets out in clear terms what Ireland's goals and areas of focus are, and what the Irish government wants to achieve by using its aid, voice, and capacity. This policy is intended to guide the Government's engagement on international development.</p> <p>This policy affirms Ireland's commitment to international development and the centrality of international development cooperation to Irish foreign policy, not only in terms of our values, but also in terms of our economic and trading interest.</p> <p>Amongst the key changes identified in the policy is the reorientation of Ireland's efforts towards developing countries that are experiencing greater degrees of hunger, fragility and instability, because of conflict, disaster or the harmful effects of climate change. These are the areas where the needs are greatest, and where human life and human rights are most at risk. These are also the areas where Ireland can have the most impact.</p>	<ul style="list-style-type: none"> Possible displacement of native production by imports Potential benefits from research into sustainability

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
	<p>Under One World, One Future international development policy seeks to achieve three goals:</p> <ul style="list-style-type: none"> • Reduced hunger, stronger resilience • Sustainable development, inclusive economic growth • Better governance, human rights and accountability <p>Six priority areas for action are identified, namely:</p> <ul style="list-style-type: none"> • Global hunger • Fragile states • Climate change and development • Trade and economic growth • Essential services • Human rights and accountability 	
National Emissions Ceilings Directive (2001/81/EC)	<p>Directive 2001/81/EC on National Emission Ceilings for certain pollutants (NEC Directive) sets upper limits for each Member State for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution (sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia), but leaves it largely to the Member States to decide which measures – on top of Community legislation for specific source categories - to take in order to comply.</p> <p>The implementation of the directive requires that Member States develops national programmes in 2002 and, where needed, revise those plans in 2006 that aim at meeting fixed ceilings of national emissions by 2010 and thereafter. Further Member States have to report their emission inventories to the EEA and the European Commission in order to monitor progress and verify compliance.</p> <p>The Thematic Strategy on Air Pollution in 2005 identified a number of key measures to be taken to help meeting the 2020 interim objectives for human health and the environment. The revision of the NEC Directive was identified as one of the key measures.</p> <p>The National Emission Ceilings Directive 2001/81/EC (NECD) is currently being reviewed as part of The Clean Air Policy Package. The proposal repeals and replaces the current Union regime on the annual capping of national emissions of air pollutants, as defined in Directive 2001/81/EC. By doing so, it ensures that the national emission ceilings (NECs) set in the current Directive 2001/81/EC for 2010 onwards for SO₂, NO_x, NMVOC and NH₃ shall apply until 2020 and establishes new national emission reduction commitments ("reduction commitments") applicable from 2020 and 2030 for SO₂, NO_x, NMVOC, NH₃, fine particulate matter (PM_{2.5}) and methane (CH₄).</p>	<ul style="list-style-type: none"> • Any increase in total livestock numbers may limit ability to comply with emissions ceilings particularly in relation to NH₃.
Climate Action and Low Carbon Development Bill 2015	<p>The objectives of the Bill are to enable Ireland to meet its legally binding non-ETS emissions reduction 2020 targets (and any other new EU and international obligations) and to achieve transition to a low carbon, climate resilient and environmentally sustainable economy in the period up to and including the year 2050.</p>	<ul style="list-style-type: none"> • DAFM will be required to bring forward plans as part of climate adaptive planning and mitigation planning

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
	<p>In order to achieve these ultimate objectives, the Bill's immediate objectives are to:</p> <ul style="list-style-type: none"> provide for the adoption of a national low carbon transition and mitigation plan and a national climate change adaptation framework which would: <ul style="list-style-type: none"> articulate a vision for the transition to a 2050 emissions reduction scenario; address all legally binding international climate change obligations on the State; and provide for climate adaptation planning. provide for the establishment of a National Expert Advisory Council on Climate Change, to be supported by the Environmental Protection Agency, to advise and make recommendations in respect of, inter alia, the national low carbon transition and mitigation plan and the national climate change adaptation framework; provide clear accountability through an annual reporting mechanism to Dáil Éireann on progress made in transitioning to a low carbon, climate resilient and environmentally sustainable economy by 2050; and provide for a duty on public bodies to have due regard to the national low carbon transition and mitigation plan and national climate change adaptation framework in performing their functions. 	
National Low-Carbon Transition and Mitigation Plan to 2050	<p>The Climate Action and Low Carbon Development Bill 2015, published in January 2015, sets out proposed statutory provisions requiring the Minister for the Environment, Community and Local Government to make, and submit to Government for approval, a national low carbon transition and mitigation plan, to be referred to as the National Mitigation Plan (NMP).</p> <p>The NMP will set out Ireland's first statutory low carbon strategy for the period to 2050. A primary objective of the NMP will be to bring a clear and strong focus to both the challenges and the opportunities of transitioning to a low carbon future, and the importance of a positively focused and cost-effective national transition agenda. The NMP will also track the implementation of measures already underway and identify additional measures in the longer term to reduce greenhouse gas emissions (GHG) and progress the overall national low carbon transition agenda to 2050.</p> <p>The NMP will focus on greenhouse gas mitigation in the four key sectors - electricity generation, the built environment, transport and agriculture. In anticipation of enactment of the planned legislation this year, work is already underway on developing the NMP by the Department of the Environment, Community and Local Government in conjunction with Departments with responsibility for the four key sectors.</p> <p>Stakeholder consultations were undertaken in July 2015. Following the completion of this consultation programme the NMP is undergoing development including the completion of a SEA and AA.</p>	<ul style="list-style-type: none"> DAFM is currently developing a mitigation plan as part of NMP
EU Climate & Energy Package	<p>The 2020 package is a set of binding legislation to ensure the EU meets its climate and energy targets for the year 2020. The package sets three key targets:</p> <ul style="list-style-type: none"> 20% cut in greenhouse gas emissions (from 1990 levels) 20% of EU energy from renewables 	<ul style="list-style-type: none"> National emissions reduction targets and renewable energy targets may impact <i>Food Wise 2025</i>

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
	<ul style="list-style-type: none"> • 20% improvement in energy efficiency <p>The targets were set by EU leaders in 2007 and enacted in legislation in 2009. They are also headline targets of the Europe 2020 strategy for smart, sustainable and inclusive growth. The EU is taking action in several areas to meet the targets.</p> <p>Emissions trading system (ETS) The EU emissions trading system is the EU's key tool for cutting greenhouse gas emissions from large-scale facilities in the power and industry sectors, as well as the aviation sector. The ETS covers around 45% of the EU's greenhouse gas emissions. In 2020, the target is for the emissions from these sectors to be 21% lower than in 2005.</p> <p>National emission reduction targets This covers the sectors not in the ETS – accounting for some 55% of total EU emissions – such as:</p> <ul style="list-style-type: none"> • housing • agriculture • waste • transport (excluding aviation). <p>EU countries have taken on binding annual targets until 2020 for cutting emissions in these sectors (compared to 2005), under the "Effort-sharing decision". The targets differ according to national wealth – from a 20% cut for the richest countries to a maximum 20% increase for the least wealthy (although they were still projected to have to make efforts to limit emissions). Progress is monitored by the Commission every year, with each country required to report its emissions.</p> <p>Renewable energy – national targets EU member countries have also taken on binding national targets for raising the share of renewables in their energy consumption by 2020, under the Renewable Energy Directive. These targets also vary, to reflect countries' different starting points for renewables production and ability to further increase it – from 10% in Malta to 49% in Sweden. The overall effect will enable the EU as a whole to reach:</p> <ul style="list-style-type: none"> • its 20% target for 2020 (more than double the 2010 level of 9.8%) • a 10% share of renewables in the transport sector. <p>Innovation and financing The EU supports the development of low carbon technologies for example through the:</p> <ul style="list-style-type: none"> • NER300 programme for renewable energy technologies and carbon capture & storage 	

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
	<ul style="list-style-type: none">• Horizon 2020 funding for research & innovation. <p>Energy efficiency Measures for increasing energy efficiency are set out in the:</p> <ul style="list-style-type: none">• Energy Efficiency Plan• Energy Efficiency Directive. <p>Benefits Achieving the goals of the 2020 package should also help</p> <ul style="list-style-type: none">• increase the EU's energy security – reducing dependence on imported energy and contributing to achieving a European Energy Union• create jobs, advance green growth and make Europe more competitive.	

Table 1-3 Objectives of other plans and programmes and possible implications of their inter-actions with Food Wise 2025

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
Draft Bioenergy Action Plan (DCENR, 2014)	<p>The draft Bioenergy Plan sets out its objectives as follows:</p> <p><i>Three high level goals, of equal importance, based on the concept of sustainable development have been identified:</i></p> <ul style="list-style-type: none"> • <i>To harness the market opportunities presented by bioenergy in order to achieve economic development, growth and jobs</i> • <i>To increase awareness of the value, opportunities and societal benefits of developing bioenergy</i> • <i>To ensure that bioenergy developments do not adversely impact the environment and its living and non-living resources</i> <p>Agriculture and Forestry</p> <p><i>Our national bioenergy resources (including forestry, energy crops and biofuels) need to be developed and supported through a cohesive approach which addresses supply side as well as demand side issues. The REFIT 3 scheme for biomass technologies marks an important step in providing certainty for the sector. It will underpin the development of a robust and sustainable biomass supply in Ireland as it will provide a stable demand for biomass. The sustainable growth of biomass/biofuel use in the heat sector as well as in power generation and transport will be underpinned by the Bioenergy Plan.</i></p> <p><i>DAFM issued a forest policy framework: Forests, products and people: Ireland's forest policy – a renewed vision, in 2014. It sets out its overarching strategic goal as being the development of an internationally competitive and sustainable forestry sector that provides a full range of economic, environmental and social benefits to Ireland.</i></p> <p><i>DAFM also runs a number of schemes to incentivise the supply of biomass.</i></p> <p><i>The Afforestation Grant and Premium Scheme provides a package to encourage planting of forests by compensating forest owners for some of the costs of forestry establishment and for the income foregone during the maturation of the timber crop. The objectives of the scheme include providing a sustainable source of wood biomass for energy purposes. The Forest Road Scheme provides opportunities to forest owners to improve access to forests. The objectives of the scheme include the provision of funding for the construction of harvesting roads, which are essential in ensuring the supply of biomass can be brought to market. The Bioenergy Scheme provides establishment grants to farmers to grow willow for the production of biomass suitable for use as a renewable source of energy. The scheme aims to increase the production of willow in Ireland and to encourage alternative land use options. The Government has decided that Bioenergy Ireland will be established as a biomass joint venture between Bord na Móna and Coillte to procure biomass at market rates from all sources including Coillte Forest, private forests and elsewhere.</i></p>	<ul style="list-style-type: none"> • Requirements of forestry sector to provide raw materials • Diversion of land for bioenergy production • Diversion of crops for bioenergy production • Implications of land use change for biodiversity

PLAN	OBJECTIVES	POSSIBLE IMPLICATIONS
<p>Programme of Measures Re Case C418/04 “the Birds Case” (DAHG, 2014)</p>	<p>In December 2007, the Court of Justice of the European Union¹, arising from a case brought by the European Commission, delivered judgment on Ireland's implementation of the Birds Directive. The Judgment refers to six separate complaints and gives a ruling in respect of each one. The Court found in favour of Ireland in respect of one complaint.</p> <p>In broad terms the Court found that Ireland:</p> <ul style="list-style-type: none"> • had not correctly transposed the Directive in a number of areas, including in relation to assessment of land use plans, • had not designated a sufficient number of Special Protection Areas in respect of particular species, e.g. corncrake, kingfisher, • had not designated SPAs in accordance with the required standard of protection, • did not meet the required standard regarding the level of protection being achieved in SPAs or in areas that should be designated as SPAs, as set out in Article 4 of the Birds Directive or Article 6 of the Habitats Directive, in particular by failing to take all reasonable measures, including targeted action to prevent their deterioration, and by not requiring appropriate assessment for certain types of activities including aquaculture, and • required protective measures outside SPAs have not been put in place. <p>The Programme of Measures sets out the actions taken to date by Ireland in response to the Judgment of the Court together with commitments for further action to ensure that remaining issues have been dealt with. This version is the first update of the Programme.</p>	<ul style="list-style-type: none"> • Integrate <i>Food Wise 2025</i> with achievement of objectives under Programme of Measures

1.6 Strategic Environmental Assessment (SEA) and Context

Food Wise 2025 has been prepared by DAFM in association with the appointed committee of industry representatives.

The requirement for Strategic Environmental Assessment (SEA) of this plan arises under Article 9 of S.I. No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulation, 2004 as amended. This legislation gives effect to the Directive 2001/42/EC of the European parliament and Council of 27 June 2001 (EC, 2001b).

Strategic Environmental Assessment has been identified as an important process whereby the decision making process (Policy and Plan development) can be influenced by ensuring that environmental and sustainability criteria are included in the decision making from the very start of the planning process. SEA also allows for the assessment of potential cumulative impacts arising from different plans or projects.

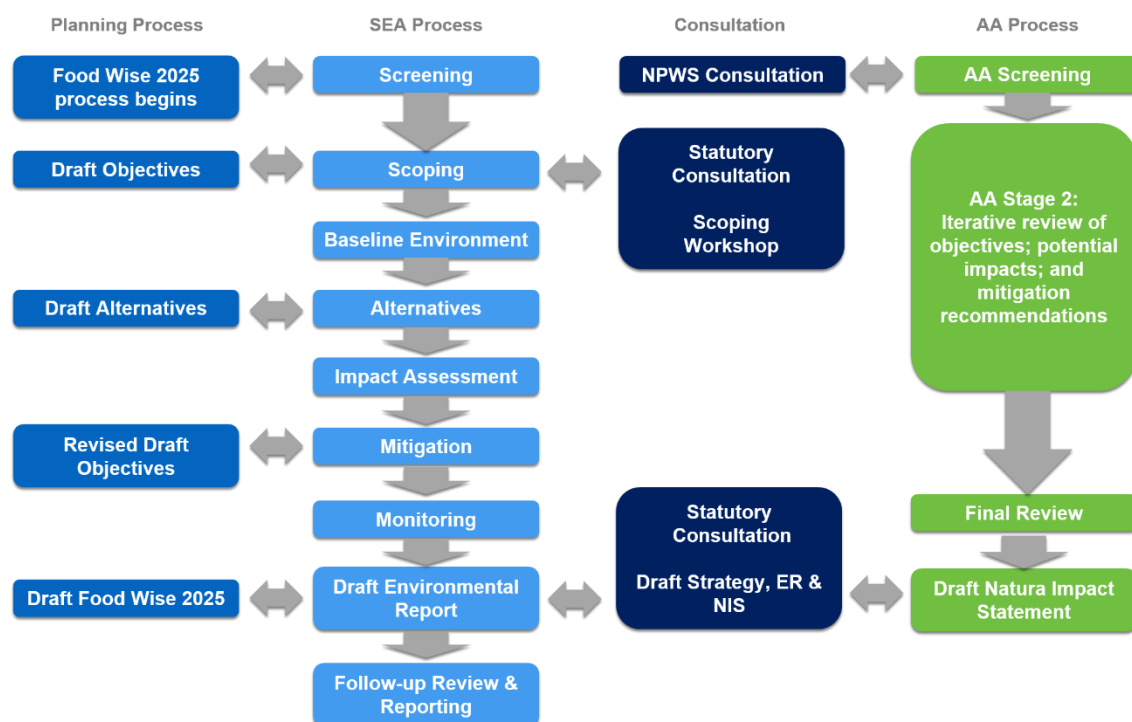
The SEA process, as outlined under the SEA Directive, is required to assess the likely significant effects of the plan on the environment including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors. These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.

Due to the strategic scale of the plan, the assessment of the proposed policies/measures/actions are likely to take place on a national or sectorial scale, taking into account potential international trans-boundary effects.

1.7 SEA and Appropriate Assessment

Under Article 6 of the Habitats Directive it is a requirement that plans and programmes undergo Appropriate Assessment (AA) screening to establish the potential for adversely affecting Natura 2000 ('European') sites (EC, 2002; DEHLG, 2009). AA screening also determined that formal assessment of the Plan would be required and AA is therefore currently being undertaken in parallel with SEA (Figure 1-3). Both assessments are closely interlinked - as demonstrated within the Integrated Biodiversity Impact Assessment Framework - IBIA (EPA, 2013b), which is being followed. (Refer to Figure 1-3)

Figure 1-3 Schematic diagram illustrating the interactions between the SEA, AA and drafting of Food Wise 2025



The objective of SEA is to inform the drafting of *Food Wise 2025*, through early identification of potential conflicts between the Plan's draft objectives/targets and environmental protection objectives. This objective is further aided by the concurrent preparation of a Natura Impact Statement which will identify any potential conflicts between the achievement of the Plan's targets and the conservation and integrity of Natura 2000 sites.

1.8 Alternatives Considered

According to the SEA Directive (EC, 2001) an SEA should normally involve comparisons between alternative plan or programme scenarios, and Irish guidance on developing and assessing alternatives in SEA has now been produced (EPA, in press).

Article 5(1) of the SEA Directive (2001/42/EC) requires that an Environmental Report shall be prepared, in which the likely significant effects on the environment of implementing a plan or programme and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme are identified, described and evaluated. The European Commission guidance on the SEA Directive suggests possible interpretations for choosing reasonable alternatives. According to the guidance *"the alternatives chosen should be realistic and should contribute to finding ways of reducing or avoiding significant adverse effects of the proposed plan or programme."*

The development of reasonable alternatives to *Food Wise 2025* was commenced by the strategy committee working groups and was further developed through the scoping process. The alternatives

developed in the scoping process were further refined taking into account the views of the committee and statutory consultees.

1.8.1 Reasonable Alternatives Considered

Given the projected long-term increasing global demand for food and beverage products, as an export orientated industry most agri-food sectors can be expected to respond by expanding production. However, it is difficult to predict in advance precisely which operators, producers or manufacturers will take up such opportunities. Any such expansion will be subject to all the management, statutory regulations and voluntary protocols that currently operate.

It was also recognised by the committee that agriculture both at primary production and processing level is in a constant state of flux. At processing level the product mix changes in response to market demands and the raw output of primary agriculture can be diverted across a range of end products in response to supply and demand. At primary production level, production volumes and output are in a constant state of flux. They respond to the market place and are highly dependent on external factors such as weather, growing conditions, rainfall, etc. Crop outputs can vary greatly across the country and can be influenced by minor localised weather events varying from late frosts in one area or autumn rain at harvest time. In addition external policy factors are at play including policy changes in CAP, removal of milk quotas or the introduction of the Rural Development Plan in 2014-2020.

Of most importance is the biological and long term nature of primary agricultural production. Decisions to turn on or turn off, speed up or slow down production are very long term. Crops sown at winter time are harvested the following autumn, beef animals mature at two to two and a half years and a cow reaches full productive capacity at about the age of six.

In light of these uncertainties, and particularly given that the focus of the Plan is to increase the economic value rather than the volume of production, the *Food Wise 2025* committee did not attempt to translate the ambitions for each sector into specific headline quantitative production targets or numbers when framing the Plan. Indeed given the volatility of world commodity prices the achievement of a 65% increase in primary production output as outlined in *Food Wise 2025* has been demonstrated to be more dependent on world commodity prices than on changes in primary production volume.

However, in recognition of the need to inform a robust Environmental Analysis the *Food Wise 2025* sub-groups, with the assistance of selected sectoral experts, initially considered two alternative scenarios as to how each sector might progress in terms of output and growth, towards 2025.

The scenarios were:

- “Base Case”; and
- “Base Case + ”.

Base Case Scenario

The first scenario, Base Case, considered by the *Food Wise 2025* Strategy Committee is considered to be the best proxy for a business as usual or a do nothing scenario. This scenario is representative of what the committee consider would happen in the absence of a new plan. This would involve the continuation of the moderate increases in output seen over recent years, mainly achieved through improvements in technology and management techniques.

Base Case + Scenario

As previously noted the agri-food industry is a dynamic and ever changing sector. It was recognised that taking account of the recent pace of technological advances, the proposed investment in knowledge transfer and other initiatives under the RDP 2014-2020 and particularly the removal of milk quotas in March 2015 taken together with changes in market force the committee felt it appropriate to consider a *Base Case +* scenario.

The *Base Case +* scenario represented more ambitious levels of expansion than recent historical trends. In the case of the dairy sector it might be achieved if the anticipated expansion in dairy cow numbers planned by farmers and the processing industry could be leveraged by substantial increases in the use of best technology facilitated by enhanced knowledge transfer programmes. This might see milk processor ambitions for increased output at primary production level being achieved through increases in dairy cow numbers and improved technology. However, even with the presumption that much of the increased output would result from technological advances and improvements in efficiency, it was recognised that such an expansion in livestock numbers would potentially breach Ireland's international environmental commitments, especially GHG's and ammonia.

Sustainable Growth Scenario

In order to mitigate potential environmental impacts arising from the above scenarios a *Sustainable Growth* scenario was developed. This scenario recognises that environmental protection and sustainability will need to be central to any increases in production. In order to allow for this to occur the following guiding strategies have been included in the *Sustainable Growth* scenario:

- Investment in environmental monitoring systems;
- Investment in science based research which demonstrates that Irish production systems are environmentally sustainable;
- The rollout of new technologies and production processes;
- The transfer of knowledge to all actors in the supply chain so that necessary productivity efficiencies are achieved.

In addition, and in order to facilitate the achievement of the above mentioned guiding strategies, the following specific actions have been included in the plan:

- Recognition of agriculture's role in achieving the objectives of the Water Framework Directive;
- Recognition of agriculture's role in achieving the objectives of ongoing national, EU and international climate change and energy policy development;
- Measurement of Ireland's environmental sustainability credentials;
- Further development and enhancement of the Origin Green programme;
- Improvement of the environmental footprint of sector;

- Develop and support agri-food processing sector in delivering sustainable processes and outputs;
- Implementation of environmental elements of Ireland's national programmes and the EU co-funded *Rural Development Programme 2014-2020*.

2 The SEA Process

"The objectives of the SEA process are to provide for a high level of protection of the environment and to promote sustainable development by contributing to the integration of environmental considerations into the preparation and adoption of specified Plans and Programmes"

2.1 Introduction

A staged methodology, as outlined in Figure 1-3, was adopted for the SEA study. This comprised the following principle steps:

- Screening
- Scoping
- Review of baseline conditions
- Development of strategic environmental objectives
- Analysis of alternatives
- Analysis of plan strategies/actions
- Develop mitigation
- Monitoring and follow-up
- Preparation of a draft Environmental Report

2.2 Screening

This determined that implementing *Food Wise 2025* would provide a framework for future projects that may potentially result in significant environmental effects - and therefore an SEA would be required. Furthermore, comparable screening determined that *Food Wise 2025* could not be shown not to have potential negative effects on the conservation objectives of European Sites, and an Appropriate Assessment (AA) was therefore undertaken in parallel with the SEA (see separate Natura Impact Statement). Both assessments are closely interlinked and the Integrated Biodiversity Impact Assessment Framework (IBIA) was therefore followed (EPA, 2013b).

2.3 Scoping

At this stage of the process key environmental issues or potential for impacts were identified based on an appraisal of the following:

- Draft Food Wise 2025;
- Sectorial plans and other relevant plans;
- An assessment of likely environmental impacts based on an understanding of the baseline environment;
- Consultation with the project stakeholders and, environmental authorities and others;

The scope of the SEA was assessed with regard to the environmental topics identified by the SEA directive and these are:

- Biodiversity;
- Population;
- Human Health,
- Fauna and Flora;
- Soil;

- Water;
- Climatic Factors;
- Material Assets;
- Cultural Heritage;
- Landscape; and
- Interrelationships

Under the terms of Article 13 (A) 4 of the Planning and Development Regulations 2001 (as inserted by Article 7 of S.I. No. 436 of 2004), the following authorities were notified and provided with a copy of the draft Scoping Report:

- Environmental Protection Agency (EPA);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of the Environment, Community and Local Government (DECLG);
- Department of Communications, Energy and Natural Resources (DCENR); and
- Department of Arts, Heritage and the Gaeltacht (DAHG).

A draft SEA Scoping document was produced which identified the scope required to ensure that the SEA process considered all potential impacts on the receiving environment arising from the plan. This document was presented at an initial scoping workshop with invited stakeholders on 9 April 2015 and subsequently issued to the relevant statutory environmental authorities and other relevant stakeholders. (Details of the statutory environmental authorities are listed in Annex IV).

Following receipt of review comments and observations of the draft Scoping Document, all observations, comments and suggestions were carefully considered and the scoping report was modified accordingly.

2.4 Baseline Conditions

The baseline state of each environmental component was derived from a review of published sources, and all relevant EU and National legislation was reviewed in relation to each characteristic studied. Where relevant, reference is also made to previously predicted changes in that baseline resulting from the implementation of *Food Harvest 2020*.

2.5 Strategic Environmental Objectives

Strategic Environmental Objectives (SEO's) were developed to assess the draft plan strategies and reasonable alternative plan options. SEOs are measures against which the environmental effects of the draft plan can be tested. The SEOs are set out under a range of environmental topics and are used as standards against which the strategies and actions of the draft plan can be evaluated in order to help identify areas in which potential adverse impacts on the receiving environment may occur.

Each draft plan strategy/action and its alternatives are assessed against the SEOs. This allows for the identification of the sustainability of the draft plan; where it might have negative effects; and where positive effects could be achieved.

For each SEO a set of SEA indicators are developed which can be used to facilitate monitoring of the environmental effects of implementing the plan. Targets are also set for each SEO, and are a measure against which the indicator can be measured as an identifier of the environmental effect of the plan. The strategic environmental objectives developed for the assessment of *Food Wise 2025* are detailed in Table 2-1.

Table 2-1 Strategic Environmental Objectives, Sub-Objectives and Potential Indicators

Strategic Environmental Objective	SEO Target	SEO Indicator	Potential data source
Protect, and reduce risks to, human health.	This Strategic Environmental Objective (SEO) entails ensuring that plan strategies do not impact negatively on human health	<ul style="list-style-type: none"> All drinking water areas (including groundwater), to achieve good status or maintain high status, Bathing waters to achieve good status or maintain high status. Ecological and chemical status of water bodies Extent and condition of marine areas in or near seafood growing or fishing waters Air quality measurements from EPA national monitoring programme 	Health & Safety Authority FSAI DAFM EPA OPW HSA An Bord Bia
Avoid impacts on designated habitats or species	<p>To ensure compliance with the Habitats Directive with regard to the protection of Natura 2000 Sites, Annexed habitats and species;</p> <p>To ensure protection of bird species listed under the Birds Directive;</p>	<ul style="list-style-type: none"> Extent and Condition of protected areas; as identified by NPWS (through consultation); Uptake of biodiversity measures under agri-environmental schemes Maintenance of area under permanent pasture through “greening” 	Health & Safety Authority FSAI DAFM EPA OPW NPWS An Bord Bia

Strategic Environmental Objective	SEO Target	SEO Indicator	Potential data source
Maintain and improve general biodiversity (including pollinators)	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of other environmental features – which by virtue of their linear and continuous structure or their function act as stepping stones – which are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species.	<ul style="list-style-type: none"> Extent and Condition of protected areas; as identified by NPWS (through consultation) Uptake of biodiversity measures under agri-environmental schemes Maintenance of area under permanent pasture through “greening” 	NPWS EPA DECLG DAHG DAFM Teagasc National Biodiversity Data Centre
Maintain and improve air quality	Reduce/Minimise emissions of atmospheric pollutants from each sector, with particular regard to ammonia arising from agriculture Minimise nuisance of odour or noise from activities	<ul style="list-style-type: none"> Air quality measurements from EPA national monitoring programme CSO/DAFM livestock numbers Teagasc National Farm Survey 	EPA CSO DAFM Teagasc
Control and Reduce GHG Emissions	To meet the requirements for GHG emissions from relevant sectors defined in the National Mitigation plan (once finalised)	<ul style="list-style-type: none"> GHG emissions calculated from agriculture, determined by numbers and type of livestock and losses from landspreading. 	DAFM EPA DoECLG

Strategic Environmental Objective	SEO Target	SEO Indicator	Potential data source
Maintain and Improve the Quality of Surface Waters and Groundwaters	To ensure that water bodies attain good water status or maintain excellent water status as required under the Water Framework Directive.	<ul style="list-style-type: none"> Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009) Classification of Groundwater bodies under the European Communities Environmental Objectives (Groundwater) Regulations 2010 (SI No. 9 of 2010) Annual fertiliser usage 	DAFM EPA DoECLG CSO
Do not increase flood risk or reduce resilience to climate change impacts	To ensure land use changes do not result in increased flood risk.	<ul style="list-style-type: none"> Review of outputs from CFRAM flood risk review process. 	DAFM EPA DoECLG OPW
Protect, maintain and improve soil quality, quantity and function by promoting sustainable agricultural practices	To ensure land use changes or intensification of activity does not negatively impact on soil quality	<ul style="list-style-type: none"> Review of the occurrence of overgrazing and the Statutory Management Requirements (SMR's) and the Good Agricultural and Environmental Condition (GAEC) requirements of the Basic Payment Scheme and where relevant to the provisions of Commonage Management Plans and voluntary environmental schemes such as GLAS. Review percentage area under permanent pasture Review total fertilizer usage 	DAFM EPA DoECLG OPW CSO
To minimise the effects upon the sustainable use of land, mineral resources or soils	To ensure the maximum yield from natural resources without resulting in irreparable damage.	<ul style="list-style-type: none"> Nutrient management planning for farms, forestry - analysis of schemes such as GLAS Review annual fertiliser and lime usage 	DAFM EPA DoECLG OPW

Strategic Environmental Objective	SEO Target	SEO Indicator	Potential data source
Protect cultural landscape features	Protect archaeological and architectural features on farmland, in forests and on coasts	<ul style="list-style-type: none"> • Increase the area of land under agri-environmental management • Restricted hedge removal BPS 	DAFM EPA DoECLG OPW
Minimise impacts on broader landscape features (protect, enhance and manage the distinct identity, diverse character and special qualities of Irish landscapes)	Protect, enhance and manage seascape and coastal area landscapes Protect and enhance landscape value in designated areas Protect and enhance general landscape diversity	<ul style="list-style-type: none"> ▪ Local Authority Landscape Character Assessments 	DAFM EPA DoECLG OPW

2.6 Analysis of Alternatives

The EPA (2003) suggests that the range of '*reasonable and viable alternatives*' should be discussed during SEA Scoping Stage and AA Screening Stage. Historically, this is one of the more problematic areas in the SEA process. Realistic, reasonable, viable and implementable alternatives have been formulated, according to best practice, to fulfil the requirements of the SEA Directive whilst addressing environmental key issues identified within the scoping. In addition, the *Base Case* scenario has been developed as a proxy for the '*Do Nothing*' scenario in order to examine the evolution of agriculture in the absence of the plan and highlight the benefits of the preferred scenario.

The viable alternatives assessed as part of this plan are represented by two scenarios: *Base Case* and *Base Case+*.

These scenarios represent changes or expectations '*in the pipeline*' from *Food Harvest 2020*. Given increasing global demand for food products it is anticipated most sectors will respond by expanding production, but it is difficult to predict in advance precisely which operators, producers or manufacturers will take up such opportunities. However, any such expansion will be subject to all the management, statutory regulations and voluntary protocols that currently operate.

2.7 Analysis of Plan Strategies/Actions

Potential impacts on the SEO's have been identified for all the plan strategies and actions. This analysis has been undertaken by way of a matrix approach whereby the potential impacts arising from plan aims, strategies and actions have each been classified with regard to each SEO in terms the potential impact.

The potential environmental impacts arising from these strategies in the absence of mitigation have been classified as either positive, imperceptible/neutral or negative, while positive and negative effects were further graded as slight, moderate, or significant. The methodology employed followed that previously described for the *Food Harvest 2020* Environmental Analysis Report (DAFM, 2014b), and was applied in accordance with the 'Guidelines on the information to be contained in an Environmental Impact Statement' (EPA, 2002). Evaluation of the significance of the predicted environmental impacts is based on 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' (EPA, 2003). Where uncertainties arose in relation to the potential effects of an action the effect was classified as neutral/imperceptible or slight negative in cases where the action might present an environmental risk. For example, while the effect of an action to improve soil fertility are considered uncertain it has been classified as slight negative.

In line with the EPA Guidelines, the significance of an effect was construed in relation to either "the importance of the environment that is affected (its sensitivity to change)", or "the importance of the impact (the consequences of the change)". This was further characterised in line with the *Food Harvest 2020* Analysis (DAFM 2014b).

2.8 Develop Mitigation

In all cases where positive or negative effects were predicted, suitable enhancement or mitigation measures have been suggested. However, it is acknowledged that the national-level nature of the

assessment is likely to mask some effects of later individual actions at regional, catchment or local level. Therefore, in several cases, recommendations have had to be made for more detailed assessments in the context of subsequent spatial implementation plans or strategy milestones. However, Irish agriculture is already highly regulated at farm level, so the potential for such regulation (and codes of good farming practice) to contain or mitigate additional pressures was evaluated.

2.9 Monitoring & Follow-up

The SEA Directive and national legislation require monitoring of the significant environmental effects of implementation of plans and programmes, and indicate that "*... existing monitoring arrangements may be used, if appropriate, with a view to avoiding duplication of monitoring*". Therefore, the SEA had to consider whether existing monitoring provisions were realistic and capable of being applied throughout the affected sub-sector. Legislation also requires that remedial action should be taken in the event that any consequent significant adverse effects are identified - with the result that the SEA also had to address the nature of provisions for reporting and remedial action. Monitoring, reporting and remedial action constitute the major parts of what is collectively known as impact assessment 'follow-up', and the approach adopted mirrored that of Morrison-Saunders and Arts (2004).

2.10 Preparation of a Draft Environmental Report

A draft SEA Environmental Report was prepared to allow for consultation on the draft outcomes of the SEA process. The document presented the following information:

- Details of the draft *Food Wise 2025* including all strategies and actions;
- Description of the baseline environmental conditions;
- The Strategic Environmental Objectives;
- Outcomes of the assessment of the plan strategies and objectives on the SEO's;
- Proposed mitigation measures and monitoring required;

Following publication of the draft SEA Environmental Report on DAFM's website on 2nd July 2015 a statutory six-week SEA public consultation period was observed. The public consultation period closed on 28th August 2015. The results of the public consultation were noted and used to inform the production of final versions of the documents. As set out in Article 9 of the SEA Directive, once *Food Wise 2025* has been formally approved and adopted, DAFM is required to make the adopted Plan available along with a SEA Statement setting out relevant '*Information on the Decision*'. This SEA Statement summarises how environmental considerations have been integrated into the Plan; how the ER, submissions, observations and consultations have been taken into account during the preparation of the Plan; the reasons for choosing the Plan adopted in the light of other reasonable alternatives dealt with; and, the measures decided upon to monitor the significant environmental effects of implementation of the Plan. A copy of the SEA Statement with the above information will be sent to all of the environmental authorities consulted during the SEA process and will be available for inspection on the DAFM website.

3 Consultation

3.1 Introduction

As required by legislation a thorough consultation process was undertaken on the draft Environmental Report for *Food Wise 2025*. The consultation process involved both statutory authorities, non-statutory authorities and the public.

3.2 Statutory Consultation

In addition to publication on DAFM's website (<http://www.agriculture.gov.ie/foodwise2025/>) copies of *Food Wise 2025*, along with the Strategic Environmental Assessment Draft Environmental Report and Draft Natura Impact Statement, were made available to the following authorities on 10th July 2015:

- Environmental Protection Agency (EPA)
- Department of the Environment (DECLG)
- Department of Communications Energy and Natural Resources (DCENR)
- Department of Arts, Heritage and the Gaeltacht (DAHG) and
- Department of Agriculture and Rural Development, Northern Ireland.

3.3 Public Consultation

Public consultation consisted of the publication of the draft *Food Wise 2025* together with the SEA draft Environmental Report and draft Natura Impact Statement on DAFM's website.

The consultation period lasted from 2nd July to 28th August 2015.

3.4 Facilitation of Consultation

In order to facilitate the consultation process the SEA team prepared a consultation questionnaire which sought to elicit comments on the principle aspects of the Environmental Report. In a number of cases the responses to the consultation consisted of detailed replies to the questionnaire. In other cases the responses received were stand-alone documents. Some respondents completed the questionnaire and made additional submissions.

3.5 Consultation Questionnaire

The consultation questionnaire is presented at Figure 3-1 below.

Figure 3-1 Public Consultation Questionnaire

Question	Comments
Do you agree with the approach and methodology used for the Strategic Environmental Assessment?	
Have all relevant Plans, Programmes and Policies been identified and considered? If not can you advise of any gaps?	
Has the relevant baseline data been identified for each objective?	

Question	Comments
Are you aware of any additional on-going research or monitoring that should be considered in terms of the baseline environmental conditions?	
Has the baseline information been correctly interpreted to identify the key challenges and opportunities arising from the plan?	
Do the strategic environmental objectives (SEO's) cover all relevant areas?	
Do you consider that the alternative strategies outlined are reasonable and have been assessed correctly?	
Do you think that cumulative and trans-boundary impacts have been assessed fully?	
Do you agree with the assessment outcomes and potential impacts addressed?	
Do you agree with the list of mitigation measures and monitoring proposed? Are there any further measures you consider should be included?	
Are you aware of any further environmental information that will help to inform the environmental assessment findings?	
Do you have any other comments you wish to make on the Draft Agri-Food Strategy 2025 and/or the related SEA Environmental Report and Natura Impact Statement?	

3.6 Submission to Consultation

In response to the invitation to comment on the contents of *Food Wise 2025* SEA draft Environmental Report and Draft Natura Impact Statement thirteen submissions were received from the following organisations:

- Department of the Environment, Community and Local Government
- Department of Arts Heritage and the Gaeltacht
- EPA
- An Taisce The National Trust for Ireland
- BirdWatch Ireland
- Environmental Pillar
- Inland Fisheries Ireland
- Hedge Laying Association of Ireland
- Irish Cooperative Organisation Society Ltd (ICOS)
- Oxfam Ireland
- RDS Committee of Agricultural & Rural Affairs
- Trocaire

- University College Dublin (2 submissions)

For the most part the submissions received raised issues addressed to the authors of *Food Wise 2025* and in commentary on the Strategic Environmental Assessment Draft Environmental Report.

All submissions which were addressed to the SEA draft Environmental Report were reviewed in detail by the SEA team. Amendments have been made as a result to the Environmental Report in response to issues raised in these submissions where deemed appropriate. A number of the submissions addressed issues which were outside the scope of the SEA and the preparation of *Food Wise 2025*. These submissions have been considered by DAFM.

Details of all submissions received are contained at Annex II. In addition, Annex II details where and how the comments were integrated into the Environmental Report or how the topic raised had previously been addressed in the Environmental Report. All submissions received are also available on DAFM's website.

3.7 Summary of Environmental submissions

All of the submissions received were thorough and all made serious suggestions aimed at improving the Strategic Environmental Analysis of *Food Wise 2025*. Some submissions recognised and welcomed the placement of environmental sustainability at the centre of the Plan and as a pre requisite to future development within the agri-food industry. This was balanced by other submissions which took the view that the ambitions expressed in *Food Wise 2025* will lead to expansion in production with increased inputs and consequently increased emissions to the environment. Some submissions recognised the commitment within *Food Wise 2025* reflected in the SEA draft Environmental Report of a commitment to improved water quality and compliance with all national and international emissions targets.

Overall the consultation process has provided valuable material for consideration and the amendments, text revisions and additions made to the draft Environmental Report reflect the value of the process.

4 Description of the Baseline Environment

4.1 Introduction

The implementation of *Food Wise 2025* will affect a substantial part of the terrestrial estuarine and coastal territory of Ireland.. This chapter outlines the receiving environment for the area covered by the plan to a scale reasonable to the strategic level of the plan.

4.2 Population and Human Health

Population density is unevenly distributed across the country, with greater concentration of inhabitants in the east and around main urban settlements, with large pockets of sparsely populated areas in the north, west and south-west (Figure 4-1).

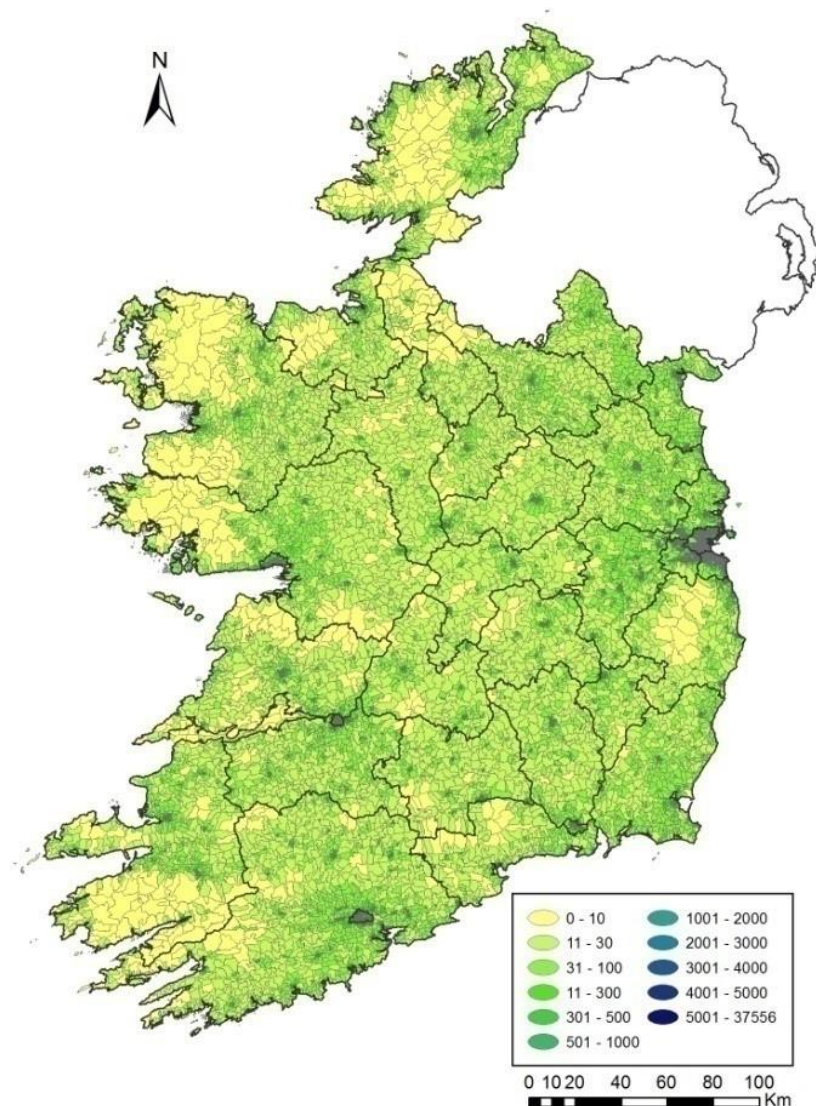
This has significant implications with regards to the availability of land for agricultural purposes and the work force that may be required to enhance growth in certain sectors. This may led to increased travel-to-work journeys in certain parts of the country. It may also result in targeted economic growth of key regions if the sectoral targets are strategically implemented (particularly in the beverages and prepared consumer foods sectors). The European Community, under the Common Agricultural Policy, funds direct payments and other targeted income supports (particularly in areas of natural constraint) to provide stability of income and so retain and promote employment at local area level for the rural population.

Human health is critically dependent upon the availability of a continuous supply of quality food. Primary agriculture is the first step in the production of quality food. Existing regulations ensure crops, animals and animal products are produced in a safe and sustainable manner with the objective of preventing zoonotic or chemical contamination.

Human health is also dependent upon a consistent supply of high quality drinking water. Local authorities designate areas for the protection of drinking water sources. Regulation in relation to the application of herbicides, pesticides and fertilisers seek to protect drinking water sources.

The maintenance of air quality standards is also important to human health. The EPA regulates and monitors air quality standards. International obligations seek to control emissions from agriculture to air and thus maintain Ireland's good air quality.

Figure 4-1 Population Density



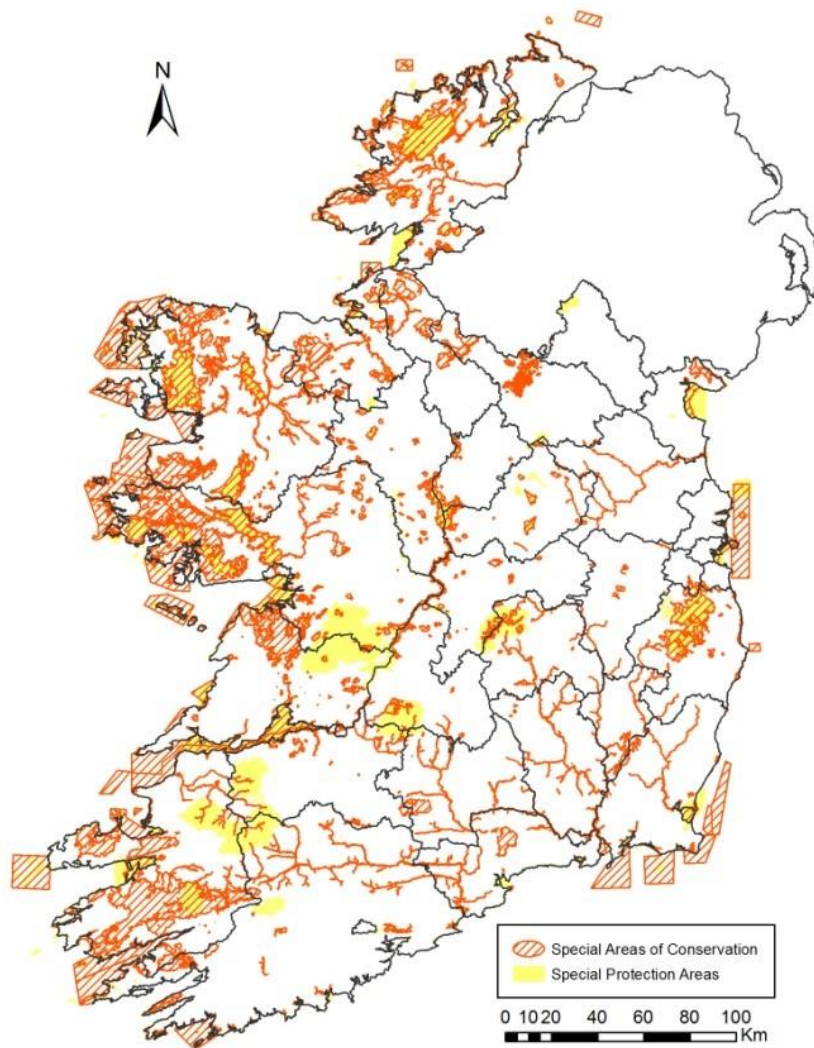
Data source: CSO, 2011 census.

4.3 Biodiversity, Flora and Fauna

There are three EU directives from which Ireland's primary legislation and regulations in relation to Biodiversity derive: the Birds Directive 2009/147/EC (EC, 2009); the Habitats Directive 92/43/EEC (EC, 1992); and the Water Framework Directive 2000/60/EC (EC, 2000a). The Environmental Liability Directive 2004/35/EC (EC, 2004) also has relevance in the case of ex-situ effects on biodiversity. A combination of Irish statutory bodies are responsible for the implementation of legislation in Ireland designed to protect and enhance the status of Biodiversity, Flora and Fauna. Regulation and administration is the responsibility of DAFM, the Department of Arts Heritage and the Gaeltacht

(DAHG, 2011b), principally through the National Parks and Wildlife Service (NPWS), and of the Department of Environment Community and Local Government (DECLG), the EPA and Inland Fisheries Ireland (IFI).

Figure 4-2 Natura 2000 Network



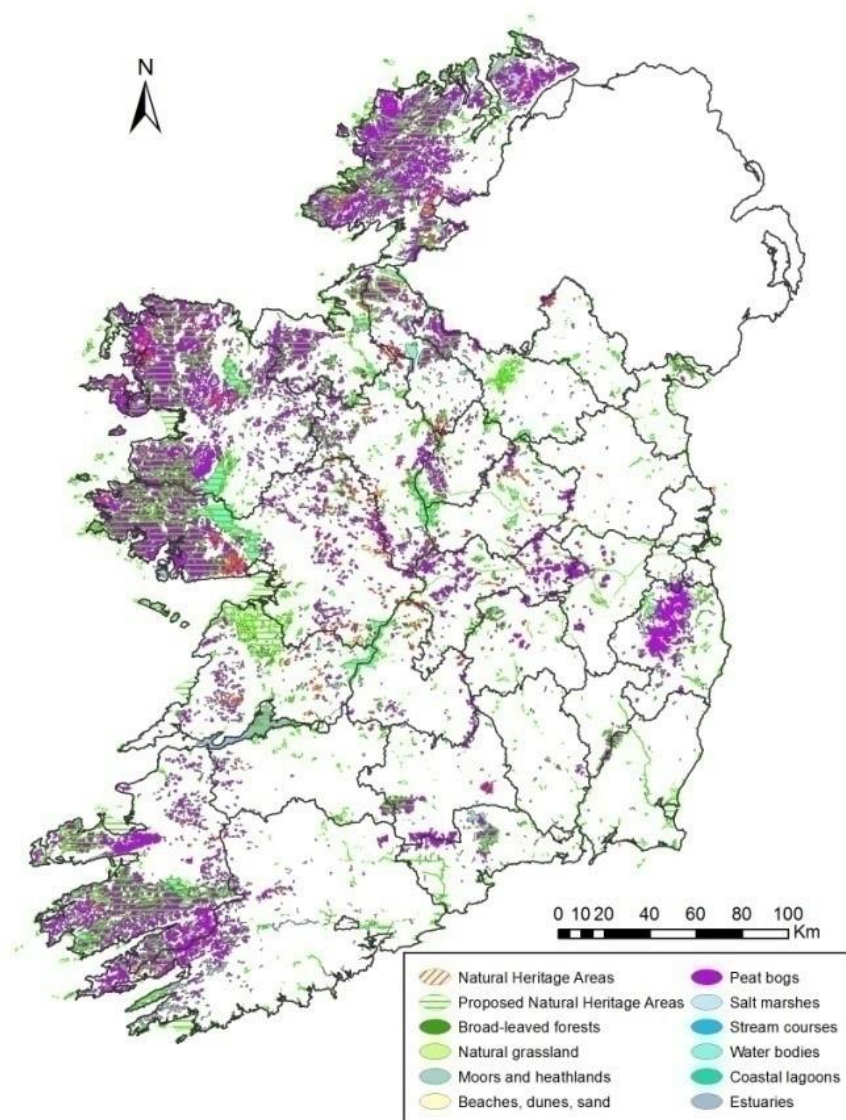
Data source: NPWS, 2015

European Sites (or, more popularly Natura 2000 sites) are protected habitats for flora and fauna (Figure 4-2). Within Natura 2000 there are Special Areas of Conservation (SAC) designated under the Habitats Directive and Special Protections Areas (SPA) designated under the Birds Directive. The NPWS are responsible for the designation of Natura Sites, and approximately 13% of Ireland's land area has been designated as Natura 2000, compared to the EU average of 17.5%.

In identifying the key threats to Natura 2000 sites as intensification of agricultural production; overgrazing or under-grazing; pollution of waters by nutrients; and changes in traditional farming practices, DAFM (2014b) recognised that the conservation status of some habitats and species is lower than desirable and evidence exists that agricultural practices, including possible deposition of ammonia, have had an adverse impact on some of these sites. An increase in NH₃ concentrations is likely to result in an increased exceedance of critical loads of nitrogen. Exceedance of critical loads of nitrogen has been identified as a threat to Natura 2000 sites in Ireland (EPA 2012b).

Some of Ireland's least productive farmlands are also the most biodiverse. These lands offer key values in terms of quality and an opportunity for Ireland's agricultural produce to be linked to and marketed as high-end environmentally sustainable produce. Socio-economic conditions in many of these areas may result in land abandonment, afforestation (sometimes with non-native species), or attempts at agricultural improvement which are damaging to biodiversity.

Figure 4-3 Natural Heritage Areas and Other Biodiversity Rich Land-Uses (from CORINE)



Data sources: NPWS, 2015 and CORINE, 2014

Figure 4-3 presents other ecological designations (i.e. wildlife sites designated under the Wildlife Act) and areas of biodiversity importance (e.g. peat bogs, broad-leaved forests and natural grasslands listed in Annex I of the Habitats Directive) - many of which are already designated for protection. However, a range of valuable sites are not currently designated (e.g. annexed species-rich grasslands - NPWS Semi-natural Grassland Survey). On a national level, ecological sensitivities occur in greatest concentrations in the Western seaboard. Additional biodiversity, flora and fauna considerations, including salmonid waters, freshwater pearl mussel (*Margaritifera margaritifera*) catchments and shellfish waters will be also examined in the SEA. These and other species inter-relate with water and,

as such, may be affected by deterioration in water quality. Data sources will include the NPWS and the National Biodiversity Data Centre (NBDC).

Retention of semi-natural habitat is recognised as part of Ireland's competitive marketing advantage, but this will depend upon quantified evidence from appropriate monitoring to ensure ecosystem services can be delivered at the appropriate field, farm, or landscape-scale. Potential for significant impacts on broader biodiversity are anticipated from a number of sectors, associated to key activities such as agricultural intensification (or abandonment); increased biocide usage; afforestation; and the development of on-shore aquaculture installations. Biodiversity interacts with a number of environmental factors (such as water quality, climate change or soils) and, as such, will be influenced by these in addition to the sectoral pressures discussed below. Of particular concern are potential off-site impacts on European-protected species, implications for high nature value (HNV) farmland and general impacts on farm birds, pollinators¹ and soil invertebrates.

Emissions of sulphur and nitrogen compounds are often assessed using the critical load concept. This describes the habitat's capacity to buffer the input of atmospheric pollutants before damage is incurred to the habitats and species present. The EPA Report *Ireland's Environment* (2012) states that environmental damage is inevitable if the critical load for an ecosystem is exceeded. Prevention of such damage is a key objective of the UNECE CLRTAP and EU NEC Directive. In 2009, the Coordination Centre for Effects (CCE) for transboundary air pollution indicated that for Ireland under current legislative emissions, 10 per cent of the soils were at risk from exceedances of critical loads for acidification, which was predicted to decrease to 6 per cent by 2020 and matches an overall decline in the levels of acidification across Europe as a result of declines in sulphur emissions. However the threat of eutrophication caused by elevated nitrogen deposition has not declined and is a cause for concern in relation to several habitats and species protected by the Birds and Habitats Directives.

Inland Fisheries Ireland is concerned with possible impacts on the conservation of wild salmon, pollan, shad, smelt and lamprey.² They also advocate that, in the current absence of datasets, the precautionary principle would apply in relation to important species or locally valuable species (e.g. bass and sea trout) - and that the strategy considers specific actions to restore sea trout stocks, which are not protected under the Habitats Directive but are genetically distinct to their river of origin (DAHG, 2011a).

Voluntary Agri-Environmental schemes administered by DAFM target improvements in the range of Biodiversity, Flora and Fauna on Irish Farms. DAFM (2015a) noted a dual-threat to biodiversity as abandonment of marginal land impacting on maintaining the optimum habitat for certain species, and land reclamation, drainage and intensification impacting habitats for species of flora and fauna.

¹ A consultation draft of the National Pollinator Plan is currently available.

² Under SI 477 of 2011, IFI (via the DCENR) is the competent authority with additional responsibilities for part of the Habitats Directive.

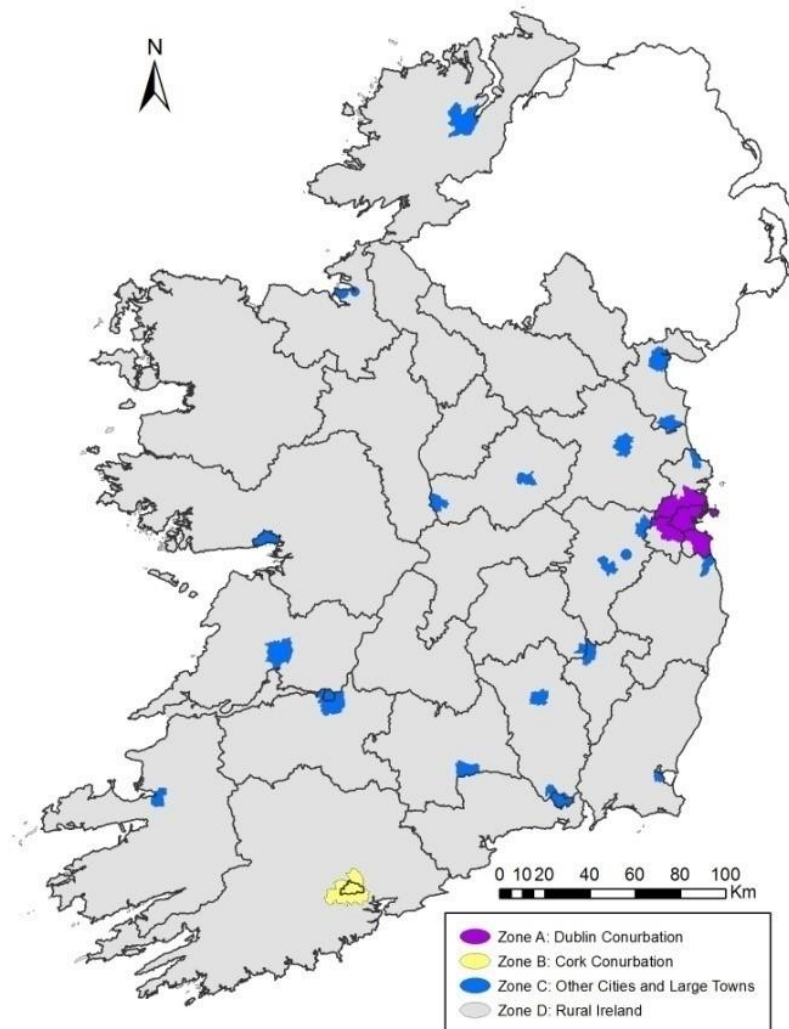
4.4 Air Quality and Climate Change

Air Quality regulations in Ireland derive from EU Directive 2008/50/EC, which has been transferred into Irish law through the Air Quality Standards Regulations, 2011 (S.I. No 180 of 2011), and the EU National Emissions Ceiling (NEC) Directive 2001/81/EC (EC, 2001a). In addition to the aforementioned regulations, Ireland is a member of the Convention on Long Range Transboundary Air Pollution, through which the Gothenburg Protocol sets out targets for the control of ammonia emissions. Implementation of the Gothenburg Protocol is achieved through limits set out in the National Emissions Ceilings Directive. A number of atmospheric pollutants are measured by the EPA in order to monitor compliance with European ambient air quality directives (e.g. EC, 2008). These are measured for the four zones defined in the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002) as illustrated in Figure 4-4. The regulations establish limit values and thresholds for concentrations of identified pollutants and ensure that adequate information on these air pollutants concentrations is obtained and made available. The Air Quality in Ireland report (EPA, 2013c) identifies that air quality in Ireland continues to be good and is among the best in Europe.

The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was published in May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives. The fourth Daughter Directive (2004/107/EC) will be included in CAFE at a later stage. The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). It replaces the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004) and S.I. No. 33 of 1999. The fourth Daughter Directive was transposed into Irish legislation by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009).

Emissions to air of ammonia are associated with the formation of fine particulate matter (PM_{2.5}) which can have negative effects on human health. Depositions of ammonia from air to water cause acidification and eutrophication. Depositions of ammonia to land may cause acidification and/or exceedance of critical loads of nitrogen which may have adverse impacts on biodiversity.

Figure 4-4 Air Quality Zones



Data source: EPA, 2009

The agricultural sector accounts for 98% of ammonia (NH_3) emissions in Ireland (DAFM, 2014b), which mainly derive from livestock, but also fertiliser application - although National Farm Survey data show total fertiliser (and to a lesser extent N fertiliser) applications have generally been falling in recent years. To promote air quality and reduce trans-boundary emission under the Gothenburg Protocol, Ireland has a target of a 0.5% reduction in ammonia productions from agriculture below 2005 levels by 2020. In addition, further reductions are being proposed, in revised national emissions ceilings to 2030.

Emissions of nitrogen oxides (NO_x) significantly reduced in the last decade and might have been expected to fall below the national emission ceiling for NO_x of 65 kilotonnes (kt). Unfortunately, the EPA's latest data submission under the Convention on Long Range Transboundary air pollution shows a national total emission of 79 kt in 2013 (CEIM, 2015). The industry, agriculture, forestry and fisheries sectors combined account for 10% of NO_x emissions, primarily from fuel combustion.³

Ireland's obligations for GHG emission reductions are derived from the EU Climate Change and Renewable Energy Package 2008, which set national limits on reduction targets in accordance with the Kyoto Protocol from the United Nations Convention on Climate Change. Detailed mandatory commutative targets have been set up to the period 2020, with mandatory annual targets for the period 2016-2020. The EPA is responsible for monitoring, measuring and reporting on GHGs. The EPA (2015) predicts that within an overall rising trajectory of emissions, *"under the 'best case' scenario, Ireland is projected to cumulatively meet its compliance obligations over the 2013-2020"*. This takes into account the overachievement of the annual limits in the period 2013- 2017 which is banked and used in the years 2018-2020. This rising trajectory will make meeting future targets for the period out to 2030 and beyond to 2050, which will be set in on-going discussions, more difficult to achieve.

Carbon sequestration as a result of increased targeted area under forestry and sustainable grass management techniques are not available as a mitigation measure against increases in GHG emissions that may result from increased livestock numbers. Currently available measurement techniques do not account for Ireland's high-dependency on agriculture and predominant out-door grazing pattern, giving rise to a disproportionate (by European standards) contribution of Agriculture to total national GHG emission.

Targeted knowledge transfer initiatives aimed to increasing the rate of adoption of best technologies at primary production level have the potential to substantially reduce carbon intensity and thus facilitate increases in output while adhering to international obligations.

With regard to the 2030 EU Climate and Energy Framework, Ireland is working closely with other member states and the Commission to examine the best means of progressing. Ireland's view (DAFM, 2015a) is that the proposed EU policy framework must do three things:

- Promote sustainable intensification of food production to reduce the carbon intensity of food production and to contribute to both food security and GHG mitigation objectives.
- Encourage sustainable land management, afforestation and other forest sector mitigation activities, including forest product uses, that contribute to climate change mitigation and sustainably manage soil and forest carbon stocks
- Seek to move as far along the road to carbon neutrality as is possible in cost-effective terms, while not compromising the capacity for sustainable food production".

³ Emissions from soils and fertiliser application have not been included in EPA reporting to date, due to emission factor uncertainty.

4.5 Water (Surface Water, Groundwater and Drinking Water)

Surface water and groundwater are linked through water-flow pathways. Therefore, there will be parallel risks to surface and ground waters in certain areas. Where agricultural intensification may result in higher risk of surface water contamination or eutrophication (e.g. through pesticides or manure), the risk to groundwater can also be expected to be higher - particularly in high permeability soil and karst bedrock areas. Ireland's national legislation and regulations in relation to water are derived from the following:

- EU Water Framework Directive 2000/60/EC, this encompasses a set of eleven key existing EU Directives related to water and is the overall driver of the water policy in the EU.
- The Groundwater Directive 2006/118/EC
- Nitrates Directive 91/676/EEC (EC, 1991)
- The European Communities (Drinking Water) Regulations 2007 (S.I. No. 106 of 2007).
- European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010).
- The European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2009 and 2010,
- The Nitrates Action Plans and the Code of Good Agricultural Practice.

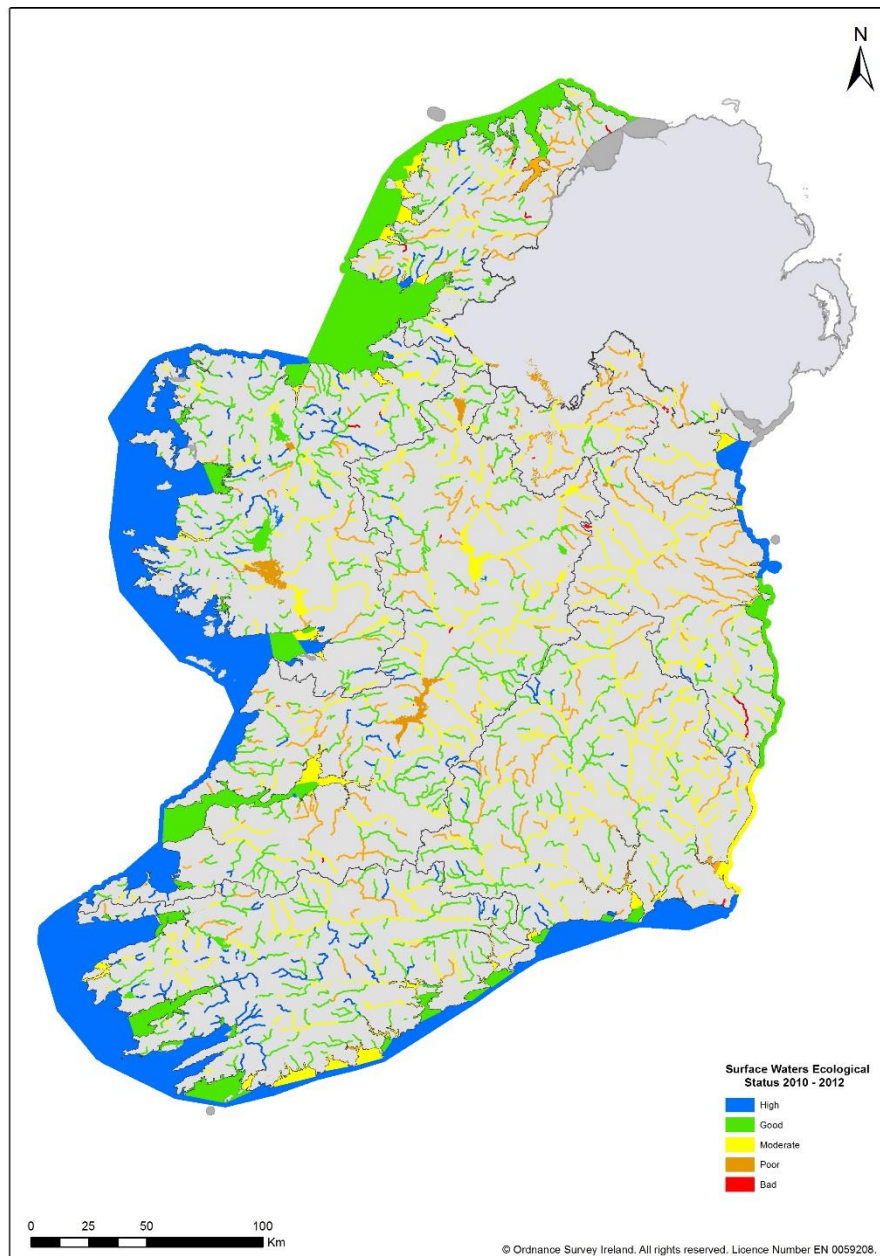
Monitoring and enforcement of water regulations is undertaken by the EPA and the DECLG through local authorities. Ireland's Environment Report (EPA, 2012b) states that Irish water quality is of good status when compared with other European countries, and that the quality of surface waters has improved in the last two decades, with the majority of surface waters (71% of rivers, 47% of lakes and 46% of transitional and coastal waters) being currently classified as unpolluted or as having high/good status (Figure 4-5). However, while showing an improving trend, this present status still presents challenges in terms of meeting targets set under the Water Framework Directive. All public bodies are required to coordinate their policies and operations so as to maintain the good status of water bodies that are currently unpolluted and to improve polluted water bodies to good status in accordance with agreed Water Framework Directive cycle deadlines, i.e. 2015, 2021 and 2027. However, with just 50% of water achieving the required minimum 'good status' and the number of sites achieving the 'high quality status' is falling, delivery on the Water Framework Directive will prove a challenge.

Agricultural activities and farming practice can impact significantly on water quality. Approximately 5,000 farmers avail of derogation under the Nitrates Directive, which facilitates increased grazing intensity under strict controls and subject to nutrient management plans. Additional monitoring and mitigation measures may be required to ensure that any intensification or increase in livestock numbers does not directly impact on water quality. In this regard, expected reporting under the Teagasc Agricultural Catchments Programme (ACP) will be relevant for the design of future plans.

Of particular relevance to agricultural activity is the availability of an adequate quantity of quality water at both production and processing level. Abstraction of water from the groundwater system for primary production is negligible due to high rainfall and the absence of irrigation systems. Given the ten year time horizon for *Food Wise 2025* and the imperative that agricultural activities maintain and improve water quality, a water deficit is not considered a likely impact.

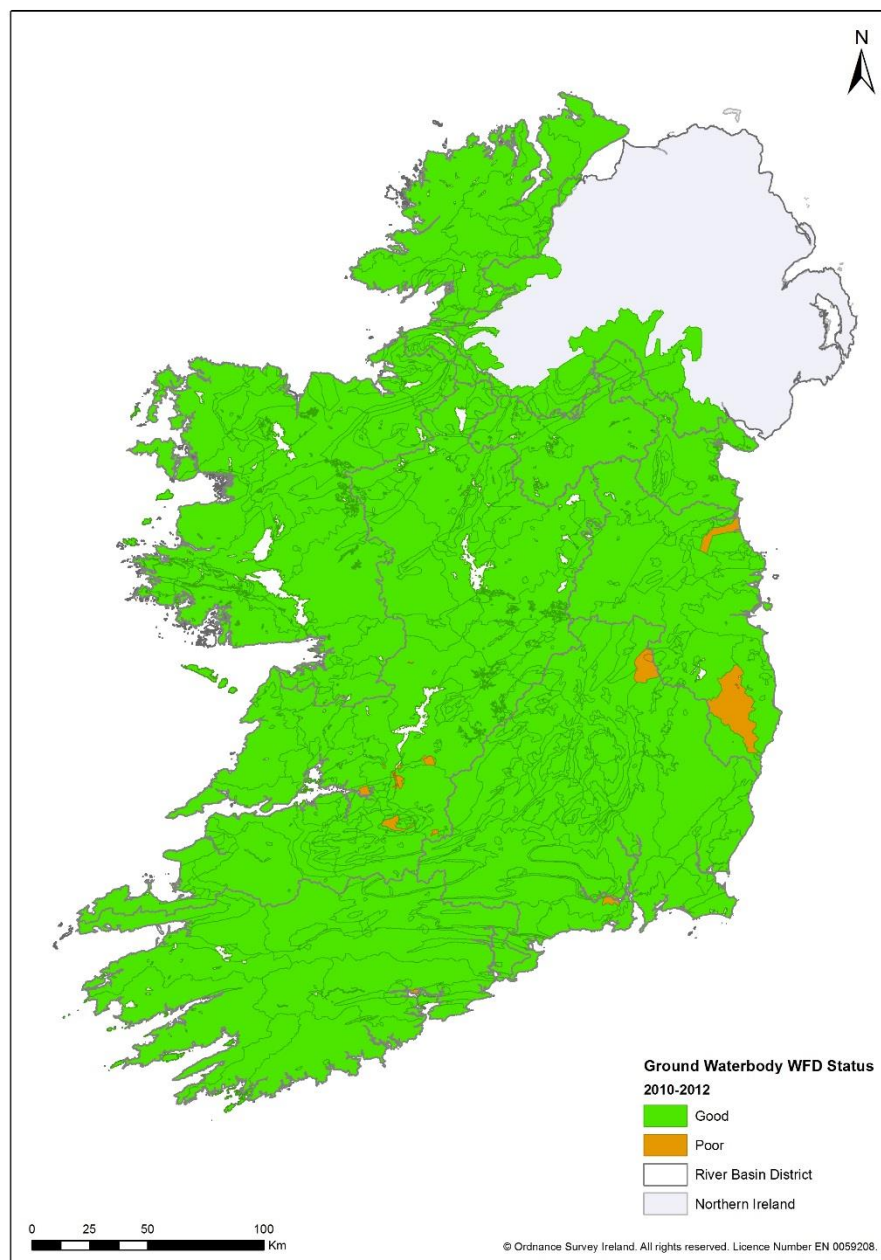
The EPA's WFD reporting indicates good groundwater quality for most areas (i.e. 86%) in the country with the exception of a number of large patches mainly to the West (Figure 4-6). Groundwater vulnerability (i.e. the ease with which the groundwater can be contaminated by human activities - illustrated in Figure 4-7) overlaps with some of these poor groundwater quality areas, and mostly relate to areas where karst limestone prevails.

Figure 4-5 Surface Water Status



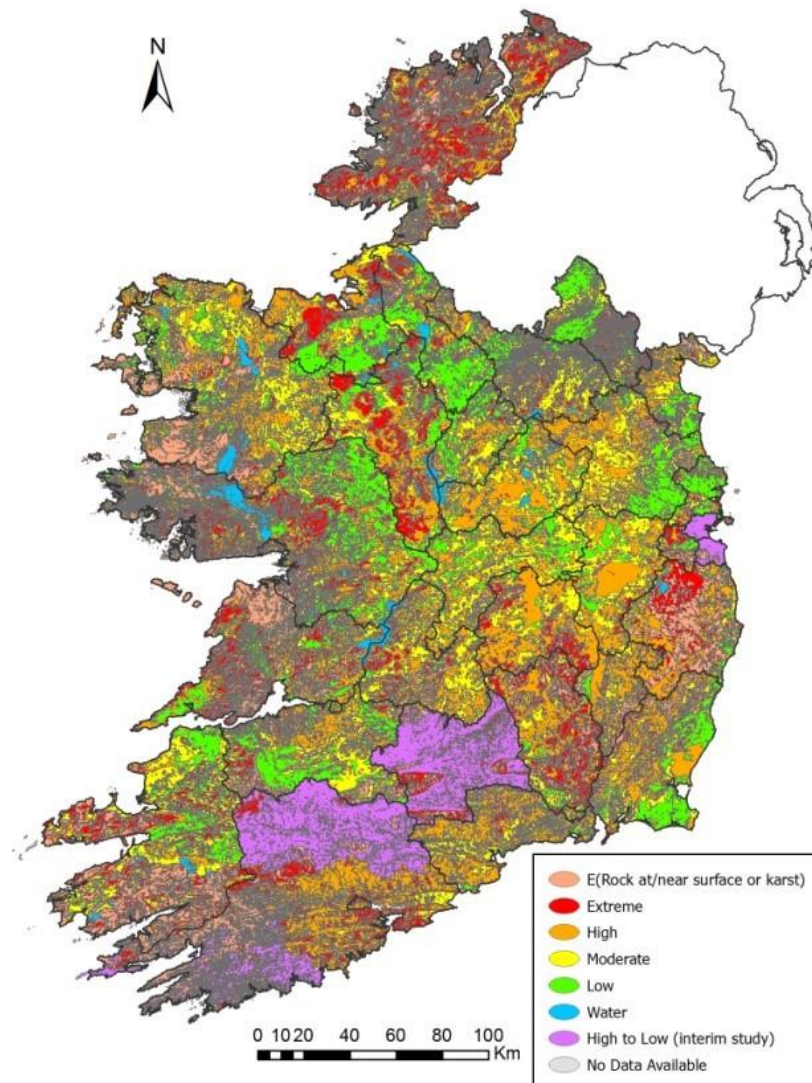
Data source: EPA, 2015b

Figure 4-6 Groundwater Status



Data source: EPA, 2015b

Figure 4-7 Groundwater Vulnerability



Data source: EPA, 2011

4.6 Soils and Geology

Bedrock geology has a major influence in landform and provides the parent material from which soils are created. The nature of the bedrock determines the nature and chemistry of the soil formed, which strongly affects the natural vegetation and the type of agriculture that it can sustain. Few EU Member States have specific legislation for the protection of soil resources, but a Soil Thematic Strategy (COM(2006) 231) was produced in 2006 with the objective to protect soils across the EU.⁴ The proposal for a Soil Framework Directive (EC, 2006) was withdrawn in 2014, but the Seventh Environment Action Programme (EC, 2013a) recognises soil degradation as a serious challenge and provides that by 2020 land is managed sustainably, soil is adequately protected and the remediation of contaminated sites is well underway. It specifically commits the EU and Member States to increasing efforts to reduce soil erosion and increase soil organic matter.

Regulation of soils falls under Cross Compliance under the basic-payment scheme of the Common Agricultural Policy and, where project-related, under EIA Regulation for On-Farm Development 2011 (SI 456 of 2011). Under the basic-payment scheme, farmers are obliged to comply with Good Agricultural and Environmental Condition (GAEC), which deals with soil erosion/soil organic matter etc. Teagasc have recently launched an updated soil map of Ireland and, in conjunction with the EPA, are undertaking research to evaluate the status of soil protection in Ireland with a view to inspire future policies.

Teagasc recently updated the soils map of Ireland (Figure 4-8), which has been published through a Soil Information System.⁵ Soil types vary significantly throughout the country; some areas have well drained, highly fertile and highly productive soils (e.g. acid brown earths), while others are covered by blanket peats that have limited use for agricultural production. Some peatland soils in the country are protected under the Habitats Directive, but many may be vulnerable to intensification of use with consequential impacts (amongst others) on carbon sequestration.

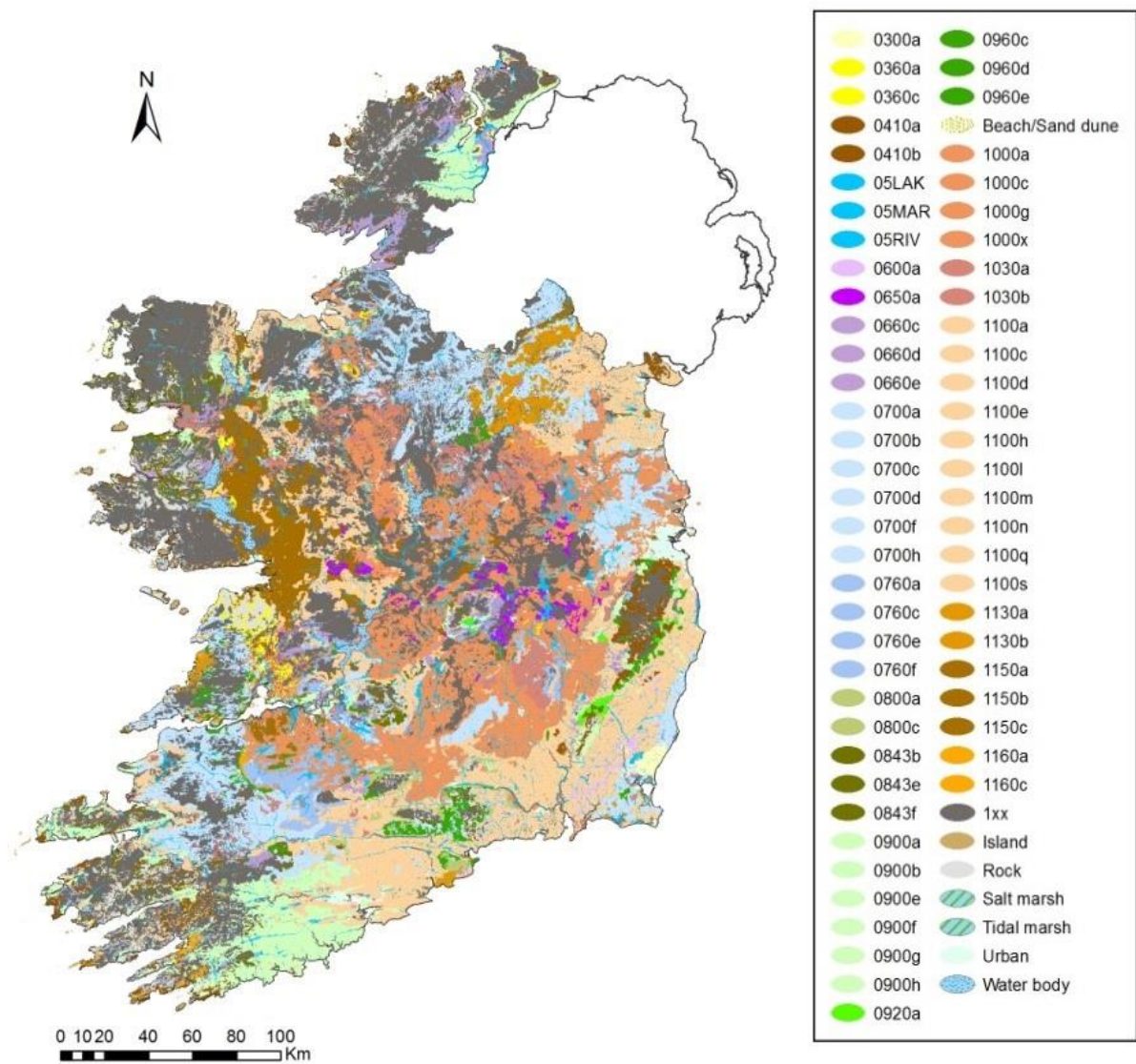
The drainage and fertility characteristics of soils largely determine their use and value from an agricultural perspective. For example, grey brown earths (illustrated in salmon pink in Figure 4-8) are well drained and have high fertility, while peats (illustrated in grey) are poorly drained and have poor fertility. Wet soil conditions have been identified as the most important factor limiting the utilisation of grazing grass on Irish farms (Creighton et al., 2011). In such lands, there is likely to be an enhancement of farm drainage schemes in order to increase stock carrying capacities (DAFM, 2014b).

The strategy is unlikely to have any significant effect on bedrock geology, mineral deposits or landslides and these secondary issues have therefore been scoped out. However, potential impacts on identified areas of the geological heritage (Geological NHAs and County Geological Sites - Figure 4-9) are of possible concern.

⁴ http://ec.europa.eu/environment/soil/index_en.htm

⁵ <http://gis.teagasc.ie/soils/>

Figure 4-8 Soil Associations



Data source: Teagasc, 2014

Figure 4-9 Geological Heritage Sites

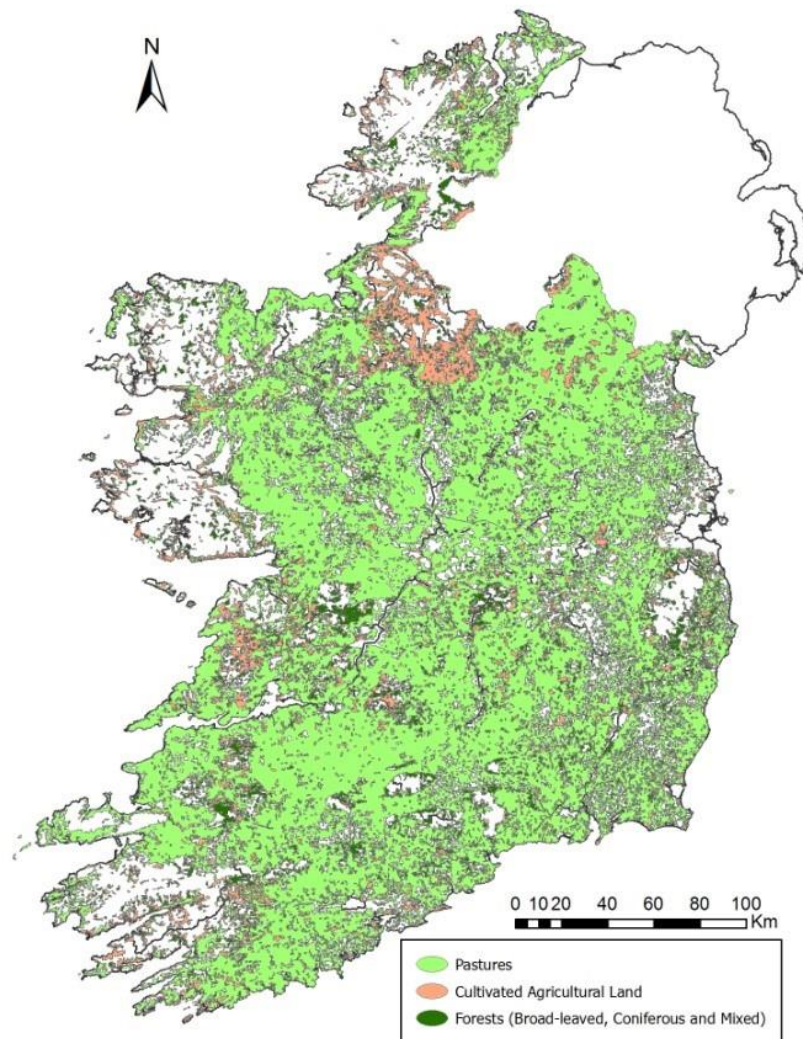


Data source: GSI, 2015.

4.7 Landscape

The Irish landscape is a cumulative product of past farming practices (Figure 4-10). It is currently dominated by pastures (approximately 68%) with small pockets of forestry covering 11% of the landmass.

Figure 4-10 Agricultural Land-Uses



Data source: CORINE, 2012.

Main land-use changes in recent decades include an increase in the amount of forested lands and artificial areas, and decreases in the total amount of agricultural land and peatland (EPA, 2012b). Modernisation of agricultural practices has resulted in larger farms - particularly for arable production,

changes in crops (reduction of hay in favour of silage), and overall intensification of agricultural production (DAFM, 2014b). These changes have been most noticeable in the east and south where more favourable soil conditions have resulted in increased specialisation and in some instances corresponding landscape homogeneity.

There is no specific Irish legislation for the protection of the landscape, but the Planning and Development Acts 2000-2011 introduced requirements for the preservation of the character of the landscape, including statutory provision for areas of special amenity and landscape conservation areas. Landscape must also be considered in relation to projects covered by the EIA Directive 2011/92 EU and (for certain specifically agricultural projects) under the European Communities (Environmental Impact Assessment) (Agriculture) Regulations 2011 (S.I. 456 of 2011). At farm level, farm reorganisation is likely to be subject to EIA and removal of hedges from the landscape is regulated above certain thresholds (exemptions apply in certain cases where removed hedges are replaced by an equivalent length of hedge under the basic payment system).. Following production of draft landscape and landscape assessment guidelines (DELG, 2000), the DAHG have issued a National Landscape Strategy for Ireland with the objective of developing a national landscape character assessment (DAHG, 2015).

Food Wise 2025 does not envisage any significant land-use changes apart from increased afforestation. Such changes will have to take account of scenic landscapes, Special Area Amenity Orders and NPWS guidance. In addition new afforestation proposals will have to respect views both protected and designated for protection at county level.

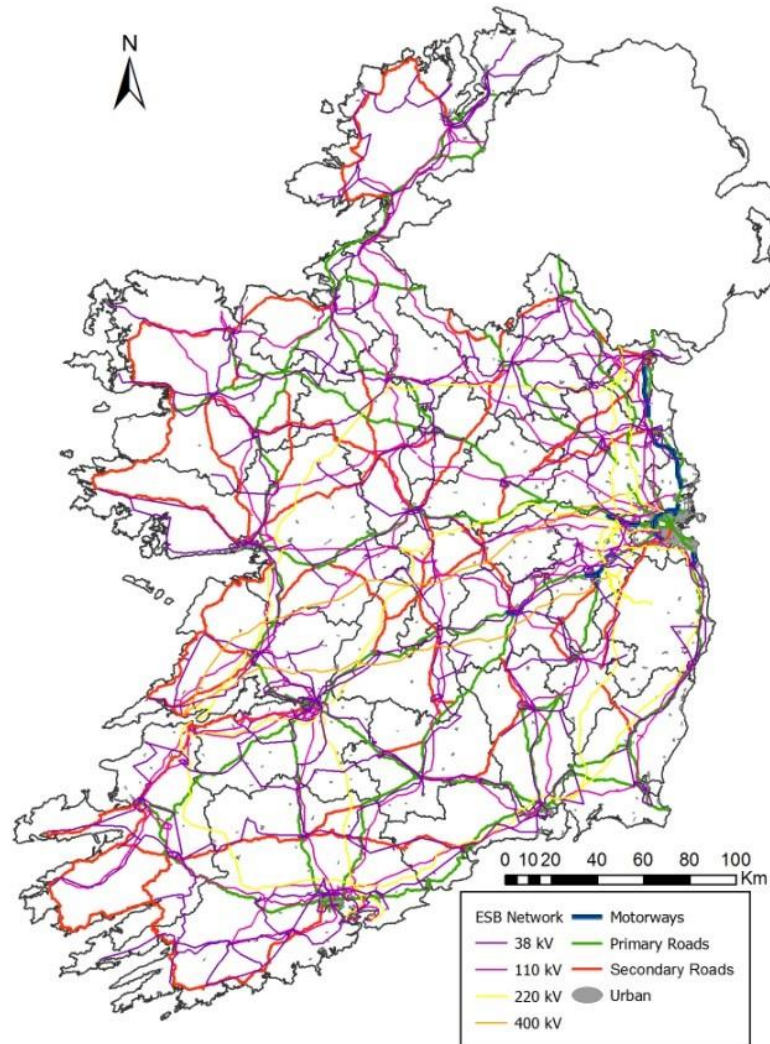
4.8 Material Assets

Material assets encompass man-made infrastructure, including transport-related (e.g. roads, rail), public services (e.g. wastewater treatment, water supply) and recreational facilities (e.g. picnic areas, walking routes, golf courses). Certain public services such as water and energy supply and waste management infrastructure (Figures 4-11 and 4-12) are planned and permitted through specific processes that are informed by the existing and future needs identified within County Development Plans and Local Area Plans. The SEA takes into account the overall capacity of the water supply, energy supply, solid waste and wastewater services in meeting any additional significant demands imposed by the *Food Wise 2025*.

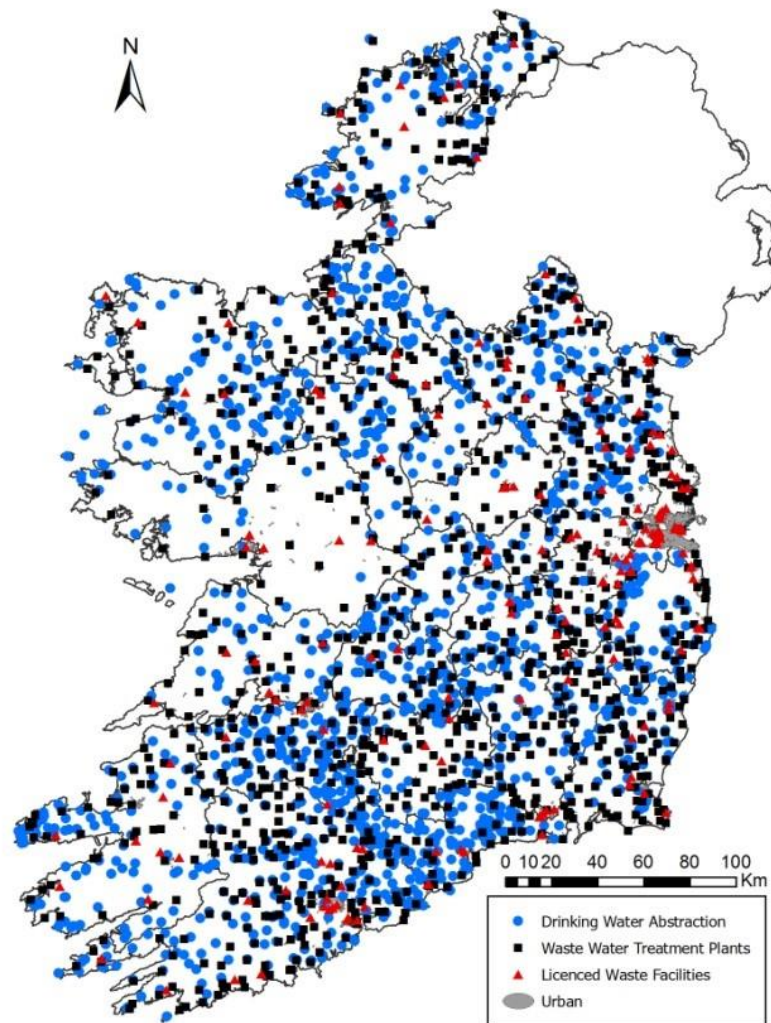
Material assets also encompass natural assets with development potential such as aquaculture, wind energy or undeveloped lands. The Roads Programme 2004-2012 required the purchase and severance of a substantial amount of land formerly used for agricultural production. Significant infrastructural developments in the form of roads, water, sewage, wastewater, power generation and wind energy that are likely to materialise within the lifespan of the *Food Wise 2025* will impact on agricultural land.

Less tangibly, but of particular relevance to *Food Wise 2025*, the umbrella of material assets can also encompass financial attributes of current livelihoods (e.g. business or brand identify) of the sort encapsulate within the value-added concept of 'Smart Green Growth'.

Figure 4-11 Road and Electricity Infrastructure



Data sources: ESB, 2014 and OSi, 2010

Figure 4-12 Drinking Water, Wastewater and Solid Waste Treatment Infrastructure

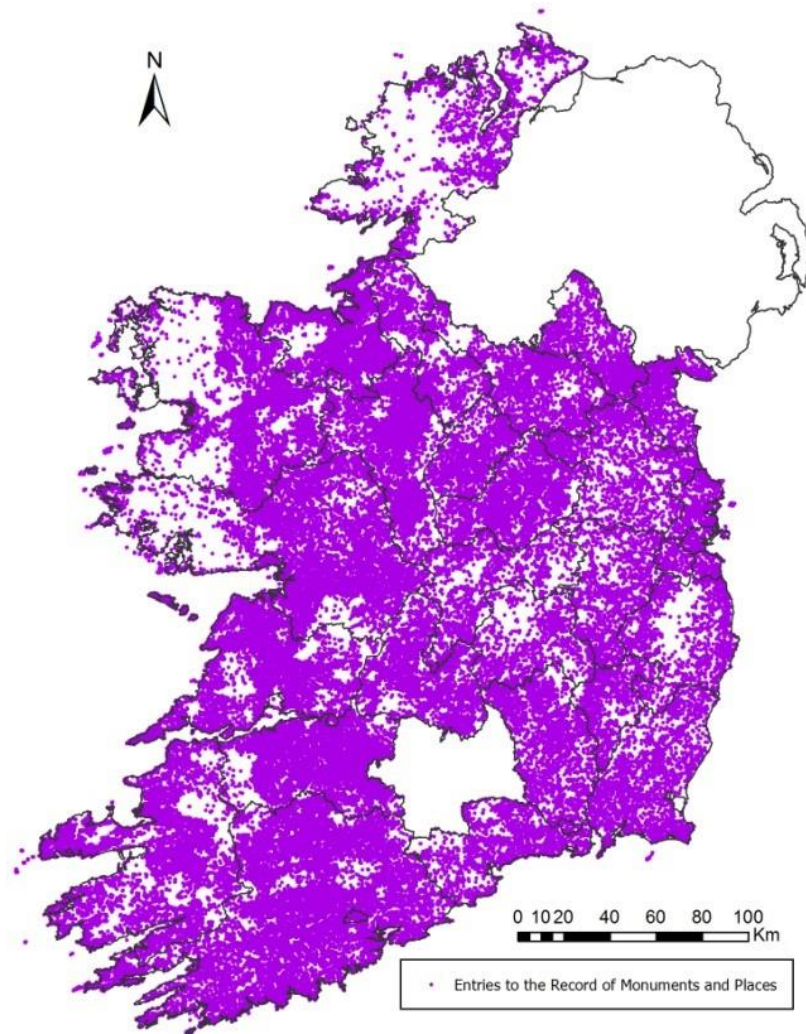
Data Source: EPA, 2015

4.9 Cultural Heritage (including Architectural and Archaeological Heritage)

Cultural heritage encompasses archaeological and architectural heritage, as well as less-easily defined non-material culture. Archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997, and the Planning and Development Acts 2000-2010. The Record of Monuments and Places (RMP) is an inventory of known sites and areas of archaeological significance protected under the National Monuments Acts 1930-2004 (Figure 4-13).

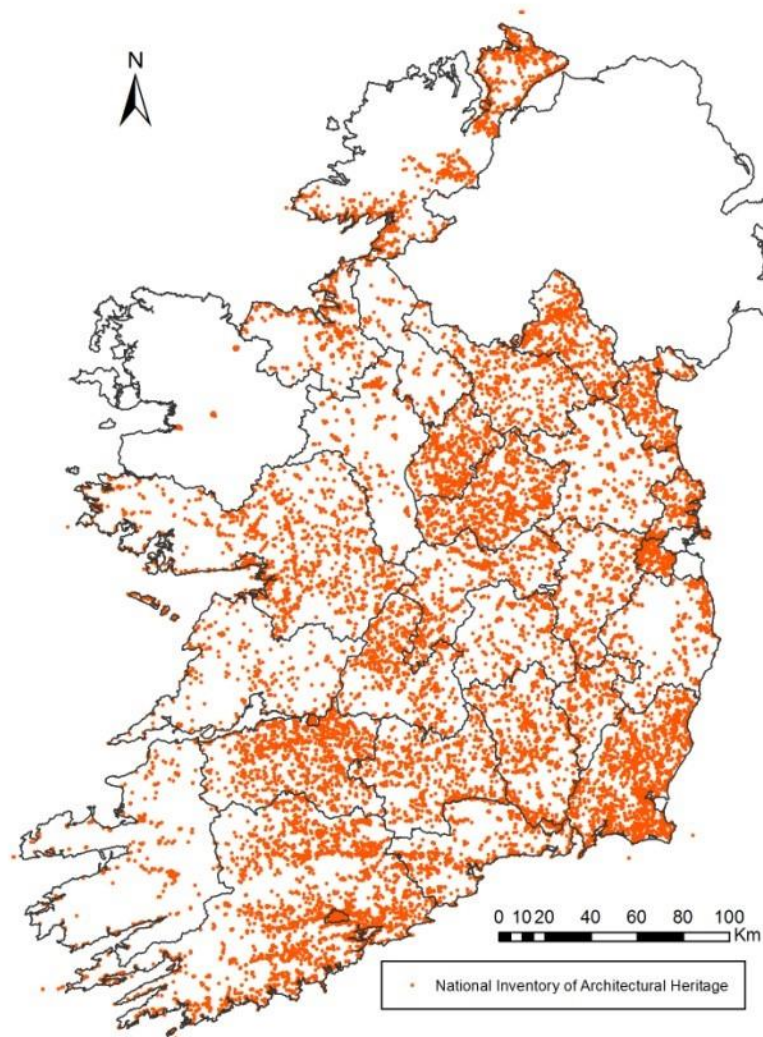
Archaeological features lie dotted throughout the countryside and located within working farms. New Archaeological finds are constantly being discovered by professional archaeologists through structured organised research and by practicing farmers accidentally uncovering them, mainly through ploughing. All archaeological monuments are protected under the National Monuments Acts and all proposed works within 20 metres of such monuments located on farm lands must be notified to the National Monuments section at the DAHG.

Architectural heritage refers to structures and buildings together with their settings and attendant grounds, fixtures and fittings; groups of structures and buildings; and sites which are of technical, historical, archaeological, artistic, cultural, scientific, social, or technical interest. They are protected under the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. The primary source for architectural heritage is the Record of Protected Structures (RPS), collated at county level, and protected under the Planning and Development Acts 2000-2010. Inclusion in the National Inventory of Architectural Heritage (Figure 4-14) represents the first step towards a RPS designation. The majority of these structures and buildings are with urban settlements and, therefore, it is unlikely that there will be any significant conflict with the *Food Wise 2025*.

Figure 4-13 Record of Monuments and Places

Data source: National Monuments Service, 2014

Figure 4-14 National Inventory of Architectural Heritage



Data source: DAHG, 2014

4.10 Inter-Relationships

The SEA Directive requires that any inter-relationships between environmental factors will be identified for their combined assessment. There are obvious one-on-one interactions between water quality and biodiversity, and the quality of water and agricultural produce - and between food tourism and broader environmental quality. The Environmental Liability Directive (EC, 2004) plays a significant role in dealing with any direct or indirect damage to the aquatic environment, Natura 2000 sites and land contamination - thereby addressing the inter-relationships amongst a number of environmental factors. The polluter pays principle applies in all relevant cases with the objective of reverting any environmental effects on water, soil and/or biodiversity.

4.11 Cumulative Effects

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present, and future policy and plans. This will include the collective effects of the various sectoral activities contemplated in the *Food Wise 2025* with other plans. The potential for cumulative effects is likely to be associated with the combined intensification and expansion of the various sectors in terms of the carrying capacity of the environment, with particular focus on water quality, biodiversity protection, soil productivity, landscape amenity and public services (i.e. water and energy supply and waste management).

4.12 Transboundary Effects

There is a range of potential transboundary effects that might be generated by the *Food Wise 2025* - the most significant of which is undoubtedly ammonia and GHG emissions. Impacts on cross-border catchments, and adjacent sea areas could arise from both agriculture/forestry and marine proposals, as could those on migratory species (e.g. Ramsar).

4.13 Data Gaps & Study Limitations

4.13.1 Population and Human Health

Although significant socio-economic data are available from the Central Statistics Office (e.g. census data) and the Economic and Social Research Institute (ESRI), human health data for Ireland are lacking. Some information can be inferred from other data sources such as air or water quality, but there is a dearth of readily available quantitative and spatially-specific information in this area (e.g. epidemiological data linking environmental pollutants with health impacts in people). This raises issues for those concerned with, for example, the impacts of pesticides on human health in Ireland. These data limitations will affect the full assessment of human health effects at the local level.

The agri-food sector is export oriented. Consequently raw material and finished food products are exported across the globe. In this context beverages and food products of Irish origin become consumer products in many countries. Issues in relation to excess consumption of both food and beverages, diet mix, cereals versus meat, and food substitutions such as infant formula may arise but are not quantifiable.

4.13.2 Biodiversity, Flora and Fauna

The 'Ireland's Biodiversity in 2010: Knowledge Gaps' report (NBDC, 2010) concludes that Ireland's biodiversity has yet to be fully documented. A small number of groups (e.g. vascular plants, birds, mammals and some invertebrates such as butterflies and molluscs) are well-studied, but significant data and information gaps remain for the large majority of species, and a national habitat map is yet to be prepared. These data limitations will affect the full assessment of effects at both regional and local levels.

4.13.3 Air Quality and Climatic Change

Air quality in relation to a number of pollutants (e.g. NH₃, NO_x, PM₁₀) is regularly monitored by the EPA at specific locations throughout the country. Similarly, under international and European agreements, GHG emissions are annually reported by the EPA. Nevertheless, much of these data are collated at national level and, as a result, examination of any localised effects resulting from specific activities is not possible. The overall contribution of agricultural intensification to national air pollutant levels and GHG emissions and ammonia will have to be modelled in subsequent implementation plans. In addition, Ireland's obligations to limit ammonia emissions may require more robust ammonia monitoring programmes.

4.13.4 Water (Surface, Ground Water and Drinking Water)

Water quality is regularly monitored by the EPA. However, published information relates to the first WFD reporting period (EPA, 2010) and the status of the environment reports (EPA, 2012b). The next WFD reporting period of 2015 requires a review and update of RBDMPs. A number of Integrated Water Quality Reports (e.g. EPA, 2011) provide updates on water quality data. The assessment of *Food Wise 2025* will have to be based on existing baseline information, limiting the assessment of trends and future projections.

4.13.5 Soils and Geology

Soil productivity and drainage maps are still to be produced, and limited information exists on soil organic matter and soil compaction. These information gaps, together with a lack of spatial detail on the implementation of *Food Wise 2025* are anticipated to affect the assessment. Recent work by Teagasc in relation to the new Irish Soil Information System will contribute to greater clarity in relation to soils and drainage. However, as soil compaction and organic matter content are highly dependent upon localised farming conditions little information exists on localised baseline conditions.

4.13.6 Landscape

No national landscape character mapping or protection policies currently exist and landscape characterisation and sensitivity mapping is inconsistent across counties, thereby limiting the extent to which landscape effects can be assessed. However, the Department of Arts, Heritage and the Gaeltacht recently launched a National Landscape Strategy for Ireland 2014-15 (DAHG, 2015), one of the main objectives of which is to develop a national landscape character assessment.

4.13.7 Material Assets

Although the capacity of public services in relation to water energy and waste management is periodically monitored, much of the data are not readily available. Moreover, the lack of spatial detail on the implementation of the strategy will make difficult the assessment of demands and, thereby, the supply and treatment requirements in each region/area.

4.13.8 Cultural Heritage (including Architectural and Archaeological Heritage)

Despite its intensity of geographical coverage it is acknowledged that the Record of Monuments and Places (RMP) is a work in progress and new sites are continually being identified. Similarly, the National Inventory of Architectural Heritage and the county level Record of Protected Structures (RPS) are ongoing.

5 Assessment of Alternative Strategies

5.1 Introduction

In accordance with SEA Directive (EC/2001) alternatives to the proposed strategy were considered. The alternatives considered are outlined in detail in Section 1.8 of this document.

In summary the alternatives assessed here are:

- **Base Case Scenario** is considered to be the best proxy for a business as usual or a do nothing scenario. This scenario is representative of what would happen in the absence of a new plan. This would involve the continuation of the moderate increases in output seen over recent years, mainly achieved through improvements in technology and management techniques.
- **Base Case + Scenario** would be achieved if the anticipated expansion in dairy cow numbers planned by farmers and the processing industry can be leveraged by substantial increases in the use of best technology facilitated by enhanced knowledge transfer programmes. This might see milk processor ambitions for increased output at primary production level being achieved through increases in dairy cow numbers and improved technology.
- **Sustainable Growth Scenario:** In order to mitigate potential environmental impacts arising from the above scenarios a *Sustainable Growth* scenario was developed. This scenario recognises that environmental protection and sustainability will need to be central to any increases in production.

5.2 Assessment of Alternatives

Each of the alternative plan proposals was assessed to determine the potential of these plans at a strategic level to impact on the strategic environmental objectives. This assessment informs the decision making process in terms of identifying the most appropriate plan to bring forward and develop in detail. The alternatives analysis table is presented below in Table 5-2. However, in summary *Food Wise 2025* has been developed after considering a number of alternative scenarios which are:

- The *Base Case* scenario, is considered to be a continuation of existing policy and can be likened to a do nothing scenario. Under this scenario developments within the agri-food sector would continue on their current path and neither industry nor policy makers would change direction or set new objectives which would be more in line with Ireland's developing international commitments and targets.
- The *Base Case +* scenario which was analysed represented more ambitious levels of expansion than recent historical trends. The *Base Case +* scenario would have involved an increased emphasis on primary agricultural production, perhaps set in expectations for an expanding production base. In the case of the dairy sector it might be achieved if the anticipated expansion in dairy cow numbers, planned by farmers and the processing industry, could be leveraged by substantial increases in the use of best technology facilitated by enhanced knowledge transfer programmes.

In recognition of the agri-food sector's pivotal role across all environmental media particularly air quality, GHG emissions, biodiversity and water quality; and to ensure compliance by the agri-food sector with existing obligations under the Water Framework Directive, the Biodiversity Action Plan, and international commitments in relation to GHG emissions and air quality; it was recognised in the

course of drafting *Food Wise 2025* that the development of a *Sustainable Growth* scenario was appropriate.

This scenario recognises that environmental protection and sustainability will need to be central to any increases in production. Provisional analysis established that this scenario represented the most environmentally advantageous outcomes. This scenario has broadly positive outcomes under the SEOs. In instances where a slight negative impact, mainly as the result of uncertainties, the application of existing mitigation measures has the potential to reduce the impact to neutral.

In this Environmental Analysis the *Sustainable Growth* scenario was brought forward for fuller analysis as the most appropriate scenario representation of *Food Wise 2025*. The analysis was undertaken in light of existing regulation and available mitigation measures.

5.3 Reasons for the Selection of the Preferred Option & Rejection of Reasonable Alternatives

Each of the alternative plan proposals was assessed to determine the potential of these plans at a strategic level to impact on the strategic environmental objectives. This assessment informs the decision making process in terms of identifying the most appropriate plan to bring forward and develop in detail. In summary *Food Wise 2025* has been developed after considering a number of alternative scenarios.

The *Base Case* scenario is considered to be the best proxy for a business as usual or a do nothing scenario. This scenario is representative of what would happen in the absence of a new plan. This would involve the continuation of the moderate increases in output seen over recent years, mainly achieved through improvements in technology and management techniques.

The adoption of the *Base Case* scenario could result in the following:

- Increased risk of nutrient discharge to water;
- Potential risks to designated ecological sites as agricultural, forestry and seafood production expands;
- Increases in GHG and ammonia emissions;
- Less sustainable agricultural output; and
- Potential for changes in landscape character arising from land use changes to facilitate increased production.

It is considered that this scenario has potential for less sustainable agricultural, forestry and sea food sectors and in the absence of effective management and monitoring of discharges/emissions and disturbance arising from these sectors, there would be an overall moderate negative impact.

The *Base Case +* scenario represented more ambitious levels of expansion than recent historical trends. In the case of the dairy sector it might be achieved by expansion in dairy cow numbers leveraged by substantial increases in the use of best technology facilitated by enhanced knowledge transfer programmes. This scenario could have significant economic benefits in terms of increased

agricultural and processing outputs which would benefit the rural economy. However in the absence of improved sustainable production and processing, this alternative has the potential to have a moderate negative effect on the receiving environment.

The adoption of the *Base Case +* scenario could result in the following:

- Increased risk of nutrient discharge to water;
- Potential risks to designated ecological sites as agricultural, forestry and seafood production expands;
- Increases in GHG emissions and reduced air quality;
- Increased risk of Ireland failing to meet international obligations with regard to GHG and ammonia emissions;
- Less sustainable agricultural output; and
- Potential for changes in landscape character arising from land use changes to facilitate increased production.

The *Sustainable Growth* scenario differs from the other potential scenarios in the recognition of the necessity for the agri-food and marine sector to contribute and help fulfil both national and international obligations across all relevant environmental parameters. The choice of this strategy in favour of the other alternatives imposes responsibilities on the agri-food and marine industry to develop appropriate and effective mitigation strategies to ensure that any increases in primary production can only occur having full regard to Ireland's national and international obligations specifically in relation to: the maintenance and improvement of biodiversity; the maintenance and improvement of water quality status; and the improvement of air quality including a reduction in GHG emissions.

The *Sustainable Growth* scenario focusses on the need for targeted research, the roll-out of mitigation and increased monitoring to verify and substantiate the role of the agri-food industry within the environment. Knowledge transfer, the further roll-out of the Origin Green programme and other initiatives aimed at reducing the carbon footprint of the agri-food industry are promoted.

The preferred option is translated within *Food Wise 2025* to a guiding principle:

"A guiding principle to meet these sustainability goals will be that environmental protection and economic competitiveness will be considered as equal and complementary, one will not be achieved at the expense of the other. The three pillars of sustainability - social, economic and environmental - are equally important and carry commensurate weight ensuring that as the sector continues to develop and grow this development will be undertaken in the context of addressing environmental challenges."

The scoring system used for the assessment of the strategy's actions is detailed in Table 5-1. The assessment of alternatives is detailed in Table 5-2.

Table 5-1 Scoring Key

+++	Significant Positive
++	Moderate Positive
+	Slight Positive
0	Neutral / Imperceptible
-	Slight Negative/ Uncertain
--	Moderate Negative
---	Significant Negative

Table 5-2 Assessment of Alternatives

Priority Actions		Strategic Environmental Objectives																	Comments
		1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
	Base	0	0	--	--	--	--	0	--	0	0	--	+	-	0	0	0	-	<p>The <i>Base Case</i> entails the continuation in the rate of changes in production levels seen over recent years to generate a “moderate increase in output – essentially a business as usual scenario. The adoption of the <i>Base Case</i> could result in the following:</p> <ul style="list-style-type: none">Increased risk of emissions to water,Potential risks to designated sites as agricultural, forestry and seafood production expands,Increases in GHG emissions,Less sustainable agricultural output;Potential for changes in landscape character arising from land use changes to facilitate increased production. <p>It is considered that this scenario has potential for less sustainable agricultural, forestry and sea food sectors and in the absence of effective management and monitoring of discharges/emissions and disturbance arising from these sectors, there would be an overall slight negative impact.</p>
	Base +	0	-	--	--	--	--	0	--	0	0	--	++	--	+	0	0	--	<p>The <i>Base Case +</i> scenario represented more ambitious levels of expansion than recent historical trends. In the case of the dairy sector it might be achieved by expansion in dairy cow numbers leveraged by substantial increases in the use of best technology facilitated by enhanced knowledge transfer programmes. This scenario could have significant economic benefits in terms of increased agricultural and processing outputs which would benefit the rural economy. However in the absence of improved sustainable production and processing, this alternative has the potential to have a significant negative effect on the receiving environment.</p>
	Sustainable Growth scenario	0	+	+	+	0	0	0	+	0	0	+	+	++	+	0	0	+	<p>This alternative plan is recognition of the potential for increased production, benefiting the rural economy, but is counterbalanced by the inclusion of a significant number of plan strategies and actions to ensure that production is more sustainable and ensures that environmental protection is a key element of the plan. The “green image” of Irish agriculture is recognised, developed and utilised as a marketing tool.</p>

6 Identification of Likely Significant Effects

6.1 Introduction

As previously noted, Directive 2001/42/EC requires that the plan/programme in preparation and undergoing SEA should be assessed in respect of its potential effects on a range of environmental components, namely human beings (population and health); biodiversity, flora and fauna; water; air quality and climatic factors (here grouped together); soils and geology; landscape; cultural heritage (including archaeological and architectural heritage); and material assets.⁶

Therefore possible expected impacts are described in general terms under each of the following SEA category headings, followed by thematic summaries of the *Food Wise 2025* proposals. The full extent of the assessment undertaken is detailed in the SEA Assessment Matrix in Annex I of this Environmental Report. This chapter outlines a summary of the assessment outcomes under the principle environmental headings considered as part of the strategic environmental assessment.

6.2 Population and Human Health

The Plan, taken in conjunction with the previous Rural Development Programme, is seen as having broadly positive socio-economic effects for the rural community. Many of *Food Wise 2025*'s actions will have a neutral or imperceptible effect while actions associated with Origin Green and focused research are deemed to have potential slight positive effects. A moderate positive effect is associated with actions for the development of human capital. A significant positive effect is identified in relation to food safety initiatives. Actions in the areas of agri-tourism, general and agricultural stability will have positive effects on population and human health.

6.3 Biodiversity, Flora and Fauna

There are no specific growth targets for primary production within *Food Wise 2025*. Nonetheless growth opportunities and innovation, as a result of their uncertainty, are deemed to represent a slight negative effect on biodiversity. Broadly all other actions within *Food Wise 2025* are predicted to have an imperceptible or slightly positive effect on biodiversity. Further developments of the Origin Green programme will deliver moderately positive effects.

At a sectoral level proposed actions by DAFM are predicted to have a significant positive effect. At a sectoral level actions to increase soil fertility and actions which may result in unspecified increases in production levels are unpredictable and therefore deemed slightly negative. All increases in soil fertility are assumed to occur within the parameters of the Phosphorus Regulations, the Nitrates Directive, GAEC and SMRs.

⁶ Directive 2014/52/EU, which becomes legally binding in 2017 before the realisation of Food Wise 2025, realigns the EIA environmental assessment categories in the same manner, thereby providing greater correspondence between SEA and EIA (EC, 2014).

6.4 Air Quality and Climate Change

Broadly the Plan as developed will have a slightly positive effect on air quality because the *Sustainable Growth* strategy dictates that new mitigation measures must be brought forward prior to any increases in livestock numbers or other actions which would have the effect of increasing GHG, ammonia emissions to air. Actions under Origin Green are predicted to have a moderately positive effect. Some actions are deemed to have a neutral or imperceptible effect while uncertainties with regard to the nature of growth opportunities are deemed to represent a slightly negative effect.

Actions within *Food Wise 2025* in connection with policy development and recognition of agriculture's role in formulating energy policy have the potential to be significantly positive in relation to GHG emissions and moderately positive in relation to climate change. All other actions are deemed to moderately positive or imperceptible in relation to GHGs. As a result of uncertainty undefined growth opportunities are deemed to represent a slight moderate threat.

At a sectoral level actions within the forestry sector are deemed to have a moderate positive effects. Uncertainties in relation to the consequences of some actions in relation to grassland management have been deemed to represent a slight negative threat.

While the greatest challenge to *Food Wise 2025* will undoubtedly be the question of GHG emissions, other emissions to atmosphere including ammonia, NO_x, PM, odour and noise require consideration, whether or not any substantial increase in the size of the national herd is proposed. Although a strong case can be made that Irish agriculture is the most carbon-efficient in the EU, the current regulatory framework seeks to limit gross agricultural GHG emissions and does not account for the carbon efficiency of finished product.

6.5 Water (Surface, Groundwater and Drinking Water)

Food Wise 2025 must comply with the Water Framework Directive (2000/60/EC) and the Nitrates Directive (91/676/EEC) requirements. The WFD requires the implementation of measures as defined under the River Basin District Management Plans to prevent deterioration of the status of surface waters (i.e. streams, rivers, lakes, transitional and coastal water bodies) and groundwater - and to allow water quality to attain good water status. All public bodies are required to coordinate their policies and operations so as to maintain the good status of water bodies that are currently unpolluted and to improve polluted water bodies to good status in accordance with agreed Water Framework Directive cycle deadlines, i.e. 2015, 2021 and 2027.

Actions aimed at improving the environmental footprint of the agri-environmental sector will deliver significantly positive effects while other actions will deliver slightly positive effects. At a sectoral level uncertainties with regard to unspecified increases in growth and improvements in soil quality and grassland management have been deemed to present a slightly negative threat. In this regard specific regional/catchment level monitoring may be required where increased livestock numbers are anticipated.

6.6 Soils and Geology

Strategic actions within *Food Wise 2025* such as further roll out of Origin Green, environmental foot-printing and innovation will deliver moderate positive effects for soil quality. Other positive effects will flow from actions at a strategic level. Unspecified growth opportunities are deemed to represent a slight negative threat as a result of uncertainty.

At a sectoral level soil management actions will deliver significant positive effects. Other positive effects will flow from research and innovation.

6.7 Landscape

Food Wise 2025 envisages no changes in landuse patterns save an increase in afforestation from 2021 to 2025. New afforestation is regulated so as to protect landscape character. Overall *Food Wise 2025* is found to have a positive or imperceptible effect on landscape. At a sectoral level some actions in forestry, aquaculture and cereal/tillage are deemed to have a slight negative effect as a result of uncertainties.

6.8 Material Assets

Material assets encompass man-made infrastructure, including transport-related (e.g. roads, canals), public services (e.g. wastewater treatment, water supply) and recreational facilities (e.g. picnic areas, walking routes, golf courses). Certain public services such as water and energy supply and waste management infrastructure are planned and permitted through specific processes that are informed by the existing and future needs identified within County Development Plans and Local Area Plans. Material assets also encompass natural assets with development potential such as aquaculture, wind energy or undeveloped lands, as well as financial attributes of current livelihoods (e.g. business or brand identity). The SEA takes into account the overall capacity of the water supply, energy supply, solid waste and wastewater services in meeting any additional significant demands imposed by the Plan.

6.9 Cultural Heritage (including Architectural and Archaeological Heritage)

Overall actions under *Food Wise 2025* are deemed to be either imperceptible or slightly positive. Actions in relation to growth opportunities are deemed to have a slight negative effect as a result of uncertainty.

6.10 Inter-Relationships

- Effects on human health and wellbeing can derive from Interactions with environmental factors such as water, soil or air through which contaminants or pollutants can come in contact with human beings.
- Positive actions to promote agri-tourism and improvements in the sustainability of the sector generally will have positive effects on population and human health.

- Water-dependant habitats and species (freshwater pearl mussel, shellfish waters and nutrient sensitive habitats in particular) can be affected by changes in water quality (e.g. contamination or eutrophication).
- Positive effects on habitats and species will follow from improved soil management and reduced nutrient run-off (achieved through improved farm management practices or reduced stock numbers).
- Air pollutants such as NO_x contribute to acidification of soils and surface waters, which in turn can have effects on biodiversity, flora, fauna and human health.
- Agricultural landscapes are shaped by and, therefore, inter-relate with soil, water, climate and biodiversity, in addition to population and socio-economic factors (e.g. investment, market demand, etc.). The opposite is also true, whereby landscape attributes (e.g. topography, slope) shape agricultural practices.
- Soils play a key role in drainage, filtration and flood protection and, as such, can contain the spread and buffer the effect of contaminants in surface and groundwaters.
- Changes in climate could result in a variation in rainfall, which would have an effect on other environmental aspects such as biodiversity and water flows. In the context of the agricultural sector, climate change predictions must be given due consideration when managing the lands (e.g. as locally wetter climate may lead to greater pesticide use). Moreover, climate change may have significant effects on aquaculture as a result of increases in water temperature, and deterioration in the storm-free operational window for wild fisheries (albeit that these effects are considered remote).
- The emission of ammonia are a secondary precursor for the formation of particulate matter (PM_{2.5}) which has health implications for exposed populations.

According to EPA (2012b) there is a danger that critical loads of nitrogen may be exceeded in Natura 2000 sites as a result of ammonia depositions from air. Such increases in nitrogen loading on ecosystems are known to result in a decrease in species diversity and changes in species composition in favour of nitrogen loving species.

6.11 Cumulative Effects

Food Wise 2025 is a high level strategy to guide the agri-food industry towards 2025 under the guiding principal of sustainability. This high level strategy has been prepared in the knowledge of and with the aim of being in compliance with the objectives of all other plans and programmes currently in force and impacting on the agri-food industry.

Food Wise 2025 could generate cumulative effects in combination with other plans and programmes. For this reason this report has examined a number of other plans and programmes for their potential to interact with the *Food Wise 2025* and generate significant cumulative environmental effects. A list of plans and programmes considered is detailed at Table 6-1. Further details of the consideration is outlined below.

Table 6-1 Plans/Programmes Considered for Cumulative Effects

Plan/Programme Considered
<ul style="list-style-type: none"> ▪ River Basin Management Plans ▪ EU Biodiversity Plan to 2020 (EC 2011) ▪ The National Biodiversity Plan ▪ European Union's Effort Sharing Decision (Decision 406/2009/EC2) ▪ UNFCCC Kyoto Protocol ▪ European Union's Decision 529/2013/EU (LULUCF) ▪ National Emissions Ceilings Directive (2001/81/EC)

6.11.1 Water Framework Directive & River Basin Management Plans

The Water Framework Directive (2000/60/EC) requires the attainment and maintenance of good status for Ireland's waters. Under the Water Framework Directive, River Basin Management Plans (RBMP) and Programmes of Measures were published in 2009 for the River Basin Districts identified for Ireland. The EPA is responsible for reporting on the status of water within each River Basin District. The individual RBMPs, on the basis of results of surveys, sampling and analyses specify Programmes of Measures necessary in order to safeguard water quality and meet objectives under the Water Framework Directive. Preparation for the second cycle (2016-2021) of river basin management planning is currently underway and the Programmes of Measures arising from the new RBMPs have the potential to impact on current and future agricultural practices.

In so far as *Food Wise 2025* will contribute to changes in agricultural practice which have been identified to have a direct link to diffuse and point source pollution of surface water, groundwater, drinking water and estuarine water quality the probability of cumulative effects with the Water Framework Directive and RBMPs arises. *Food Wise 2025*, focusing as it does on sustainability and calling for increased research and actions to limit nutrient enrichment of watercourses from agricultural practices, should help achieve the objectives of the Water Framework Directive. The further investment proposed in monitoring water quality, particularly in high areas of dairy concentration, will act as an early warning system and will help to develop policies and measures aimed at protecting water quality in the sector.

6.11.2 EU Biodiversity Plan to 2020 & National Biodiversity Plan

In 2011 the EU adopted the EU Biodiversity Plan to 2020 (EC 2011) to halt the loss of biodiversity and improve the state of Europe's species, habitats, ecosystems, and the services they provide for the period to 2020. The National Biodiversity Plan (DAHG, 2011a) defines its vision as "*the biodiversity and ecosystems in Ireland are conserved and restored delivering benefits essential for all sectors of society*". In addition the National Biodiversity Plan calls for progress to be made towards substantial recovery in biodiversity by 2020.

Food Wise 2025 embracing as it does the concept of sustainability would be anticipated to have positive impacts on biodiversity. In particular objectives in *Food Wise 2025* concerning targeted research and knowledge transfer should aid the achievement of the following National Biodiversity Plan objectives:

- To mainstream biodiversity in the decision making process across all sectors

- To substantially strengthen the knowledge base for conservation, management and sustainable use of biodiversity
- To increase awareness and appreciation of biodiversity and ecosystems services
- To conserve and restore biodiversity and ecosystem services in the wider countryside
- To conserve and restore biodiversity and ecosystem services in the marine environment
- To expand and improve on the management of protected areas and legally protected species
- To substantially strengthen the effectiveness of international governance for biodiversity and ecosystem services

Initiatives under Pillar I of CAP will help promote biodiversity on tillage farms. Initiatives under the Green Low-Carbon Agri-Environment Scheme (GLAS) will further underpin biodiversity objectives.

6.11.3 GHG Commitments

As of 2013 the European Union's Effort Sharing Decision (Decision 406/2009/EC2) sets 2020 targets for non-ETS sector emissions and annual binding limits for the period 2013-2020. Ireland's target is to reduce non-ETS emissions by 20% by 2020 compared with 2005 levels.

Ireland's 2013 GHG emissions for non-ETS sectors are 42.61 Mt CO₂ eq (EPA 2015a). This value is the national total emissions less emissions covered by the EU's emissions trading scheme for stationary and aviation operators. Agriculture accounted for 45% of total non-ETS emissions in 2013 and showed an increase in emissions in 2013 (EPA 2015).

Ireland's annual target for 2013 is 46.892 Mt CO₂ eq. This indicates that Ireland will be in compliance with its 2013 Effort Sharing annual limit. Final compliance for 2013 will be determined following submission of official data in January 2015 and review of this data by the European Commission. The compliance transactions will subsequently be carried out on the Registry in late 2015.

In relation to international commitments, 2013 is also the first year of the second commitment period (CP2) under the UNFCCC Kyoto Protocol, the Doha Amendment 3. The EU and its Member States along with Iceland have decided to jointly fulfil its commitments (QELRC) under the Doha Amendment as allowed by Article 4 of the Kyoto Protocol. Ireland's compliance with the Doha Amendment will be assessed at the end of the commitment period based on the GHG inventory submission in 2022 for 1990-2020 data.

Agriculture's role in relation to air pollution must also take cognisance of the EU Clear Air Policy, the CAFE Directive and the National Exposure Reduction Target for PM_{2.5}.

Under the United Nations Framework for Climate Change, and under the Kyoto Protocol Ireland has a legal obligation to report carbon stock change in forests including the following activities: afforestation, reforestation and deforestation, and forest management. All forest carbon pools; above ground biomass; below ground biomass; soil carbon; litter; deadwood and harvested wood products must be included. In addition Ireland is required to report these stock changes and pools to the EU under Decision 529/2013.

In so far as *Food Wise 2025* promotes the concept of sustainability and promotes research directed at limiting GHG emissions the Plan will have positive impacts. Sustainable expansion of the forestry sector with consequent reduction of fossil fuel reliance will also have a positive impact. Increases in production arising from an expansion in livestock numbers will have a negative implication for GHG emissions.

6.11.4 National Emissions Ceilings Directive

Directive 2001/81/EC on National Emission Ceilings for certain pollutants (NEC Directive) sets upper limits for each Member State for the total emissions in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution (sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia), but leaves it largely to the Member States to decide which measures – on top of Community legislation for specific source categories - to take in order to comply.

The National Emission Ceilings Directive 2001/81/EC (NECD) is currently being reviewed as part of The Clean Air Policy Package. The proposal repeals and replaces the current Union regime on the annual capping of national emissions of air pollutants, as defined in Directive 2001/81/EC. By doing so, it ensures that the national emission ceilings (NECs) set in the current Directive 2001/81/EC for 2010 onwards for SO₂, NO_x, NMVOC and NH₃ shall apply until 2020 and establishes new national emission reduction commitments ("reduction commitments") applicable from 2020 and 2030 for SO₂, NO_x, NMVOC, NH₃, fine particulate matter (PM_{2.5}) and methane (CH₄).

Ireland is facing increasing pressure to meet existing compliance levels in relation to ammonia. Current proposals under discussion point towards increased targets and further reductions in the period beyond 2020 with interim targets to be met by 2025. While *Food Wise 2025* targets an increase in the value of primary production of 65% it does not specify any increases in livestock numbers which would contribute to increased emissions. In this context the adoption of mitigation measures such as trailing shoe organic fertiliser application is important alongside development of further mitigation measures.

6.12 Transboundary Effects

The Irish agri-food industry comprises the: agriculture; food and beverage; fishery; fish processing; forestry; and forestry processing sectors. *Food Wise 2025* is required to provide an overarching plan for these sectors across Ireland and in Irish estuarine and coastal waters. As a result, the measures outlined in the Plan have potential to impact on the receiving environment of the entire territory of Ireland. In addition, it is also considered that there is potential for significant impacts on Northern Ireland. This is principally due to the land border shared with Northern Ireland.

It is considered that there is potential for impacts on border areas arising from *Food Wise 2025* in line with those outlined in Annex I SEA Assessment Matrix. However there is increased potential for impacts on water resources in Northern Ireland arising from elements of the plan, due to the fact that there a number of catchments which have connectivity across the border. However, as no significant

negative effects are predicted for water quality no transboundary effects are anticipated. Overall action under *Food Wise 2025* are predicted to have positive effects on water quality. As no significant negative effect are predicted with regard to water quality as a result of *Food Wise 2025* transboundary effects are not anticipated.

It is considered that the most significant transboundary effect could result from potential increases arising from GHG emissions and ammonia. *Food Wise 2025* suggests measures for limiting GHG emissions and ammonia. Therefore no consequent transboundary effect is predicted as a result *Food Wise 2025*.

7 Mitigation Measures

7.1 Introduction

SEA requires devising mitigation measures to avoid, reduce, remedy or offset the potential for significant adverse effects as identified in Section 6. Mitigation measures are commonly directly linked to potential impacts. They entail amending those draft objectives and targets that may result in significant adverse effects on the environment, or incorporating new objectives and targets to ensure such effects are addressed and mitigated.

Table 7-1 outlines the mitigation measures proposed and these mitigation measures will be integrated into the final plan at implementation stage. This chapter presents a summary of the proposed mitigation measures that will be implemented to ensure that the plan will not have a significant effect on the receiving environment.

Food Wise 2025 is a high level strategy outlining the vision for the agri-food industry over a ten year period 2015 to 2025. This accompanying SEA is also by necessity a high level assessment. The achievement of the ambitions of *Food Wise 2025* will be dependent on the adoption of the suggested actions by a range of players across the entire industry. Strategies and policies to support the adoption of these actions will be overseen by a *Food Wise 2025* implementation committee. This committee will prioritise and guide the implementation of the Plan across the sectors. This Environmental Report has recommended that the implementation committee appoint a sub-committee to oversee the environmental aspects of *Food Wise 2025*.

This is of particular relevance to monitoring and mitigation proposals. It is anticipated that the sub-committee would co-ordinate the development of additional mitigation measures for each sector. At a high level this Environmental Report recommends the adoption and implementation of the standard mitigation measure currently in use. This Environmental Report further recognises the need for the development of new mitigation measures particularly if increases of livestock numbers are anticipated.

7.1.1 Failure to adopt Mitigation Measures

Water Quality in Ireland 2010-2012 (EPA, 2015b) points to a considerable body of work still outstanding for the achievement of targets under the Water Framework Directive. Eutrophication from nutrient enrichments continues to be the main issue facing Irish water. The EPA reports that agricultural sources are suspected of being the cause of 53% of pollution incidence. Actions contained within *Food Wise 2025* have the potential to reduce such incidences caused by agriculture. In particular actions under knowledge transfer and adoption of best technologies can help reduce the use of excess inputs and ensure better compliance with existing regulations. Failure to improve implementation of existing mitigation measures could lead to increases in pollution incidences from agricultural sources.

The EPA points out that, despite Ireland being on course to meet its compliance obligations over the period 2013 - 2020 for GHGs, the years 2018 - 2020 will see GHG emissions above admitted levels

giving rise to increased difficulties in the period after 2020. In this context there is a need to develop and roll out new mitigation measures if any increase in livestock numbers are anticipated.

As a result of the assessment undertaken as part of the SEA process a number of mitigation measures and actions were recommended to influence the development of *Food Wise 2025* and improve the sustainability performance of the management regime.

It is important to note that baseline information, such as datasets for species will continually change. It is therefore, recommended that the SEA is regularly reviewed to identify any new issues and opportunities for future mitigation. This could be undertaken by an environmental sub group which could be convened during the duration of the plan to review the ongoing environmental performance of the plan. This subgroup would have the capacity to reconsider new and additional mitigation and monitoring if considered appropriate during the duration of the plan.

The agri-food sector influencing as it does a large number of environmental parameters currently operates within specific principles, guidelines, and rules. Many of these could be regarded as mitigation measures to prevent or reduce the occurrence of significant negative effects on the environment. The mitigation measures proposed in this Environmental Report build on existing measures and in some cases call for increased monitoring. No new or novel mitigation measures are recommended. However, the strict implementation of existing mitigation measures is recommended.

While *Food Wise 2025* envisages increases in output across the sectors, in many cases driven by technological changes which have the potential to be environmentally beneficial, some increases in output may be achieved by increased cropping areas or increased livestock numbers. Where such increases are foreseen it is anticipated that the implementation group will bring forward additional mitigation measures at a sector specific level in order to adhere to the sustainability criteria set down in the Plan.

Table 7-1 Mitigation Table

Actions / Section		Comments	Mitigation / Monitoring
Chapter 4: Sustainability	1. Recognising Agriculture's role in ongoing National, EU and International Climate Change and Energy Policy Development.	<p>Actions have a strong focus on agriculture's role in climate change. Positive effects on climate change mitigation and adaptation, with knock-on benefits for air quality. There may also be indirect benefits for the environment. However, the pressure to increase rates of afforestation could have potential adverse impacts depending on the location of such changes in land use. Therefore, overall environment effects as assessed as neutral.</p> <p>Bioenergy and use of animal by-products for energy production will help reduce waste and maximise re-use and efficient use of resources.</p>	<p>Ensure adaptation and resilience of the agriculture industry to future climate effects is considered.</p> <p>Ensure that mitigation measures are developed for the sectors covered by the plan based on the requirements of the National Mitigation Plan, once developed.</p>
	2. Measurement of Ireland's environmental sustainability credentials	These measures aim to gauge progress against criteria and this would be regarded to be an essential element of ensuring that the schemes referred to are actually delivering their goals. There will be a positive effect on the environment as measuring and reporting on sustainability indicators will help identify problem areas and actions can be taken to address the issue. Roll out of the Carbon Navigator Initiative will help farmers understand how their farms produce GHG emissions and these may be reduced.	<p>A key element of ensuring that Irish agriculture is sustainable is the generation of metrics to measure the environmental and sustainable performance of agricultural production. (These metrics can also be used to promote Irish agriculture.)</p> <p>This can be done by ensuring that the monitoring requirements outlined in the Environmental Report are followed on and reported.</p> <p>This should include additional research analysis of the potential sustainable production output levels associated with the <i>Sustainable Growth Scenario</i> proposed by <i>Food Wise 2025</i>.</p>
	3. Further Development and Enhancement of Origin Green Programme	Development and Enhancement of the Origin Green programme will have positive effects for the environment. In particular, soil health, nutrient management, biodiversity, animal health and welfare, efficiencies in energy usage, waste water, food waste, and packaging waste. Knowledge transfer, funding, and engagement will help promote sustainable agricultural practices and awareness of environmental issues and benefits of the Origin Green programme.	Origin Green is required to be implemented on the ground at primary producer level and processing facility level to ensure that a minimum level of environmental performance is attained by all producers.

Actions / Section	Comments	Mitigation / Monitoring
4. Improvement of Environmental footprint of Sector	<p>The recommendations will have positive environmental effects. In particular, actions on the delivery of the Water Framework Directive and Nutrient Management software tool will have positive effects on water quality and associated benefits for biodiversity. Actions on nutrient management, efficient use of nutrients, specific soil advice, nutrient census, and the PastureBase Ireland tool will help improve soil fertility and reduce effects associated with fertiliser use. Actions to address declining fish stocks will help maintain the sustainability of the fisheries industry.</p> <p>Positive linkages to the Conservation Objectives of European Sites can be seen in reference to maintaining populations and ranges (e.g. by maintaining fish stocks which may be prey items for seabird, cetacean, seal and otter populations). Commitments made to monitoring the effects of local changes in dairy practice are useful contributions to the range of monitoring commitments for this sector and will have to be combined with appropriate feedback response mechanisms to address scenarios whereby the results suggest adverse effects. Sector-specific actions are regarded to provide potential positive impacts on European site integrity as they address threats such as eutrophication, overfishing and ground/surface water pollution by hazardous waste.</p>	Where additional biodiversity pressures are identified, develop specific additional mitigation measures to preserve and sustain.
5. Develop and support Agri-food processing sector in delivering sustainable processes and outputs	Positive effects on GHG emissions and air quality from uptake of renewable energy technologies, energy efficiency actions and promotion of biomass. Actions for uptake of environmental protection systems and increasing environmental awareness at SME level will result in positive effects for the wider environment	Origin Green is required to be implemented on the ground at processing facility level to ensure that a minimum level of environmental performance is attained by all producers.
6. Implementation of Environmental Elements of Ireland's National Programmes and the EU co-funded Rural Development Programme 2014-2020	The actions will have positive effects on the environment as they aim to ensure compliance with the WFD, habitat preservation, carbon capture through afforestation, raise awareness of and mitigate GHG emissions, and promote uptake of grants for low emission slurry spreading equipment and farm nutrient storage.	
7. Prioritise Research Funding on Sustainability of Irish Food production	The action sets out key research areas and evidence gathering including vulnerability of food production systems to climate change, technologies to reduce effects of food production on water quality, identifies positive measure for biodiversity, develops technologies for reducing ammonia and GHG emissions, assess carbon sequestration,	

Actions / Section		Comments	Mitigation / Monitoring
		supports the health and nutrition benefits of grass based food production. This will have a number of benefits for the environment by providing evidence for the existence or otherwise of linkages between agricultural activities and environmental impacts and solutions for where there may be adverse impacts occurring.	
	8. Implementation of <i>Food Wise 2025</i> actions in context of sustainability	Monitoring of implementation at a local level will help in providing evidence for the existence or otherwise of linkages between agricultural activities and environmental impacts and solutions for where there may be adverse impacts occurring.	
Chapter 5: Growth Opportunities	Growth opportunities	There are no specific actions or growth targets for primary production within the chapter. However, the chapter does set out growth opportunities include sectoral expansion within the dairy sector, meat sector, seafood sector, and whiskey and craft beer sector. Sectoral expansion has potential for negative effects on water quality, biodiversity, soil quality, GHG emissions, waste generation, and landscape through intensification, change in land use, use of fertilisers, and increase in animal numbers. The Plan also recognises that consumer trends for natural, organic foods are growing and there is potential for new market opportunities. It is unclear whether this would involve land use and intensification changes or whether it would replace some existing areas and sectors.	When taken just as sectoral expansion the Plan will have negative effects. However, if this is combined with the actions in Chapter 4 then environmental effects should be reduced. Undertake water monitoring in areas subject to increasing livestock densities.
Chapter 6: Delivering Growth	Human capital	Increased knowledge and awareness of legal requirements, ecological impacts and mitigation measures will contribute to better agri-food practices across the sector. Better education, skills, and knowledge exchange will contribute to the sustainability of the agricultural sector and promote sharing of best practice framing methods and environmental innovation. The actions on health and safety and animal health will help reduce human health risks associated with the industry.	
	Competitiveness	Actions to improve the transport efficiency of supply chains and the need to develop infrastructure will have positive effects for sustainable development. Actions will contribute toward better use of land, soil management and retention of nutrients in the soil, limiting the amount of nitrogen and phosphorous to surface and groundwaters. The action to promote agri-tourism will have positive effects for tourism in Ireland.	
	Market Development	The actions are focussed on market positioning and building reputation and trade with emerging markets. It is unlikely that this will have environmental effects.	

Actions / Section		Comments	Mitigation / Monitoring
		However, if it leads to increased production and change of land use the negative effects may emerge. The action on increasing linkages with Tourism Ireland and new markets is likely to have positive effect for agri-tourism. .	
	Promoting “Ireland” in new markets	Positive effects for agri-tourism as the actions promote ‘Ireland’ develop marketing material, and better link food and tourism. In isolation, this proposal could increase pressure on sites along the Wild Atlantic Way (WAW) and other food trails. The WAW has undergone its own AA process and mitigation measures therein would have to be taken into account at the project-scale.	
	Origin Green	The actions will further promote entry to the Origin Green scheme which will provide overall positive impacts to the environment..	
	Animal Health Status	The actions are focussed on animal health. This will have positive effects on human health risk, waste, and sustainable agriculture as helping eradicate livestock disease will reduce mortality rates and the number of animals that have to be culled.	
	High food Safety status	The action is to improve monitoring and predictive capacity to response more timely to food safety threats. This will have positive effects for human health risks but is unlikely to effect the wider environment.	
	Innovation	Proposals that aim to increase productivity coupled with research into how to do this whilst ensuring soil fertility will addresses nutrient retention to provide a positive impact on soil quality. Creating an internationally recognised research hub and knowledge centre will attract visitors from around the world, resulting in sportive effects on agri-tourism. Actions relating to the expansion of the sector to marine species of fish, shellfish and seaweed as possible new products could have adverse effects on the European sites through loss of feeding resources for birds and Annex II species, damage and deterioration of offshore and coastal habitats.	Research should also include environmental sustainability practices and innovations. Monitor effects of seafood production on European designated sites. Continued EIA screening on aquaculture licence applications.

7.1.2 Dairy Sector Mitigation Measures

Priority/Action		Comments	Mitigation / Monitoring
Driving Farm Competitiveness	Knowledge, Skills and Extension	Participation in Knowledge Exchange Groups could indirectly benefit the environment as dairy farmers will gain knowledge and skills to improve management of farming activities to protect the environment. Knowledge exchange programmes to upskill farmers will help support economic activities.	Promote the carbon navigator tool Knowledge exchange groups should advise on sustainable agricultural practices Actions to ensure transference of research findings to advisers and private consultants
	Breeding and Genetics	Although the actions will support economic activities through increased efficiencies and profitability there is no protection of the receiving environment mentioned. Dairy cows will be bred for greater milk yield while maintaining or reducing overall cow size, thereby decreasing feed intake and waste output which will have positive effects on agricultural waste reduction and associated water quality benefits. Offspring produced will be targeted for specific enterprises, reducing numbers of 'unwanted' offspring nationally. The proposed actions under dairy expansion do not necessarily imply an increase in the national herd but better genetic breeding. This has potential positive effects on GHG emissions. Increased volumes of milk processing could increase wastewater treatment capacity requirements	Include an action to promote genetics as a source of increased output from lower inputs
	Grassland and Soil Management	Increasing soil fertility is likely to involve use of fertilisers which can have negative effects for water quality, habitats, and species. Impacts on groundwater arising from increased leaching of nitrates. However, the Plan must comply with the WFD and Nitrates Directive so fertiliser use must be controlled to allow WFD targets of good water status to be achieved. Potential effects on habitats and species (aquatic and terrestrial) where intensification involves higher volumes of manure to be managed and increased use of fertilisers, herbicides and pesticides. Liming can release GHG emissions. Positive effect on improving grassland soil quality and maximising efficient use of grasslands Land use / landscape changes from intensification of grazing patterns and possible land rationalisation (although this is subject to control under existing agri-environmental measures)	Define efficient use of grass e.g. in terms of grass utilisation per hectare at present and in the future Increased soil fertility should be based on accurate nutrient management planning and soil testing Include pH target Nutrient advice by Teagasc and others needs to be further refined to account for location-specific risk of nutrient losses, as well as GHG emissions Good water status for all water bodies is a requirement of the WFD, therefore, agricultural 'projects' under this Plan can only progress when it has been demonstrated that they will not result in a WFD target not being achieved.

Priority/Action	Comments	Mitigation / Monitoring
Managing Volatility through financial management and informed decision making	Although the actions will support economic activities there is no protection of the receiving environment mentioned. Providing stability in the dairy sector has potential benefits to the environment as it reduces the risk of land abandonment or rapid intensification.	None
Processing, adding value & marketing	Origin Green will promote sustainable agricultural development and depending on the environmental indicators should have benefits for species and habitats, water quality, GHGs and soil quality. Adding value and new product development will support economic activities and agri-tourism	State the verifiable sustainability credential to be monitored Require all production facilities to be certified under Origin Green scheme
Environment	The inclusion of environmental actions will help protect the environment from potentially harmful agricultural activities. However, the actions do not offer detail on how environmental challenges will be addressed and monitored or how future challenges such as climate change will be addressed. In the context of increased production by 2025 additional safeguards are required to address such increased pressure on the environment.	Specific environmental targets should be set for: <ul style="list-style-type: none"> the Rural development programme (RDP) and specifically the adoption of the agri-environment climate measures in the RDP; and the Green Low-Carbon Agri-environment Scheme (GLAS) Ensure all processing facilities are registered under Origin Green Farm developments in Natura 2000 sites should be assessed to ensure no significant impact on the qualifying criteria of the site Proper management of agricultural waste through land spreading can provide valuable nutrients DAMF commission further research on production methodologies to facilitate the development of the sustainability scenario Cost benefit analysis in relation to mitigation measures for ammonia emissions should be undertaken by DAFM

7.1.3 Beef Sector Mitigation Measures

Priority Actions		Comments	Mitigation / Monitoring
Driving on-farm competitiveness	Breeding & Genomics	Positive effect on agricultural waste reduction and associated water quality benefits if it is assumed that there is improved feed conversion ratio thus requiring less feed intake to produce more meat, thereby decreasing feed intake and waste output. Maximisation of bovine potential will add to this. Although the actions will support economic activities through increased efficiencies and profitability there is no protection of the receiving environment mentioned.	Promote increase output from lower inputs, reduced age to slaughter, better feed conversion and smaller breeds.
	Farm management practices	The impact of focussing on kg/ha will impose pressure on either land availability for extra livestock or increasing stocking densities could put pressure on grass production. Either impact would be regarded to be negative for the environment, primarily by means of concerns that there would be increased nutrient runoff and increased demand for grass feed. However, positive impacts in the form of reduced nutrient runoff to surface waters through the increasing reliance on low emission slurry spreading and selection of grass species to allow increased overall grass output and utilisation per hectare whilst reducing requirement for fertiliser inputs. Therefore, overall neutral score for water quality, soil quality, and agricultural waste. Increase in livestock numbers has potential to increase GHG emissions. Increased animal numbers will also increase animal waste, ammonia, phosphors, and nitrates, and well as silage which can cause deterioration of water quality but can also provide nutrients to watercourses. Potential effects on habitats and species (aquatic and terrestrial) where intensification involves higher volumes of manure to be managed and increased use of fertilisers, herbicides and pesticides.	Define efficient use of grass e.g. in terms of grass utilisation per hectare at present and in the future Increased soil fertility should be based on accurate nutrient management planning and soil testing Include pH target Nutrient advice by Teagasc and others needs to be further refined to account for location-specific risk of nutrient losses, as well as GHG emissions Good water status for all water bodies is a requirement of the WFD, therefore, agricultural 'projects' under this Plan can only progress when it has been demonstrated that they will not result in a WFD target not being achieved.
	Animal health & welfare	Actions will help control spread of disease	None
	Education and knowledge transfer	Positive potential impact as it allows the sharing of knowledge and potentially the consequence that more farmers find more efficient ways of increasing productivity, reducing emissions and waste production	Promote the carbon navigator tool. Improved grass management techniques should also protect the receiving environment
Furthering our reputation on international markets		Actions are focussed in increasing reputation within international market which are unlikely to affect the environment. However, if this opens up new markets which require	Ensure all processing plants are registered under the Origin Green scheme

Priority Actions	Comments	Mitigation / Monitoring
	increased herd then negative effects could arise associated with land pressure, water contamination, and GHG emissions.	
Adding value through R&D	Actions focussed on research on animal health and disease control. Positive potential impact on European sites at a national-scale as such research, if correctly focussed, could look at increasing productivity independent of emissions and waste production and reviewing procedural systems for authorisations, land management and conservation that have adverse effects on the profit margin for this sector.	Research into effectiveness of environmental management practices under existing schemes and the generation of revised best practice guidance where required Research into the potential reduction in methane generation arising from cattle and roll-out appropriate mitigation
Environment & sustainability	The action focussed on lowering climate change impact at processing level. This will have positive effect on GHG reduction and knock-on effects for air quality and climate adaptation. At a national level it will contribute to achievement of emissions targets.	At a farm level there needs to be a strategy to ensure effective environmental management, monitoring and reporting Farm developments in Natura 2000 sites should be assessed to ensure no significant impact on the qualifying criteria of the site
Government Actions	Providing stability in the beef sector is likely to be of benefit to European sites as it reduced the risk of land abandonment or rapid intensification	Technical efficiency improvement should ensure that environmental targets are met in terms of EU commitments under the WFD and relating to GHG and ammonia emissions
Cross cutting actions	The actions are about financial packages and balancing labelling requirements with costs. There is unlikely to be any interaction with environmental receptors. The actions will support economic activities minimising and balancing impact of labelling on competitiveness of the export market	None

7.1.4 Sheep Sector Mitigation Measures

Priority/Action	Comments	Mitigation / Monitoring
Farmer actions	The actions as stated have the potential to pose potential positive effects on the environment as the increased production of sheep meat is focused on getting more out of the existing flock rather than emphasising increasing stocking rates or expanding grazing areas.	Focus on managing overgrazing particularly in areas of ecological importance or in areas where water bodies are sensitive
Processing actions	Increased demand on the disposal of sheep carcasses after boning may have adverse effects for waste management capacity.	Ensure that food processing plants are registered under the Origin Green scheme
Department actions	Positive potential effect as it allows more efficient control over production and reducing waste production that could otherwise affect the environment	None
Other agency actions	The actions as stated have the potential to pose potential positive effects on the environment as research may allow more efficient control over production and reducing grazing pressure and deterioration of grassland biodiversity. Development of a Carbon Navigator Tool for sheep producers will give positive effects on GHG emissions.	Need for monitoring and recording of environmental impacts arising from this sector on a farm by farm basis

7.1.5 Pigmeat Sector Mitigation Measures

Priority Actions	Comments	Mitigation / Monitoring
Farmer actions	Potentially positive effects through the implementation of proposed initiatives for increased co-operation with tillage farmers for the re-use of animal manure and from proposals to explore an anaerobic digestion for conversion of manure. Investment in energy efficient pig facilities will contribute to lower emissions from the sector	Ensure all licenced pig production units are compliant with their licence requirements
Processing actions	Positive potential effect as it allows more efficient control over production and reducing waste production that could otherwise affect the environment	Ensure that all processing facilities are registered under the Origin Green scheme
Department actions	Actions are focussed on bi-security and Pig Salmonella Control Programme which will have positive effects on reduction of risk to human health	Explore the GHG emissions and ammonia arising from pig production and opportunities to reduce GHG and ammonia emissions
Other agency actions	Carbon foot-printing will have positive effects for GHG emissions reduction. An upgraded pig research unit has the potential for positive effects on the environment if research looks at optimising practices, GHG emission associated with pig production, sustainable use of natural resources, and environmental effects of pig production	Undertake research into optimising practices, GHG emission associated with pig production, sustainable use of natural resources, and environmental effects of pig production

7.1.6 Poultry Sector Mitigation Measures

Priority Actions	Comments	Mitigation / Monitoring
Farmer actions	Potentially positive impacts could result if the energy efficiency reduces the demand on natural resources and emissions. Improved bio-security and awareness will help reduce risk to human health.	Ensure effective implementation of nutrient management at poultry production facilities in terms of the management and re-use of waste Ensure intensive poultry units are in compliance with IPPC licence requirements
Processing actions	There is unlikely to be any interactions	Ensure that all farms are registered with the Origin Green scheme
Department actions	Actions to upgrade existing buildings have the potential for positive effects in terms of energy efficiency and GHG reduction, and re-use of existing infrastructure. Construction of new buildings would also see these benefits but development should be carefully sited to avoid environmental effects. Actions to address bio-security, disease outbreaks, and food scares will have significant positive effect for reduction of human health risks	Siting of new housing to avoid environmental effects
Other agency actions	Incorporation of sustainability criteria under the Origin Green programme into the PPQAS would have positive effects for the environment	Integration of the PPQAS scheme with Origin Green.

7.1.7 Cereals/Tillage Sector Mitigation Measures

Priority Actions	Comments	Mitigation / Monitoring
Farmer actions	The Plan does not envisage an increased area under tillage. Tillage is carried out predominantly in land of the South and South East and to a large extent, outside European sites but some tillage areas provide supporting habitat for geese and other bird species that form qualifying interests for SPAs. The actions as stated have the potential to pose potential adverse impacts on the integrity of European sites if the changes in the type of crop would affect supporting roles played for European sites. Positive impacts are also possible when the actions regarding the re use of organic manure and other “greening initiatives” are considered. Change of land use and intensification of harvest patterns can also affect landscape. Cereal sector can also generate nutrient imbalances and soil contamination as a result of fertiliser application beyond soil assimilative capacities. This can also lead to water quality deterioration and eutrophication.	Improve the management of farms to manage environmental impact. This includes effective and sustainable use of manures and fertilisers to ensure GHG and ammonia emissions are controlled, in addition to nutrient losses to water and potential impacts on Natura 2000 sites Promote minimum tillage
Processor actions	These changes will occur within the existing tillage lands and will be reflected in an improved rotation and increased diversity of crops within individual farms as dictated by greening measures under CAP. Traditionally, tillage lands are located in the South and Eastern part of the country and lie predominately outside Natura sites. Effects on these sites are likely to be neutral unless the changes to land use remove the supporting role that some fields will play for some bird species also using SPAs. In such cases a potential adverse effect is possible. However, potential positive impacts are also possible when the actions above require the use of organic manure and other “green initiatives” are considered such as the use of catch crops etc. Change of land use and intensification of harvest patterns can also affect landscape. Cereal sector can also generate nutrient imbalances and soil contamination as a result of fertiliser application beyond soil assimilative capacities. This can also lead to water quality deterioration and eutrophication.	
Department actions	Positive potential effect as it allows more efficient crop production, reducing emissions and waste production that could otherwise affect the environment.	
Other agency actions	The action to roll out Origin Green programme to tillage producers will have a positive effects on the environment	
Cross cutting actions	The actions as stated have the potential to pose potential positive effects on the environment if there is greater stability in the tillage sector and greater use of break	

Priority Actions	Comments	Mitigation / Monitoring
	crops which allow soil fertility to recover naturally and may reduce the need for fertiliser use which would have knock-on benefits for water quality and biodiversity. However, there is the potential for adverse effects on the designated nature sites if the increased production of the seed potato crops is at the expense of high nature value land or other habitats that are part of or support European sites. Change of land use and intensification of harvest patterns can also affect landscape.	
Research & innovation actions	Positive potential effect as crops suited better to Irish tillage systems may require less fertiliser, pesticide and herbicide application which would result in benefits for water quality and associated habitats and species. Crop better suited to Irish tillage systems may also be better able to cope with climate effects in the region.	Introduce monitoring and recording of environmental management of farms to identify the performance of existing schemes in terms of controlling nutrient losses, GHG and ammonia emissions, and impact on Natura 2000 sites

7.1.8 Horticulture Sector Mitigation Measures

Priority Actions	Comments	Mitigation / Monitoring
Farmer actions	<p>Potential for positive effects on the environment through increase crop production efficiency, thereby requiring less land and resources. Technologies to accurately map crop input requirements will have a positive effect as they should result in reduced wastage.</p> <p>Soil erosion in winter periods can be anticipated from the horticulture sectors, when the farmland is uncultivated or fallow. This will have different magnitudes depending on soil type (e.g. sandy soils being more vulnerable to erosion).</p>	Manage the environmental impacts of activity through the implementation of best practice considering all relevant guidance. This should ensure the implementation of nutrient management plans and managing potential impacts on important ecological habitats, particularly Natura 2000 sites
Processing actions	<p>The promotion of Origin Green amongst growers will have positive benefits as the scheme encourages farmers to set achievable goals while promoting sustainable farming practices.</p> <p>Potential for negative effects on surface water quality from increased use and subsequent run off of pesticides and Nitrogen, Potassium and Phosphorous fertilisers (could also affect biodiversity). However, use of Origin Green should mitigate effects by providing environmental targets to promote environmental protection.</p>	
Department actions	Supply chain inspection of country of origin labelling may have positive effects on human health risks. There is unlikely to be effects on the environment	
Other agency actions	<p>The actions on promotion of healthy eating and health benefits of fresh produce, and getting active by gardening will have a positive contribution to human health. Promotion of gardening will have benefits for landscape and ecology, and the wider environment.</p> <p>The roll out of the Origin Green programme will have positive effects on the sustainability credentials of the industry and associated environmental benefits.</p>	As part of the Origin Green programme undertake monitoring and reporting of the effectiveness of environmental management on a farm by farm level
Government actions	Actions are focussed on costs, funding, and contracts and are unlikely to have an effect on the environment	Ensure that agriculture is not impeding the country meeting environmental standards required under WFD and in terms of GHG emissions

7.1.9 Prepared Consumer Foods (PCF) and Alcoholic Beverages Sector Mitigation Measures

Priority Actions	Comments	Mitigation / Monitoring
Producer actions	The action is to establish discussion groups for malting and barley growers. This is unlikely to affect the environment unless discussion groups share sustainable practices and raise environmental awareness.	Ensure environmental and sustainable practices discussion groups is included
Industry actions	<p>All companies are to sign up to Origin Green which will provide environmental protection and sustainability credential for the sector.</p> <p>It does not specifically state whether increasing expenditure on R&D and innovation and training includes environmental management and sustainable practices. However, if it does then there will be positive effects for the environment.</p> <p>Improving waste recycling levels will have positive effect in terms of using resources more efficiently and reducing waste material generated.</p> <p>The action to develop an Irish Whiskey and food paring trail as a major tourism attraction will have positive effects for the economy and tourism.</p>	R&D and innovation on sustainability practices and production efficiency
Departments & State Agencies	Although not explicitly stated, the actions are likely to lead to increased growth and production. Intensification of harvest patterns and monocultures are likely to affect the landscape. Intensification of harvest patterns may also have negative effects on biodiversity and water quality (and WFD targets) from use of fertilisers and pesticides. However, the action to use Origin Green is likely to contribute to environmental protection within the sector.	Ensure that environmental protection in terms of managing discharges to water, reducing emissions to air.

7.1.10 Forestry Sector Mitigation Measures

Priority Actions	Comments	Mitigation / Monitoring
Expansion of the forest resource	<p>In the absence of any safeguards the impact of increased afforestation rates on the integrity of European sites and sensitive or valued landscapes could be both positive and negative depending on the location of the afforestation and associated forest roads, the habitat which it is replacing and the species being planted. These activities may result in an increased homogenisation of local landscapes. Negative effects on biodiversity might also be anticipated from the forestry sector since the primary emphasis is on non-native species - although it is noted that the Forestry Programme includes specific requirements to promote biodiversity in new afforestation.</p> <p>Negative effects on surface water quality might also be anticipated from forestry as a result of slurry/fertiliser run off, siltation, and acidification which affect WFD targets. Soil degradation (with regards to acidification, nutrient imbalance or soil biodiversity deterioration) can derive from activities from the forestry sector.</p> <p>Forest expansion would create more carbon sinks and have positive effects for air quality and climate change.</p>	<p>Ensuring that efficient management techniques are put in place to ensure protection of the receiving environment, particularly biodiversity, soil quality and water quality in line with WFD targets</p> <p>Consider development of bird Forest Sensitivity maps</p>
Management of the resource	<p>Providing a range of species types will benefit biodiversity and landscape and move away from monocultures.</p> <p>The introduction of a National Forest Management Planning System will provide a strategic framework for the forestry sector and help to protect the environment and consider cumulative effects.</p> <p>Positive effect on designated sites as sustainable forest management is required for some Annex II species and assists in catchment management, thereby benefitting aquatic European sites.</p>	
Environment and public goods	<p>Providing forest public services could be for use as a recreational or educational asset which can benefit human health and well-being, and tourism.</p> <p>Environmental enhancement under this action could provide benefits for biodiversity, water quality, land/resource use, and landscape.</p> <p>Positive effect on designated sites as sustainable forest management is required for some Annex II species and assists in catchment management, thereby benefitting aquatic European sites.</p>	<p>Environmental management in line with 'Forest Harvesting and Environment' guidelines</p> <p>Monitoring and recording of the environmental performance of forestry schemes</p>
Supply chain	<p>The action is to increase roundwood harvest which could have negative effects on designated sites and sensitive or valued landscapes depending on the location. However,</p>	<p>Ensuring that efficient management techniques are put in place to ensure protection of the receiving environment,</p>

Priority Actions	Comments	Mitigation / Monitoring
	<p>the action also places a strong emphasis on environmental responsibility and therefore, it would be anticipated that afforestation would not be allowed where it would harm a designated site. Negative effects on biodiversity might also be anticipated from the forestry sector since the primary emphasis is on non-native species - although it is noted that the Forestry Programme includes specific requirements to promote biodiversity in new afforestation.</p> <p>Negative effects on surface water quality might also be anticipated from forestry as a result of slurry/fertiliser run off, siltation, and acidification which could affect WFD targets. Soil degradation (with regards to acidification, nutrient imbalance or soil biodiversity deterioration) can derive from activities from the forestry sector.</p> <p>Forest expansion would create more carbon sinks and have positive effects for air quality and climate change.</p>	particularly biodiversity, soil quality and water quality in line with WFD targets
Wood processing	In the absence of any safeguards the impact of increased wood processing, particularly those that require use of treatment chemicals such as dye and preservatives could have a negative effect on water quality, emissions, soil, and biodiversity depending on the location of the processing facilities.	Ensure environmental safeguards and standards are adhered to, to protect the environment from potential contamination and emissions associated with processing operations
Funding	Whilst not directly linked to the environment, funding from both private and State sectors will be essential for expansion of the sector and implementation of environmental protection measures. In the absence of funding there could be a greater need to reduce spending on environmental measures and climate change mitigation. Overall this action is regarded to be a positive potential impact.	
Forest protection and health	<p>Positive effect on designated sites as sustainable forest management is required for some Annex II species and assists in catchment management, thereby benefitting aquatic European sites. This action will also serve to benefit native flora and fauna through the control of non-native species.</p> <p>Maintaining a healthy forest environment and early detection and control of pest and diseases will have positive effect on human health and general biodiversity and landscape.</p>	
Education training & research	The action does not state whether training will include environmental awareness raising and sustainable practices. Therefore, effects are considered neutral. However, if environment and sustainability training is provided then there will be positive effects as professional development will lead to increased understanding of sustainable forest	Training to promote sustainable management techniques to ensure protection of the receiving environment

Priority Actions	Comments	Mitigation / Monitoring
	management in the context of maintaining and restoring the condition of European sites and the wider environment.	
Quality, standards & certification	The quality focus does not specially state whether environmental criteria could be included. Therefore, effects are considered neutral. However, if environmental standards and quality criteria are to be included then this would have positive effects for the environment.	Incorporate the protection and management of forestry in European sites within criteria used to measure quality and performance. Quality standards could include more general environmental criteria on biodiversity, landscape, and water quality.

7.1.11 Seafood Sector Mitigation Measures

Priority Actions	Comments	Mitigation / Monitoring
Expand the raw materials base	<p>There is an action to develop a strategy to expand shellfish and aquaculture production. In the absence of safeguards this could have adverse effects on the European sites through loss of feeding resources for birds and Annex II species, damage and deterioration of offshore and coastal habitats, and degradation of local habitats resulting from alterations of nutrient balance and waste, as well of flora and fauna deriving from altered gene pools, disease, disturbance or invasive species. Impacts from projected exploitation of novel species new to cultivation have yet to be explored. Special consideration will be required where aquaculture operations occur in the vicinity of Natura 2000 sites.</p> <p>Expansion of shellfish and aquaculture could also affect estuarine water quality and seascape.</p>	<p>For operations in or close to Natura 2000 sites there should be monitoring to ensure that operations are not adversely affecting integrity of Natura 2000 sites</p> <p>Continued EIA screening on aquaculture licence applications.</p>
Enhance the industry's structure and skills	The action is unlikely to affect the environment	
Optimise product added value, export markets & environmental sustainability	<p>Actions relating to the expansion of the sector to marine species of fish, shellfish and seaweed as possible new products could have adverse effects on the European sites through loss of feeding resources for birds and Annex II species, damage and deterioration of offshore and coastal habitats.</p> <p>Expansion could also affect estuarine water quality and seascape.</p> <p>100% seafood exports verified Origin Green will contribute to environmental protection and sustainability credentials within the industry.</p>	<p>For operations in or close to Natura 2000 sites there should be monitoring to ensure that operations are not adversely affecting integrity of Natura 2000 sites</p>

8 Monitoring

8.1 Introduction

Monitoring any significant negative effects of implementing the plan is an essential on-going element of the SEA process. Monitoring assists in evaluating the performance of the plan and as such assists in determining whether the identified sustainability objectives are being achieved; allows early identification of unforeseen adverse effects; and thus appropriate remedial action can be taken to deal with any issues or problem areas, particularly in the event where required thresholds are crossed. It is inappropriate to monitor everything and monitoring proposals should be focused on the following areas that:

- Indicate a likely breach of international, national or local legislation, recognised guidelines or standards;
- May give rise to irreversible environmental, economic or social damage, with a view to identifying trends before such damage occurs; and
- Are subject to uncertainty in the SEA and where monitoring would enable prevention or mitigation measures to be taken.

8.2 Monitoring Proposals

While the SEA Environmental Report does not identify the potential for significant negative effects arising from *Food Wise 2025*, nonetheless the potential for changes at primary production level generates the need for additional monitoring. It is on these areas that monitoring proposals focus. Table 8-1 presents monitoring proposals that were developed as a result of potential negative effects identified during the assessment process.

Monitoring proposals for the next five to ten years have been developed for *Food Wise 2025*. As part of *Food Wise 2025* implementation phase DAFM will work closely with relevant agencies to ensure appropriate monitoring across all sectors of the agri-food industry on the environmental impacts of the Plan including possible impacts at regional level. This implementation process will include evaluation and assessment of the delivery of sustainability and mitigation actions set out in the *Food Wise 2025* report.

In order to allow for the appropriate implementation of mitigation measures and monitoring programmes it is recommended that an environmental sub group be convened during the duration of the plan to review the ongoing environmental performance of the plan. This subgroup would have the capacity to reconsider new and additional mitigation and monitoring if considered appropriate during the duration of the plan.

Table 8-1 SEA Monitoring Framework

Sector	Food Wise 2025 Action	Issue	Indicator	Monitoring	Responsibility	Timescale	Interaction with Other Organisations
General	Use of Origin Green programme	Many of the actions require uptake of the Origin Green programme. To ensure uptake and success, and realisation of environmental benefits this needs to be monitored on a farm by farm basis and on a facility by facility basis.	<ul style="list-style-type: none"> Number of farms and facilities registered under the Origin Green programme as a percentage of total in the Country 	An annual report will be generated outlining an analysis on the performance and uptake of the Origin Green programme.	Bord Bia	Annually	Farmers, growers, processors
Chapter 5	Growth opportunities	Sectoral expansion has potential for negative effects on water quality, biodiversity, soil quality, GHG emissions, waste generation, and landscape through intensification, change in land use, use of fertilisers, and increase in animal numbers.	See sector specific monitoring below		-	-	-
Dairy, Beef & Sheep	Farm, grassland and soil management	<p>Negative effects from use of fertilisers on water quality, species, and habitats.</p> <p>Increased GHG emissions from liming.</p> <p>Increased GHG emissions from increased livestock numbers.</p> <p>Negative effects on biodiversity and designated sites from land pressures and use of fertilisers, manures etc.</p>	<ul style="list-style-type: none"> Ecological and chemical status of water bodies Pollution incidents to land or water Concentrations of nitrates and phosphorous in water bodies Sampling water bodies against WFD targets Area of land using liming and associated emissions footprint Extent and condition of protected areas in or near farmland 	<p>A review will be undertaken on an annual basis of EPA water quality monitoring results in order to identify trends in terms of nutrient loading to catchments, chemical and biological water status with regard to the water status required under the WFD.</p> <p>Catchment/regional monitoring where increased livestock numbers are anticipated</p> <p>A review of DAFM/Teagasc Catchment</p>	DAFM	Annually	NPWS/ EPA

Sector	Food Wise 2025 Action	Issue	Indicator	Monitoring	Responsibility	Timescale	Interaction with Other Organisations
			<ul style="list-style-type: none"> Numbers and type of livestock – proxy for methane emissions 	<p>assessments to monitor changes in nutrient loading</p> <p>An annual report will be issued detailing the results of an analysis of GHG emissions arising from agriculture. This report will report on the sectorial emissions and identify any trends over time.</p>			
Sheep	Processing actions	Increased demand on the disposal of sheep carcasses after boning may have adverse effects for waste management capacity	<ul style="list-style-type: none"> Volume of sheep carcasses for disposal against local waste facility capacity 	DAFM will report on the animal disposal of annual carcasses and identify any capacity issues at waste acceptance facilities.		Annually	
Cereals/ Tillage/ Grassland	Farmer actions	<p>Potential adverse impacts on the integrity of European sites if the changes in the type of crop would affect supporting roles played for European sites</p> <p>Change of land use and intensification of harvest patterns can also affect landscape</p>	<ul style="list-style-type: none"> Changes in land use land cover over time Landscapes measures implemented under agri-schemes Extent and condition of protected areas in or near farmland 	<p>DAFM to report annually on changes in cropping pattern and permanent pastures to monitor emerging trends.</p> <p>An annual workshop will be held with relevant state agencies and stakeholders where impacts arising due to the expansion of agricultural activities will be discussed. Observed impacts and/or potential impacts will be discussed and mitigation measures agreed where required.</p> <p>A review of landscape character will be</p>	DAFM	Annual/ 5 years	EPA
	Processor actions	Change of land use and intensification of harvest patterns has a potential negative effect on landscape and European designated sites (if changes to land use remove the supporting role that some fields play for bird species using SPAs)					

Sector	Food Wise 2025 Action	Issue	Indicator	Monitoring	Responsibility	Timescale	Interaction with Other Organisations
				undertaken (on a 5 year basis) which will entail a review of LCA's undertaken by local authorities. This review will include undertaking consultation with Local authorities, Department of Environment Community and Local Government and Department of Arts Heritage and Gaeltacht.			
	Cross cutting actions	Change of land use and intensification of harvest patterns has a potential negative effect on landscape and European designated sites					
PCF & Alcoholic Beverages	Department and state agencies	Potential for negative effect on landscape, biodiversity and water quality from intensification of harvest patterns and use of fertilisers	<ul style="list-style-type: none"> • Ecological and chemical status of water bodies • Pollution incidents to land or water • Concentrations of nitrates and phosphorous in water bodies • Sampling water bodies against WFD targets 	A review will be undertaken on an annual basis of EPA water quality monitoring results in order to identify trends in terms of nutrient loading to catchments, chemical and biological water status with regard to the water status required under the WFD.	DAFM	Annually	
Forestry	Expansion of the forest resource	Increased afforestation has potential for negative effects on designated sites, landscape, biodiversity, water quality, and soil degradation	<ul style="list-style-type: none"> • Soil pH • Soil organic matter/ carbon content 	A review will be undertaken on an annual basis of EPA water quality monitoring results in order	DAFM	Annually	EPA

Sector	Food Wise 2025 Action	Issue	Indicator	Monitoring	Responsibility	Timescale	Interaction with Other Organisations
	Supply Chain	Increased roundwood harvest has potential for negative effects on designated sites, landscape, biodiversity, water quality, and soil degradation	<ul style="list-style-type: none"> • Changes in land use land cover over time • Ecological and chemical status of water bodies • Pollution incidents to land or water • Concentrations of nitrates and phosphorous in water bodies • Sampling water bodies against WFD targets 	to identify trends in terms of nutrient loading to catchments, chemical and biological water status with regard to the water status required under the WFD.			
	Wood Processing	Use of treatment chemicals in wood processing could have negative effects on water quality, emissions, and soil contamination depending on the location of the processing facility and methods/standards employed	<ul style="list-style-type: none"> • Soil sampling – pH, chemicals • Ecological and chemical status of water bodies • Pollution incidents to land or water • Concentrations of nitrates and phosphorous in water bodies • Sampling water bodies against WFD targets 	An annual review of wood processing facilities Industrial Emissions Licenses will be undertaken to identify any impacts arising from these facilities and to recommend industry wide improvements where required.	DAFM	Annually	EPA
Seafood	Expand the raw materials base	Potential negative effects on European designated sites, biodiversity, water quality and seascape from sector expansion	<ul style="list-style-type: none"> • Ecological and chemical status of water bodies • Extent and condition of marine protected areas in or near seafood growing or fishing waters 	A review will be undertaken on an annual basis of EPA water quality monitoring results in order to identify trends in terms of nutrient loading to catchments, chemical and biological water status			EPA

Sector	Food Wise 2025 Action	Issue	Indicator	Monitoring	Responsibility	Timescale	Interaction with Other Organisations
				with regard to the water status required under the WFD.			
	Optimise product added value, export markets & environmental sustainability	Potential negative effects on European designated sites, biodiversity, water quality and seascape from sector expansion		Continue existing conditionality for new licence applications including EIA screening and stakeholder consultation.			
Cross Cutting		Birds Biodiversity (including pollinators)		DAFM to develop suitable monitoring of its RDP (GLAS) programme in line with proposals under RDP 2014-2020 (GLAS) to monitor and report on general impact on biodiversity (including pollinators). DAFM in consultation with other relevant government departments and state agencies to take account of other national monitoring initiatives, in particular regarding the conservation status of Natura 2000 sites.			

9 References

- CEIM (2015). Convention of Long-range Transboundary Air Pollution website: 2015 Submissions - Ireland. URL:
http://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/2015_submissions/
- Creighton, P, O'Donovan, M and Shalloo, L (2011). The Benefits of Sward Renewal. URL:
<http://www.agresearch.teagasc.ie/moorepark/Articles/Positive%20farmer%20Conference%20Philip%20Creighton%202012%20final.pdf>
- DAFM (2010) Food Harvest 2020, A Vision for Irish Agri-food and Fisheries. Department of Agriculture, Food and the Marine: Ireland. URL:
<http://www.agriculture.gov.ie/media/migration/agri-foodindustry/foodharvest2020/2020FoodHarvestEng240810.pdf>
- DAFM (2013). Nitrates Action Programme - Ireland: Derogation Report 2013. Report for 2013 for the purposes of Articles 8 and 10 of the Commission Decision of 22/10/2007 granting a derogation requested by Ireland, pursuant to Council Directive 91/676/EEC. (unpublished), Department of Agriculture, Food and the Marine: Dublin.
- DAFM (2014a). Draft Forestry Programme 2014 – 2020. Department of Agriculture, Food and the Marine: Ireland. URL:
<http://www.agriculture.gov.ie/media/migration/forestry/publicconsultation/newforestryprogramme2014-2020/forestryprogramme2014-2020/DraftForestryProgramme20142020PubCon.pdf>
- DAFM (2014b). Environmental Analysis of Food Harvest 2020. Prepared by Philip Farrelly and Co. for DAFM. URL:
<http://www.agriculture.gov.ie/media/migration/ruralenvironment/climatechange/FoodHarvest2020EnvironmentalAnalysisFINAL050214.pdf>
- DAFM (2015a). A discussion document on the potential for Greenhouse Gas (GHG) mitigation within the Agriculture and Forestry sector. Climate Change and BioEnergy Policy Division, Department of Agriculture, Food and the Marine: Ireland. URL:
<http://www.agriculture.gov.ie/media/migration/ruralenvironment/climatechange/ghgmitigation/AgriSectorMitigationPlanPublicConsult120215.pdf>
- DAFM (2015b). Draft Seafood Programme 2020. Department of Agriculture, Food and the Marine: Ireland. URL:
<http://www.agriculture.gov.ie/fisheries/marineagenciesprogrammesdivision/futureseafooddevelopmentinireland2014-2020/>
- DAFM (2015c). Fact sheet on Irish Agriculture (May 2015). DAFM: Dublin. URL:
<https://www.agriculture.gov.ie/media/migration/publications/2015/MAY2015FACTSHEETFINAL060515.pdf>
- DAHG (2011a). Actions for Biodiversity 2011-2016; Ireland's National Biodiversity Plan. Department of Arts, Heritage and the Gaeltacht: Ireland. URL:
<http://www.ahg.gov.ie/en/Publications/HeritagePublications/NatureConservationPublications/Actions%20for%20Biodiversity%202011%20-%202016.pdf>
- DAHG (2011b). European Communities (Birds and Natural Habitats) Regulations, Statutory Instrument No. 477/2011. Department of Arts, Heritage and the Gaeltacht, Government of Ireland. URL: <http://www.irishstatutebook.ie/2011/en/si/0477.html>

- DAHG, 2014. Judgement of the Court of Justice of the European Union in Case C 418/04 Commission v Ireland “The Birds Case”: A Programme of measures by Ireland to ensure full compliance with the Judgment of the Court of Justice of the European Union (Update - October 2014). URL.: <http://www.ahg.gov.ie/en/Heritage/ProgrammeofMeasuresbyIrelandtoensurecomplianceintheEJBirdsCase/Birds%20Case%20PoM%20October%202014.pdf>
- DAHG (2015). National Landscape Strategy for Ireland 2014-15. Department of Arts, Heritage and the Gaeltacht: Dublin. URL.: <http://www.ahg.gov.ie/en/Heritage/NationalLandscapeStrategyforIreland/N%20Landscape%20Strategy%20English%20Web.pdf>
- DCENR (2014). Draft Bioenergy Plan. Department of Communications, Energy and Natural Resources: Ireland. URL: <http://www.dcenr.gov.ie/NR/rdonlyres/4B809564-5709-41C1-AB37-3CF772ECD693/0/BioenergyPlan.pdf>
- DECLG (2012). Our Sustainable Future: A framework for sustainable development for Ireland. Department of the Environment, Community and Local Government: Dublin. URL.: <http://www.environ.ie/en/Environment/SustainableDevelopment/PublicationsDocuments/FileDownload,30452,en.pdf>
- DECLG (2014). Climate Action and Low Carbon Development: National Policy Position Ireland. Department of the Environment, Community and Local Government: Dublin. URL.: <http://environ.ie/en/Publications/Environment/Atmosphere/FileDownload,37827,en.pdf>
- DEHLG (2004). Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment Guidelines for Regional Authorities and Planning Authorities. Ireland: Department of Environment, Heritage and Local Government, Government of Ireland. URL: <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownload,1616,en.pdf>
- DEHLG (2009). Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Ireland: Department of Environment, Heritage and Local Government, Government of Ireland. URL: <http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=aeLSNXL11hU=&tabid=250consultation/name,25835,en.html>
- DEHLG, 2008. River Basin Management Planning: A practical guide for Public Authorities. Department of the Environment, Heritage and Local Government: Dublin. URL.: <http://www.wfdireland.ie/docs/River%20Basin%20Planning%20Guidance%20-%2027%20June%202008.pdf>
- DELG (2000). Draft Landscape and Landscape Assessment Guidelines. Department of the Environment and Local Government: Ireland. URL: <http://www.google.ie/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCAQFjAA&url=http%3A%2F%2Fwww.environ.ie%2Fen%2FPublications%2FDevelopmentandHousing%2FPlanning%2FFileDownload%2C1608%2Cen.doc&ei=EOsbVdWjAYae7gbnhYAw&usg=AFQjCNG-Nh1eJim8IdyWs6bvAzT4col4Sg>
- Donnellan, T and Hanrahan, K (2011). Greenhouse Gas Emissions by Irish Agriculture: Consequences arising from the Food Harvest. Briefing Note No. 2011/1: Targets, Agricultural Economics Department, Teagasc: Ireland. URL: http://www.teagasc.ie/publications/2011/67/67_FoodHarvestEnvironment.pdf

- EC (1985). Council Directive 85/337/EEC on the Assessment of the Effects of Certain Public and Private Projects on the Environment. *Official Journal*, Commission of the European Communities, L175, 5.7.85: 40-48, available at: <http://ec.europa.eu/environment/eia/full-legal-text/85337.htm>
- EC (1991). Council Directive 91/676/EEC of 12 December 1991, concerning the Protection of Waters against Pollution Caused by Nitrates from Agricultural Sources. European Economic Community. *Official Journal of the European Union*, L375, 31.12.1991.
- EC (1992). Directive 92/43/EEC, of 21st May, on the Conservation of Natural Habitats and of Wild Fauna and Flora. Commission of the European Communities. *Official Journal of the European Union*, L206, 22.7.1992.
- EC (2000a). Directive 2000/60/EC, of 23rd October, Establishing a Framework for Community Action in the Field of Water Policy. European Commission. *Official Journal of the European Union*, L327, 22.12.2000.
- EC (2000b). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/CEE. Office for Official Publications of the European Communities: Luxembourg. URL: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf
- EC (2001a). Directive 2001/81/EC of the European Parliament and of the Council, of 23 October 2001, on National Emission Ceilings for Certain Atmospheric Pollutants. European Commission. *Official Journal of the European Union*, L309, 27.11.2001.
- EC (2001b). Directive 2001/42/EC, of 27th June, on the Assessment of the Effects of Certain Plans and Programmes on the Environment. Commission of the European Communities. *Official Journal of the European Union*, L 197/30, 21.7.2001.
- EC (2002). Assessment of plans and projects significantly affecting Natura 2000 sites Methodological Guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities. European Commission, DG Environment. URL: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf
- EC (2004). Directive 2004/35/EC of the European Parliament and of the Council, of 21 April 2004, on Environmental Liability with regard to the Prevention and Remedying of Environmental Damage. European Commission. *Official Journal of the European Union*, L143/56, 30.04.2004.
- EC (2006). Proposal for a Directive of the European Parliament and of the Council establishing a Framework for the Protection of Soil and amending Directive 2004/35/EC. Commission of the European Communities. Brussels, 22.9.2006, COM(2006) 232 final 2006/0086 (COD).
- EC (2008). Directive 2008/50/EC of the European Parliament and of the Council, of 21 May 2008, on Ambient Air Quality and Cleaner Air for Europe. *Official Journal of the European Union*, L152, 11.06.2008. URL: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0050&from=EN>
- EC (2009). Council Directive 2009/147/EC, of 30th November, on the Conservation of Wild Birds (codified version). Commission of the European Communities. *Official Journal of the European Union*, L20/7, 26.1.2010.
- EC (2011). Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions. Our Life Insurance, Our Natural Capital: An EU Biodiversity Strategy to 2020. Brussels, 3.5.2011 COM(2011) 244 final.

- European Commission. URL: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0244&from=EN>
- EC (2011b). Directive 2011/92/EU. Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification). *Official Journal*, Commission of the European Communities, 26, 1-21. URL: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011L0092&from=EN>
- EC (2013a). Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet' [7th Environment Action Programme]. *OJ L* 354/171-200.
- EC (2013b). A Water Blueprint for Europe. Publications Office of the European Union: Luxembourg. URL: http://ec.europa.eu/environment/water/blueprint/pdf/brochure_en.pdf
- EC (2013c). Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment (DG Environment Study Contract 07.0307/2010/580136/ETU/A3). Publications Office of the European Union: Luxembourg. URL: <http://ec.europa.eu/environment/eia/pdf/SEA%20Guidance.pdf>
- EC (2013d). Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (DG Environment Study Contract 07.0307/2010/580136/ETU/A3). Publications Office of the European Union: Luxembourg. URL: <http://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf>
- EC (2014). Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. *Official Journal of the European Union*, L 124, 1-18. 25.4.2014 (with its informal codification in *OJ L* 26, 28.1.2012, p. 1).
- EPA (2002). Guidelines on the Information to be contained in Environmental Impact Statements (2nd edition). Environmental Protection Agency: Ireland.
- EPA (2003). Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (2nd edition). Environmental Protection Agency: Ireland.
- EPA (2007). 2020 Vision: Protecting and Improving Ireland's Environment. Environmental Protection Agency: Ireland.
- EPA (2008). Draft Consultation SEA Process Checklist. Environmental Protection Agency: Ireland. URL: <http://www.epa.ie/pubs/advice/ea/seaprocesschecklist.html#.VVEgBJORaa0>
- EPA (2009). GISEA Manual: Current Practice and Potential on the Application of Geographic Information Systems as a Support Tool in Strategic Environmental Assessment of Irish Land Use Plans. Prepared by González, A. for the Environmental Protection Agency: Ireland. URL: <http://www.epa.ie/downloads/>
- EPA (2010). Water Quality in Ireland 2007-2009. Environmental Protection Agency: Ireland. URL: <http://www.epa.ie/pubs/reports/water/waterqua/WaterQuality0709.pdf>
- EPA (2011). Integrated Water Quality Report - South East Ireland. Environmental Protection Agency: Ireland. URL: http://www.epa.ie/pubs/reports/water/waterqua/integwaterqual/EPA_IWQR_SE2011_AnnualReport.pdf
- EPA (2012a). Integrated Water Quality Report - Galway and Mayo. Environmental Protection Agency: Ireland. URL: http://www.epa.ie/pubs/reports/water/waterqua/IQWR_GalwayMayo2012.pdf

- EPA (2012b). Ireland's Environment - As Assessment. Environmental Protection Agency: Ireland. URL: http://www.epa.ie/pubs/reports/indicators/00061_EPA_SoE_2012.pdf
- EPA (2013a). Drinking Water Report 2013. Environmental Protection Agency: Ireland. URL: <http://www.epa.ie/pubs/reports/water/drinking/Drinking%20Water%20Report%20Web.pdf>
- EPA (2013b). Integrated Biodiversity Impact Assessment – Streamlining AA, SEA and EIA Processes: Practitioner's Manual. Prepared by González, A. for the Environmental Protection Agency: Ireland. URL: <https://www.epa.ie/pubs/reports/research/biodiversity/Integrated%20Biodiversity%20Impact%20Assessment%20-%20Streamlining%20AA,%20SEA%20and%20EIA%20Processes%20-%20Practitioner's%20Manual.pdf>
- EPA (2013c). Air Quality in Ireland - Key Indicators of Ambient Air Quality. Environmental Protection Agency: Ireland. URL: http://www.epa.ie/pubs/reports/air/quality/Air_quality%20Report%202013.pdf
- EPA (2013d). Ireland's Greenhouse Gas Emission Projections 2012-2030. Environmental Protection Agency: Ireland. URL: http://www.epa.ie/pubs/reports/air/airemissions/epa_ghg_emission_proj_pub_2013_final.pdf
- EPA (2014a). Ireland's Provisional Greenhouse Gas Emissions in 2013. Environmental Protection Agency: Ireland. URL: <http://www.epa.ie/pubs/reports/air/airemissions/GHGprov.pdf>
- EPA (2014b). Focus on Environmental Enforcement in Ireland 2009-2012. EPA Office of Environmental Enforcement: Wexford. URL: <http://static.rasset.ie/documents/news/epareport.pdf>
- EPA (2015a). Ireland's Greenhouse Gas Emission Projections 2014-2035. Environmental Protection Agency: Ireland. URL: <http://www.epa.ie/pubs/reports/air/airemissions/EPA%202015%20GHG%20Projections%20Publication%20Final.pdf>
- EPA (2015b). Water Quality in Ireland 2010-2012. Environmental Protection Agency: Ireland. URL: <http://www.epa.ie/pubs/reports/water/waterqua/wqr20102012/WaterQualityReport.pdf>
- EPA (in press). Developing and Assessing Alternatives in Strategic Environmental Assessment - Good Practice Guidance. Prepared by González, A., Thérivel, R., Fry, J., and Foley, W. for the Environmental Protection Agency: Ireland.
- Fellmann, T (ed.) Van Doorslaer, V, Witzke, P, Huck, I, Weiss, F, Fellmann, T, Salputra, G, Jansson, A, Drabik, D, and Leip, A (2015). An economic Assessment of GHG Mitigation Policy Options for EU Agriculture. JRC Report EUR 27097 EN Institute for Prospective Technological Studies. Luxembourg: Publications Office of the European Union. URL: <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/economic-assessment-ghg-mitigation-policy-options-eu-agriculture>
- GoI (2012). Wildlife Amendment Act 2012. Government of Ireland: Ireland. URL: <http://www.irishstatutebook.ie/2012/en/act/pub/0029/print.html>
- JCAFM (2014). Report on Land Use: Maximising its Potential. Joint Committee on Agriculture, Food and the Marine, Houses of the Oireachtas: Dublin (Report AFM 003). URL: <http://www.oireachtas.ie/parliament/oireachtasbusiness/www.oireachtas/committees/committee-reports/>
- Morrison-Saunders, A and Arts, J (eds.) (2004). Assessing Impact: Handbook of EIA and SEA Follow-up. Earthscan: London

- NBDC (2010). Ireland's Biodiversity in 2010: Knowledge Gaps. National Biodiversity Data Centre, Waterford: Ireland. URL: <http://biodiversity.biodiversityireland.ie/wordpress/wp-content/uploads/Knowledge-Gaps-20101.pdf>
- NPWS, 2014. Draft National Peatlands Strategy. National Parks and Wildlife Service: Dublin. URL.: <http://www.ahg.gov.ie/en/Publications/HeritagePublications/NatureConservationPublications/Final%20Draft%20National%20Peatlands%20Strategy.pdf>
- O'Mahony, Cian (2014). Integrating climate change into Strategic Environmental Assessment in Ireland: A Guidance note. Environmental Protection Agency: Wexford, Ireland.
- Pretty, JN (1995). Regenerating Agriculture: Policies and Practice for Sustainability and Self-Reliance. Earthscan Publications: London/National Academy Press: Washington, DC/Vikas: Bangalore.
- Pretty, Jules N, 1997. The sustainable intensification of agriculture. *Natural Resources Forum* 21(4), 247-256.
- Purvis, G, Anderson, A, Baars, J-R, Bolger, T, Breen, J, Connolly, J, Curry, J, Doherty, P, Doyle, M, Finn, J, Geijzendorffer, I, Helden, A, Kelly-Quinn, M, Kennedy, T, Kirwan, L, McDonald, J, McMahon, B, Mikcshe, D, Santorum, V, Schmidt, O, Sheehan, C and Sheridan, H (2009). AG-BIOTA - Monitoring, Functional Significance and Management for the Maintenance and Economic Utilisation of Biodiversity in the Intensively Farmed Landscape. End of STRIVE Project Report (2001-CD/B1-M1), Environmental Protection Agency: Ireland. Available for download on <http://erc.epa.ie/safer/reports>
- Schulte, Rogier; Paul Crosson, Trevor Donnellan, Niall Farrelly, John Finnan, Stan Lalor, Gary Lanigan, Donal O'Brien, Laurence Shalloo and Fiona Thorne (2012). A Marginal Abatement Cost Curve for Irish Agriculture. Teagasc: Ireland. URL: http://www.teagasc.ie/publications/2012/1186/1186_Marginal_Abatement_Cost_Curve_for_Irish_Agriculture.pdf
- Schulte, RPO, Donnellan, T, Black, KG, Crosson, P, Farrelly, N, Fealy, RM, Finnan, J, Lanigan, G, O'Brien, D, O'Kiely, P, Shalloo, L, and O'Mara, F (2013). Carbon Neutrality as a horizon point for Irish Agriculture: A qualitative appraisal of potential pathways to 2050. Working Group on Greenhouse Gas Emissions, Teagasc: Ireland. URL: <http://www.teagasc.ie/publications/2013/3002/CarbonNeutrality.pdf>
- Schulte, RPO, Creamer, RC, Donnellan, T, Farrelly, N, Fealy, R, O'Donoghue, C and O'hUallachain, D (2014). Functional Land Management: A Framework for Managing Soil-based Ecosystem Services for the Sustainable Intensification of Agriculture. *Environmental Science and Policy*, 38: 45-58.
- Teagasc (2011). The Irish Dairy Industry Planning for 2020. Prepared by Pat Dillon, Teagasc: Ireland. URL: http://www.teagasc.ie/publications/2011/1054/Pat_Dillon.pdf
- Teagasc (2013). Greenhouse Gas Emissions by Irish Agriculture: Consequences arising from the Food Harvest Targets. Prepared by T. Donnellan and K. Hanrahan. Teagasc: Ireland. URL: <http://www.tnet.teagasc.ie/fapri/downloads/pubs2013/ghgprojections2012.pdf>
- Teagasc, 2015. Teagasc National Farm Survey (online). URL.: <http://www.teagasc.ie/nfs/>
- White, V (2013). Farm fodder crisis will continue unless we confront climate change. Irish Examiner, Thursday, May 09, 2013. URL: <http://www.irishexaminer.com/viewpoints/columnists/victoria-white/farm-fodder-crisis-will-continue-unless-we-confront-climate-change-230716.htm>

10 Annexes

10.1 Annex I - SEA Assessment Matrices

The scoring system used for the assessment of the Plan’s actions is detailed in Table 10-1.

Table 10-1 Scoring Key

+++	Significant Positive
++	Moderate Positive
+	Slight Positive
0	Neutral / Imperceptible
-	Slight Negative/ Uncertain
--	Moderate Negative
---	Significant Negative

10.1.1 Sustainability Actions

Table 10-2 details the results of the SEA assessment on the sustainability actions contained within Chapter 4 of *Food Wise 2025*.

Table 10-2 Assessment Matrix Sustainability Actions

	Actions / Section	Strategic Environmental Objectives																	Comments
		1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities without impacting Natura 2000 sites	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Chapter 4: Sustainability	1. Recognising Agriculture’s role in ongoing National, EU and International Climate Change and Energy Policy Development.	0	0	0	0	+	+++	++	0	0	0	+	+	+	0	0	0	0	Actions have a strong focus on agriculture’s role in climate change. Positive effects on climate change mitigation and adaptation, with knock-on benefits for air quality. There may also be indirect benefits for the environment. However, the pressure to increase rates of afforestation could have potential adverse impacts depending on the location of such changes in land use. Therefore, overall environment effects as assessed as neutral. Bioenergy and use of animal by-products for energy production will help reduce waste and maximise re-use and efficient use of resources.
	2. Measurement of Ireland’s environmental	0	+	+	+	+	+	0	+	0	+	+	++	+	+	+	+	+	These measures aim to gauge progress against criteria and this would be regarded to be an essential element of ensuring that the schemes referred to are actually delivering their goals. There will be a positive effect on the environment as measuring and reporting on sustainability indicators will help identify problem areas and actions can

sustainability credentials																			be taken to address the issue. Roll out of the Carbon Navigator Initiative will help farmers understand how their farms produce GHG emissions and these may be reduced.
3. Further Development and Enhancement of Origin Green Programme	+	+	++	++	++	++	0	++	0	++	++	+++	++	+	+	+	+	+	Development and Enhancement of the Origin Green programme will have positive effects for the environment. In particular, soil health, nutrient management, biodiversity, animal health and welfare, efficiencies in energy usage, waste water, food waste, and packaging waste. Knowledge transfer, funding, and engagement will help promote sustainable agricultural practices and awareness of environmental issues and benefits of the Origin Green programme.
4. Improvement of Environmental footprint of Sector	0	+	+	+	+	++	0	+++	0	++	++	++	++	+	+	+	+	+	The recommendations will have positive environmental effects. In particular, actions on the delivery of the Water Framework Directive and Nutrient Management software tool will have positive effects on water quality and associated benefits for biodiversity. Actions on nutrient management, efficient use of nutrients, specific soil advice, nutrient census, and the Pasture Base Ireland tool will help improve soil fertility and reduce effects associated with fertiliser use. Actions to address declining fish stocks will help maintain the sustainability of the fisheries industry. Positive linkages to the Conservation Objectives of European Sites can be seen in reference to maintaining populations and ranges (e.g. by maintaining fish stocks which may be prey items for seabird, cetacean, seal and otter populations). Commitments made to monitoring the effects of local changes in dairy practice are useful contributions to the range of monitoring commitments for this sector and will have to be combined with appropriate feedback response mechanisms to address scenarios whereby the results suggest adverse effects. Sector-specific actions are regarded to provide potential positive impacts on European site integrity as they address threats such as eutrophication, overfishing and ground/surface water pollution by hazardous waste.
5. Develop and support agri-food processing sector in delivering sustainable processes and outputs	0	++	0	+	+	++	0	+	0	+	++	++	++	0	0	0	0	0	Positive effects on GHG emissions and air quality from uptake of renewable energy technologies, energy efficiency actions and promotion of biomass. Actions for uptake of environmental protection systems and increasing environmental awareness at SME level will result in positive effects for the wider environment
6. Implementation of Environmental Elements of Ireland's National Programmes and the EU co-funded Rural Development Programme 2014-2020	0	0	0	+	+	+	0	+	0	+	+	+	+	0	0	0	0	0	The actions will have positive effects on the environment as they aim to ensure compliance with the WFD, habitat preservation, carbon capture through afforestation, raise awareness of and mitigate GHG emissions, ammonia emissions and promote uptake of grants for low emission slurry spreading equipment and farm nutrient storage.
7. Prioritise Research Funding on	+	0	0	+	0	+	+	+	0	+	+	+	+	0	0	0	0	0	The action sets out key research areas and evidence gathering including vulnerability of food production systems to climate change, technologies to reduce effects of food production on water quality, identifies positive measure for biodiversity, develops

	Sustainability of Irish Food production																		technologies for reducing ammonia and GHG emissions, assess carbon sequestration, supports the health and nutrition benefits of grass-based food production. This will have a number of benefits for the environment by providing evidence for the existence or otherwise of linkages between agricultural activities and environmental impacts and solutions for where there may be adverse impacts occurring.
	8. Implementation of <i>Food Wise 2025</i> actions in context of sustainability	0	0	+	+	+	+	0	+	0	+	+	+	+	0	0	0	0	Monitoring of implementation at a local level will help in providing evidence for the existence or otherwise of linkages between agricultural activities and environmental impacts and solutions for where there may be adverse impacts occurring.
Chapter 5: Growth Opportunities	Growth opportunities	0	0	-	-	-	-	0	-	0	-	-	0	-	0	0	-	-	There are no specific actions or growth targets for primary production within the chapter. However, the chapter does set out growth opportunities include sectoral expansion within the dairy sector, meat sector, seafood sector, and whiskey and craft beer sector. Sectoral expansion has potential for negative effects on water quality, biodiversity, soil quality, GHG emissions, waste generation, and landscape through intensification, change in land use, use of fertilisers, and increase in animal numbers. The Plan also recognises that consumer trends for natural, organic foods are growing and there is potential for new market opportunities. It is unclear whether this would involve land use and intensification changes or whether it would replace some existing areas and sectors.
Chapter 6: Delivering Growth	Human capital	++	0	0	+	0	+	0	+	0	+	+	++	+	0	0	0	0	Increased knowledge and awareness of legal requirements, ecological impacts and mitigation measures will contribute to better agri-food practices across the sector. Better education, skills, and knowledge exchange will contribute to the sustainability of the agricultural sector and promote sharing of best practice framing methods and environmental innovation. The actions on health and safety and animal health will help reduce human health risks associated with the industry.
	Competitiveness	0	+	0	0	0	+	0	+	0	+	0	+	+	0	+	0	0	Actions to improve the transport efficiency of supply chains and the need to develop infrastructure will have positive effects for sustainable development. Actions will contribute toward better use of land, soil management and retention of nutrients in the soil, limiting the amount of nitrogen, phosphorous and ammonia to surface and groundwaters. The action to promote agri-tourism will have positive effects for tourism in Ireland.
	Market Development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	++	0	0	The actions are focussed on market positioning and building reputation and trade with emerging markets. It is unlikely that this will have environmental effects. However, if it leads to increased production and change of land use the negative effects may emerge. The action on increasing linkages with Tourism Ireland and new markets is likely to have positive effect for agri-tourism. .
	Promoting “Ireland” in new markets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+++	0	0	Positive effects for agri-tourism as the actions promote ‘Ireland’ develop marketing material, and better link food and tourism. In isolation, this proposal could increase pressure on sites along the Wild Atlantic Way (WAW) and other food trails. The WAW has undergone its own AA process and mitigation measures therein would have to be taken into account at the project-scale.

	Origin Green	0	0	+	+	+	+	0	+	0	+	+	+	+	+	0	0	+	The actions will further promote entry to the Origin Green scheme which will provide overall positive impacts to the environment..
	Animal Health Status	+	0	0	0	0	0	0	0	0	0	+	+	0	0	0	0	0	The actions are focussed on animal health. This will have positive effects on human health risk, waste, and sustainable agriculture as helping eradicate livestock disease will reduce mortality rates and the number of animals that have to be culled.
	High food Safety status	+++	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	The action is to improve monitoring and predictive capacity to response more timely to food safety threats. This will have positive effects for human health risks but is unlikely to effect the wider environment.
	Innovation	0	0	-	0	0	0	0	0	0	++	0	0	0	0	++	0	0	Proposals that aim to increase productivity coupled with research into how to do this whilst ensuring soil fertility will addresses nutrient retention to provide a positive impact on soil quality. Creating an internationally recognised research hub and knowledge centre will attract visitors from around the world, resulting in sportive effects on agri-tourism. Actions relating to the expansion of the sector to marine species of fish, shellfish and seaweed as possible new products could have adverse effects on the European sites through loss of feeding resources for birds and Annex II species, damage and deterioration of offshore and coastal habitats.

10.1.2 Dairy Sector

For the purposes of the SEA assessment the dairy sector actions were grouped in four categories: Driving farm competitiveness; Managing volatility through financial management and informed decision making; Processing, adding value & marketing; and Environment. The Driving farm competitiveness category was further divided into four sub-categories: Grassland and soil management; Breeding and genetics; and Knowledge skills. (Refer to Table 10-3.) The results of the SEA assessment completed on the dairy sector actions contained within *Food Wise 2025* are detailed in Table 10-4.

Table 10-3 Categorisation of Dairy Sector Actions for SEA Assessment

Driving Farm Competitiveness	Managing volatility through financial management and informed decision making	Processing, adding value & marketing	Environment
Grassland and Soil Management	Processors should prioritise the development of fixed price contracts and other volatility tools for their suppliers. Equally dairy exporters should develop fixed price contracts from the customers back to the exporter	Origin Green will be a key marketing tool and should be fully supported at all levels of the industry within an ambitious time frame. The verifiable sustainability credentials of Irish dairy products will be a key marketing advantage under this programme and Ireland will be positioned as a leading supplier of sustainable dairy products across all markets	The response to environmental challenges in areas such as emissions, water quality and biodiversity must be centrally co-ordinated and must highlight Ireland’s key leadership role in balancing more intensive production with environmental concerns
All milk producers should be strongly encouraged to carry out grass measurement as the efficient use of grass is one of the key advantages of the Irish dairy sector	The issues around the possibility of developing a mechanism including mutual funds such as a reinsurance scheme should be examined to minimise risk for processors and give farmers confidence regarding price	Industry will continue to focus on the development of value added products whilst ensuring, insofar as possible, that the maximum value possible is retained indigenously	The Sustainable Dairy Assurance Scheme (SDAS) must include all dairy farmers as an immediate priority
Strategies should be developed to increase the fertility of Irish grassland soils in order to address deficiencies in P, K and lime	The Government will ensure that the tax system as it specifically applies to farmers should remain under review to establish if there is further scope to take account of income volatility faced by dairy farmers	In line with the findings of the Report on Smart Ageing which was presented to Government in April 2015, opportunities for the development of dairy based foods in this sector will be examined	
Dairy farmers should set a target of increasing grass utilisation to 10 tonnes/ha	Engagement by processors, producers and the Department with the Milk Market Observatory should be enhanced	Ireland's success in added value sectors such as farmhouse, artisan and higher end cheeses and butters will continue to be recognised, developed and encouraged	
Breeding and Genetics			
Continue to leverage the benefits of genomic technology to help maintain the rate of genetic improvement in the dairy sector to maximise resource use efficiency and lower emissions			
Industry stakeholders need to ensure that sexed semen continues to be rolled out to Irish dairy farmers and that continued research in the technology is undertaken			
Knowledge & Skills			
Increase the number of farmers that complete profit monitors or other cost management tools			
An increased awareness among milk producers and others in the dairy sector in relation to the key issues surrounding fixed price contracts and financial management skills should be facilitated, including an increased use of cash flow budgeting and monitoring tools to help cope with milk price volatility			
The scope for continuous efficiency improvements must be continuously pursued against competitive benchmarks			

Table 10-4 Assessment Matrix - Dairy Sector

Priority Actions		Strategic Environmental Objectives																	Comments
		1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities without impacting Natura 2000 sites	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Driving Farm Competitiveness	Knowledge and Skills	+	0	+	+	0	+	0	+	0	+	+	0	0	+	0	0	0	Increasing knowledge and skills among dairy farmers will improve farm efficiency and has the potential to reduce inputs required and reduce pressures on the environment.
	Breeding and Genetics	0	0	0	0	0	+	0	+	0	0	+	+	0	0	0	0	0	Although the actions will support economic activities through increased efficiencies and profitability there is no protection of the receiving environment mentioned. Dairy cows will be bred for greater milk yield while maintaining or reducing overall cow size, thereby decreasing feed intake and waste output which will have positive effects on agricultural waste reduction and associated water quality benefits. Offspring produced will be targeted for specific enterprises, reducing numbers of 'unwanted' offspring nationally. The proposed actions under dairy expansion do not necessarily imply an increase in the national herd but better genetic breeding. This has potential positive effects on GHG emissions and ammonia emissions. Increased volumes of milk processing could increase wastewater treatment capacity requirements
	Grassland and Soil Management	0	0	-	-	0	-	0	-	0	+++	-	0	++	0	0	0	0	Increasing soil fertility is likely to involve use of fertilisers which can have negative effects for water quality, habitats, and species. Impacts on groundwater arising from increased leaching of nitrates. However, the Plan must comply with the WFD and Nitrates Directive so fertiliser use must be controlled to allow WFD targets of good water status to be achieved. Potential effects on habitats and species (aquatic and terrestrial) where intensification involves higher volumes of manure to be managed and increased use of fertilisers, herbicides and pesticides. Liming can release GHG emissions. Positive effect on improving grassland soil quality and maximising efficient use of grasslands Land use / landscape changes from intensification of grazing patterns and possible land rationalisation (although this is subject to control under existing agri-environmental measures)
Managing Volatility through financial management and informed decision making		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Although the actions will support economic activities there is no protection of the receiving environment mentioned. Providing stability in the dairy sector has potential benefits to the environment as it reduces the risk of land abandonment or rapid intensification.

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities without impacting Natura 2000 sites	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Processing, adding value & marketing	0	+	+	+	0	+	0	+	0	+	+	++	+	+	+	0	0	Origin Green will promote sustainable agricultural development, and depending on the environmental indicators, should have benefits for species and habitats, water quality, GHGs and soil quality. Adding value and new product development will support economic activities and agri-tourism
Environment	+	0	++	++	0	++	+	++	0	+	+	+	0	0	0	0	+	The inclusion of environmental actions will help protect the environment from potentially harmful agricultural activities. Central coordination to address environmental challenges will be positive. However, the actions do not offer detail on how environmental challenges will be addressed and monitored. In the context of increased production in the period to 2025 additional safeguards are required to address increased pressures on the environment.

10.1.3 Beef Sector

For the purposes of the SEA assessment the beef sector actions were grouped in six categories: Driving farm competitiveness; Adding value through R&D; Enhanced supply chain interaction and information flows; Furthering our reputation on international markets; Cross cutting actions and DAFM actions. The Driving farm competitiveness category was further divided into four sub-categories: Farm management practices; Animal health and welfare; Breeding and genomics; and Education and knowledge transfer. (Refer to Table 10-5.) The results of the SEA assessment completed on the beef sector actions contained within *Food Wise 2025* are detailed in Table 10-6.

Table 10-5 Categorisation of Beef Sector Actions for SEA Assessment

Driving farm competitiveness	Adding value through R&D	Enhanced supply chain interaction and information flows	Furthering our reputation on international markets	Cross cutting actions	DAFM Actions
Farm Management Practices	Support research efforts and knowledge transfer tools to better utilise the beef output from the dairy bred calves in a systemised manner	Increased level of communication and engagement with and between processors and producers in terms of marketplace developments	Develop further and build a strong brand image for Irish beef capable of securing a significant price premium at retail and food service market outlets	Explore options for alternative funding models for research in the sector, including contributions from the industry	Seek to maintain support for suckler producers in the current CAP arrangements and prioritise that support in future negotiations on the post 2020 policy
Focus on kilograms of beef produced per hectare as a suitable measure of profitability / efficiency	Develop a uniform approach to the supply of clean cattle underpinned by research in this area	Explore options to increase data availability on traded volumes by channel across the whole supply chain, to increase transparency and better inform stakeholder understanding of market returns	Develop markets for fifth quarter products through enhanced marketing capabilities and through enhanced market access	Ensure the availability of the appropriate skills throughout the supply chain, including providing adequate training in butchery skills to the processing sector	
Focus on net margin per hectare as a measure of profitability and kilograms of beef produced per hectare as a suitable measure of efficiency	Investigate and develop viable alternative markets for the additional prime cattle arising from dairy herd expansion	Increase and expand contractual supply arrangements between producers and processors	Dedicated and adequately resourced DAFM beef market access team to identify, develop, reinforce and secure new third country markets as well as supporting the trade in live exports	Any increased support for suckler cow production should be conditional on quantity and technical efficiency improvement	
Develop infrastructure through knowledge transfer programmes and farmer education to ensure improved grassland management. This will include increasing the proportion of grassland farmers participating in weekly grass measurement from 1,250 today to 3,000 by 2020 and 5,000 by 2025	Explore options for increased returns from meat and bone meal, and tallow through industry and agency R&D	Focus on assisting the production of the market required carcass specification and production systems which are designed to maximise return both to the farmer and the processing industry	Defend interests of the Irish beef sector in international trade agreements pursued by the EU, particularly in light of competitive threat posed by the US and Mercosur	Competitive financing packages required for acquisitions to improve foreign market presence.	
Increase farmer participation in Beef and Lamb Quality Assurance Scheme (BLQAS) to 90% in terms of proportion of output by 2025	Complete the establishment of the Meat Technology Centre	Engage with retail customers to develop a partnership approach to the production of Irish beef, ensuring a harmonised and collaborative approach to market specifications, price points and farm management practices	Develop strong reputation for quality and environmental sustainability of Irish beef with customers, competent authorities in target markets and NGOs building on the Sustainable Beef and Lamb Assurance Scheme (Origin Green) and optimise the use of this brand reputation in the market place	Seek to ensure origin labelling requirements across all sectors reflect the appropriate balance between consumer demand and increased cost to consumers and industry	
Animal Health and Welfare	Explore research projects on the advantages of Irish grass fed beef systems in comparison with other production systems with regards to animal welfare, health and taste along with any other relevant areas. This should include a consideration as to the definition of 'grass fed'	Building on the launch of Irish beef into the US, implement a strategy for the premium positioning of Irish beef as sustainable and grass fed resulting in a growth of exports into high end retail and foodservice outlets		Seek to minimise the impact of mandatory labelling requirements on the competitiveness of Irish exports on EU markets	
Facilitate the rapid operationalisation of all aspects of the <i>Beef HealthCheck</i> programme, including batch-level, herd-level and geographic reporting		Investigate opportunities for including animal welfare standards and human health benefits of grass fed beef in the marketing messages for Irish beef			
Facilitate the further development of resources and information to encourage livestock producers to place an economic value on the biosecurity of their holdings					

Driving farm competitiveness	Adding value through R&D	Enhanced supply chain interaction and information flows	Furthering our reputation on international markets	Cross cutting actions	DAFM Actions
Consider the merits of developing a standing national resource with expertise in the field of animal health economics and disease modelling					
Develop early warning/surveillance systems, vaccines and intervention strategies for the rapid recognition, prevention and control of livestock diseases					
Breeding and Genomics					
Increase fertility levels and decrease calving intervals in suckler herds					
Leverage the benefits of the recent adoption of genomics technology in the beef sector to improve the genetic quality of the national breeding herd though inter alia, maximising participation in the Beef Data and Genomics Programme, to help lower emissions and improve farm competitiveness					
Exploit potential of genomics to add value at farm level by improving breeding and at processing level in areas such as meat quality and meat tenderness					
Further develop the potential use of sexed semen for breeding selection and improving genetic profile and profitability of the proportion of the beef herd coming from the dairy sector					
Intensify the level of research aimed at informing the formulation of the breeding indexes used in the sector and the distribution of the traits therein					
Education & Knowledge Transfer					
Increase the number of livestock farmers in Knowledge Transfer Programme					
Review mechanism for linking the knowledge developed on Teagasc/Farmer’s Journal BETTER Farm Beef Programme and the new Suckler Cow demonstration farm in Athenry with widespread application at farm level					
Develop sectoral indicators, analysis and service delivery models which differentiates the sector in terms of farm size/labour requirement of farmers in the industry					

Table 10-6 Assessment Matrix - Beef Sector

Priority Actions		Strategic Environmental Objectives																	Comments
		1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Driving on-farm competitiveness	Breeding & Genomics	0	0	0	0	0	+	0	+	0	0	+	+	0	0	0	0	0	Positive effect on agricultural waste reduction and associated water quality benefits if it is assumed that there is improved feed conversion ratio thus requiring less feed intake to produce more meat, thereby decreasing feed intake and waste output. Maximisation of bovine potential will add to this. Although the actions will support economic activities through increased efficiencies and profitability there is no protection of the receiving environment mentioned.
	Farm management practices	0	0	-	-	0	-	0	0	0	0	0	0	+	+	0	0	0	Increased focus on kg/ha and net margin/ha imply an increased stocking density. This could have a negative effect on the environment. The primary concern in this regard is increased nutrient run-off. However, positive impacts in the form of reduced nutrient runoff to surface waters through the increasing reliance on low emission slurry spreading and selection of grass species to allow increased overall grass output and utilisation per hectare whilst reducing requirement for fertiliser inputs. Therefore, overall neutral score for water quality, soil quality, and agricultural waste. Increase in livestock numbers has potential to increase GHG emissions and ammonia emissions. Increased animal numbers will also increase animal waste, ammonia, phosphors, and nitrates, and well as silage which can cause deterioration of water quality but can also provide nutrients to watercourses. Potential effects on habitats and species (aquatic and terrestrial) where intensification involves higher volumes of manure to be managed and increased use of fertilisers, herbicides and pesticides.
	Animal health & welfare	++	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	Actions will help control spread of disease and improve efficiencies.
	Education and knowledge transfer	+	0	+	+	0	+	0	+	0	+	+	0	0	+	0	0	0	Positive potential impact as it allows the sharing of knowledge and potentially the consequence that more farmers find more efficient ways of increasing productivity, reducing emissions and waste production
	Enhanced supply chain interaction and information flows	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Furthering our reputation on international markets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Actions are focussed on increasing reputation within international market which are unlikely to affect the environment. However, if this opens up new markets which require increased herd then negative effects could arise associated with land pressure, water contamination, and GHG emissions and ammonia emissions.
Adding value through R&D	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Actions focussed on research on animal health and disease control. Positive potential impact on European sites at a national-scale as such research, if correctly focussed, could look at increasing productivity independent of emissions and waste production and reviewing procedural systems for authorisations, land management and conservation that have adverse effects on the profit margin for this sector.
Environment & sustainability	0	0	0	0	+	+++	+	0	0	0	0	0	0	0	0	0	0	Placing sustainability as a goal of the production system will have a positive effect on GHG and air quality
Government Actions	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Providing stability in the beef sector is likely to be of benefit to European sites as it reduced the risk of land abandonment or rapid intensification
Cross cutting actions	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	The actions are about financial packages and balancing labelling requirements with costs. There is unlikely to be any interaction with environmental receptors. The actions will support economic activities minimising and balancing impact of labelling on competitiveness of the export market

10.1.4 Sheep Sector

For the purposes of the SEA assessment the sheep sector actions were grouped in four categories: Farmer actions; Processor actions; DAFM actions; and Other Agency actions. (Refer to Table 10-7.) The results of the SEA assessment completed on the sheep sector actions contained within *Food Wise 2025* are detailed in Table 10-8.

Table 10-7 Categorisation of Sheep Sector Actions for SEA Assessment

Farmer Actions	Processor Actions	DAFM Actions	Other Agency Actions
Genetic improvement: focus on ewe fertility and on breeding resilience and resistance to diseases which impact on the productivity of flocks, such as foot-rot and on improving the consistency of product supplied to processors	Add value to exports by further moving from exporting entire carcasses to pre-packaged boneless cuts through wider market access	DAFM to continue to support and engage with Sheep Ireland on their work to drive better genetic gain for the flock	Work collaboratively with processors, Bord Bia, Teagasc and Sheep Ireland to modify the very seasonal nature of Ireland’s sheepmeat supply, and maintain our presence, and access to markets throughout the year
Increase farmer participation in Beef and Lamb Quality Assurance Scheme (BLQAS) to 90% in terms of proportion of output by 2025	Improve the consumer perception of lamb with the younger demographic as a healthy, convenient protein choice	Underpin and further improve Ireland’s sheep traceability system	Engage further with Sheep Ireland on the design and implementation of breeding indices based on marketing insights
Increase sheep farmer participation in Knowledge Transfer Programmes			Teagasc to undertake a review of their sheep research and advisory programmes
Enhance hill farming systems by promoting greater integration with lowland sheep producers			Build a strong brand image for Irish lamb based on its sustainable grass based production to secure outlets and price premium
			Implement generic promotion of lamb across France, Belgium and Germany and compete for further EU funding post 2017
			Develop a Carbon Navigator tool for sheep producers
			Develop strong reputation for quality and environmental sustainability of Irish beef with customers, competent authorities in target markets and NGOs building on the Sustainable Beef and Lamb Assurance Scheme (Origin Green) and optimise the use of this brand reputation in the market place

Table 10-8 Assessment Matrix - Sheep Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Farmer actions	0	0	+	0	0	0	0	0	0	+	+	+	+	0	0	0	0	The actions as stated have the potential to pose potential positive effects on the environment as the increased production of sheep meat is focused on getting more out of the existing flock rather than emphasising increasing stocking rates or expanding grazing areas.
Processing actions	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	Increased demand on the disposal of sheep carcasses after boning may have adverse effects for waste management capacity.
Department actions	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	Positive potential effect as it allows more efficient control over production and reducing waste production that could otherwise affect the environment
Other agency actions	0	0	+	+	+	++	0	0	0	+	0	+	+	0	0	0	0	The actions as stated have the potential to pose potential positive effects on the environment as research may allow more efficient control over production and reducing grazing pressure and deterioration of grassland biodiversity. Development of a Carbon Navigator Tool for sheep producers and increased emphasis on sustainability through quality assurance schemes will gave positive effects on GHG emissions.

10.1.5 Pigmeat Sector

For the purposes of the SEA assessment the pigmeat sector actions were grouped in four categories: Farmer actions; Processor actions; DAFM actions; and Other Agency actions. (Refer to Table 10-9.) The results of the SEA assessment completed on the pigmeat sector actions contained within *Food Wise 2025* are detailed in Table 10-10.

Table 10-9 Categorisation of Pigmeat Sector Actions for SEA Assessment

Farmer Actions	Processor Actions	DAFM Actions	Other Agency Actions
Investment in pig production facilities particularly energy efficiency to reduce input costs	Explore opportunities for greater use of quality assured produce in food service	Stakeholder group to examine the challenges associated with animal health / welfare within the pig industry and to bring forward a recommended plan for collective action	Explore extension of country of origin labelling to loose and processed products
Collaboration with the tillage sector to create commercial opportunities for pig manure		Agreement on and implementation of revised Pig Salmonella Control Programme	Use Origin Green in trade marketing to develop preference for and to distinguish Irish produce in international markets
Explore feasibility of alternative slurry usage and disposal options, such as anaerobic digestion			The industry to scope out an effective marketing message with Bord Bia
Engage further with non intensive sector to ensure standards of bio-security are understood and implemented			Invest and strengthen the position of the Quality Mark on the domestic market positioning pigmeat as a versatile, healthy option with consumers
			Roll out a carbon footprinting assessment and improvement programme for pigs
			Opening of upgraded pig research facility in Moorepark with prompt dissemination of research findings to the industry
			Support pig farms by researching grain varieties in the tillage sector for feed use

Table 10-10 Assessment Matrix - Pigmeat Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Farmer actions	0	0	0	0	0	+	0	0	0	0	+++	+	0	0	0	0	0	Potentially positive effects through the implementation of proposed initiatives for increased co-operation with tillage farmers for the re-use of animal manure and from proposals to explore an anaerobic digestion for conversion of manure. Investment in energy efficient pig facilities will contribute to lower emissions from the sector
Processing actions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Positive potential effect as it allows more efficient control over production and reducing waste production that could otherwise affect the environment
Department actions	++	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Actions are focussed on bio-security and Pig Salmonella Control Programme which will have positive effects on reduction of risk to human health
Other agency actions	0	0	+	+	0	++	0	+	0	+	+	+	+	0	0	0	0	Carbon foot-printing will have positive effects for GHG emissions reduction. An upgraded pig research unit has the potential for positive effects on the environment if research looks at optimises practices, GHG emission associated with pig production, sustainable use of natural resources, and environmental effects of pig production

10.1.6 Poultry Sector

For the purposes of the SEA assessment the poultry sector actions were grouped in four categories: Farmer actions; Processor actions; DAFM actions; and Other Agency actions. (Refer to Table 10-11.) The results of the SEA assessment completed on the poultry sector actions contained within *Food Wise 2025* are detailed in Table 10-12.

Table 10-11 Categorisation of Poultry Sector Actions for SEA Assessment

Farmer Actions	Processor Actions	DAFM Actions	Other Agency Actions
Improved animal health, welfare and bio-security awareness and implementation through on-farm investment and training	Collaboration with processors to build on commercial opportunities and drive returns from fifth quarter	Consideration of an ‘industry insurance fund’ to assist producers and processors in the event of disease outbreak	Exploit the opportunities afforded by country of origin labelling
Investment in poultry production facilities particularly energy efficiency to reduce input costs		Provide funding under the Rural Development Programme to up-grade existing buildings and funding to support the construction of new housing and ensure animal welfare and safety	Explore opportunities for the increased use of quality assured produce in food service
Consideration of development of ‘chicken complexes’ to allow the industry to operate on a more economic and efficient scale with greater integration and collaboration			Examine the extension of country of origin labelling to loose products
To implement the recommendations arising from whole of the supply chain consultation process to address the issue of Campylobacter at farm, processing and distribution levels			Invest and strengthen the position of the Quality Mark on the domestic market
			Incorporate sustainability criteria under the Origin Green programme into the Poultry Products Quality Assurance Scheme (PPQAS)
			Roll out a carbon foot-printing assessment and improvement programme for poultry

Table 10-12 Assessment Matrix - Poultry Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Farmer actions	++	0	0	0	0	++	0	0	0	0	0	0	0	0	0	0	0	Potentially positive impacts could result if the energy efficiency reduces the demand on natural resources and emissions. Improved bio-security and awareness will help reduce risk to human health.
Processing actions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	There is unlikely to be any interactions
Department actions	+++	0	0	0	0	+	0	0	0	0	0	0	+	0	0	0	0	Actions to upgrade existing buildings have the potential for positive effects in terms of energy efficiency and GHG reduction, and re-use of existing infrastructure. Construction of new buildings would also see these benefits but development should be carefully sited to avoid environmental effects. Actions to address bio-security, disease outbreaks, and food scares will have significant positive effect for reduction of human health risks
Other agency actions	0	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	Incorporation of sustainability criteria under the Origin Green programme and carbon foot printing into the PPQAS would have positive effects for the environment

10.1.7 Cereals/Tillage Sector

For the purposes of the SEA assessment the cereal/tillage sector actions were grouped in five categories: Farmer actions; Processor actions; Research and innovation; DAFM actions; and Other Agency actions. (Refer to Table 10-13.) The results of the SEA assessment completed on the cereal/tillage sector actions contained within *Food Wise 2025* are detailed in Table 10-14.

Table 10-13 Categorisation of Cereal/Tillage Sector Actions for SEA Assessment

Farmer Actions	Processor Actions	Research & Innovation Actions	DAFM Actions	Other Agency Actions
Improve sustainability and reduce the costs of crop production through the improvement of soil management techniques including: appropriate cultivation selection, weed control and maximising the value of organic manures	Develop processing facilities for the production of high value products for the export market such as; oats for the ‘health and wellness – human nutrition’ category and cold-pressed oilseed rape for the human nutrition market	Identify break crop opportunities and ensure their development by putting in place a cohesive development plan for growers, industry research and technology transfer and policy makers	Expand crop variety evaluation programmes to identify high yield varieties of malting barley, wheat, oats and protein crops to support farmer and industry actions	Roll out Origin Green programme to tillage producers to underpin the sustainability credentials of the industry
Increase the proportion of cropped area under malting barley and wheat to meet the demand from distillers, maltsters and brewers, including craft breweries seeking to source a native malt supply	Increase inclusion rate for native malting barley in craft beer production through sourcing of suitable malts and malting barley varieties	Examine the feasibility of expanding the seed potato production sector to take advantage of national high-health status and increase exports of seed	Promote the use of superior crop varieties through the seed certification system. This will ensure that seeds of the highest quality are available to growers	
Increase output of wheat and feed barley to support increased demand from the livestock sector and increase production of forage maize to meet anticipated demand for forage and nutrient requirements from the dairy sector	Increase the use of Irish grown potatoes for specialist use such as processing and salad markets	Develop marker- and genomics-assisted breeding to aid the development of crops better suited to Irish tillage systems	Establish a new industry grouping to ensure achievement of targets for protein crops, break crops and oilseed rape	
Increase production of protein crops annually to provide source of native traceable protein for feedstuffs				
Increase the use of rotations and break crop production in response to meeting CAP greening requirements and to developing domestic and export markets (oats, oilseed and pulses)				
Form partnerships with intensive livestock producers to avail of organic manures to reduce fertilizer costs, improve biological activity and improve soil fertility				
Continue to examine whether the likely development of the sugar and ethanol markets would justify farmer and industry investment in the redevelopment of a sugar beet industry in Ireland				

Table 10-14 Assessment Matrix - Cereals/Tillage Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Farmer actions	0	0	-	0	0	0	0	+	0	++	+	+	0	0	0	0	-	The Plan does not envisage an increased area under tillage. Tillage is carried out predominantly in land of the south and south east and to a large extent, outside European sites but some tillage areas provide supporting habitat for geese and other bird species that form qualifying interests for SPAs. The actions as stated have the potential to pose potential adverse impacts on the integrity of European sites if the changes in the type of crop would affect supporting roles played for European sites. Positive impacts are also possible when the actions regarding the re use of organic manure and other “greening initiatives” are considered. Change of land use and intensification of harvest patterns can also affect landscape. Cereal sector can also generate nutrient imbalances and soil contamination as a result of fertiliser application beyond soil assimilative capacities. This can also lead to water quality deterioration and eutrophication.
Processor actions	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	These action are unlikely to have any environmental effect
Department actions	0	0	+	+	+	+	0	+	0	0	+	+	++	+	+	0	0	Positive potential effect as it allows more efficient crop production, reducing emissions and waste production that could otherwise affect the environment.
Other agency actions	0	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	The action to roll out Origin Green programme to tillage producers will have a positive effects on the environment
Cross cutting actions	0	0	-	+	0	0	0	+	0	++	+	+	0	0	0	0	-	The actions as stated have the potential to pose potential positive effects on the environment if there is greater stability in the tillage sector and greater use of break crops which allow soil fertility to recover naturally and may reduce the need for fertiliser use which would have knock-on benefits for water quality and biodiversity. However, there is the potential for adverse effects on the designated nature sites if the increased production of the seed potato crops is at the expense of high nature value land or other habitats that are part of or support European sites. Change of land use and intensification of harvest patterns can also affect landscape.
Research & innovation actions	0	0	+	+	0	0	+	+	0	0	+	0	0	0	0	0	0	Positive potential effect as crops suited better to Irish tillage systems may require less fertiliser, pesticide and herbicide application which would result in benefits for water quality and associated habitats and species. Crop better suited to Irish tillage systems may also be better able to cope with climate effects in the region.

10.1.8 Horticulture Sector

For the purposes of the SEA assessment the horticulture sector actions were grouped in five categories: Farmer actions; Processor actions; DAFM actions; Other Agency actions and Government actions. (Refer to Table 10-15.) The results of the SEA assessment completed on the horticulture sector actions contained within *Food Wise 2025* are detailed in Table 10-16.

Table 10-15 Categorisation of Horticulture Sector Actions for SEA Assessment

Farmer Actions	Processor Actions	DAFM Actions	Other Agency Actions	Government Actions
Producers to support and fund the Horticulture Industry Forum actions	Potential for production of Irish potato chips and a variety of vegetable based crisps and snacks	Simplification of the mutual recognition process of plant protection products within the EU	Producers to support and fund the Horticulture Industry Forum actions	Develop a strategy to maximise opportunities in relation to supplier relations, import substitution and below cost selling in the retail horticultural market
Teagasc and growers to explore the use of precision technologies to accurately map crop input requirements	All horticultural processors and packers to sign up to Origin Green	To examine opportunities for collaboration with other Departments and state agencies in the promotion of fresh produce and its role in a healthy, balanced diet	Industry and Bord Bia to provide matching funding to support EU funded promotional campaigns	Review the Terms and Conditions of those employed in the horticultural sector
To roll out the Origin Green programme to horticulture producers with business and environmental measures that will underpin the sustainability credentials of the industry		Establish an industry funding mechanism (levy) to promote horticultural products	Teagasc and growers to explore the use of precision technologies to accurately map crop input requirements	
			Increase supply chain inspections of country of origin labelling for fresh fruit and vegetables	
			Implement joint industry and EU funded promotional campaigns in the mushroom and potato sectors where the target audience is the younger demographic and key messages will include health and convenience	
			Industry and Bord Bia to discuss and progress with the amenity sector (including the retail outlets) seeking joint industry and EU funds for promotional campaign(s) around gardening	
			Implementation of the Food Dudes Programme and developing the delivery model to make it available to all national schools who wish to participate in it on an ongoing basis	
			To develop Bloom further as the major showcase of Irish Horticultural production, landscape design and construction	
			To roll out the Origin Green programme to horticulture producers with business and environmental measures that will underpin the sustainability credentials of the industry	
			Explore the potential for expanding evidence informed ‘food in schools’ programmes	

Table 10-16 Assessment Matrix - Horticulture Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Farmer actions	0	0	+	0	0	0	0	+	0	0	+	+	+	0	0	0	0	Potential for positive effects on the environment through increase crop production efficiency, thereby requiring less land and resources. Technologies to accurately map crop input requirements will have a positive effect as they should result in reduced wastage. Soil erosion in winter periods can be anticipated from the horticulture sectors, when the farmland is uncultivated or fallow. This will have different magnitudes depending on soil type (e.g. sandy soils being more vulnerable to erosion). Potential for negative effects on surface water quality from increased use and subsequent run off of pesticides and Nitrogen, Potassium and Phosphorous fertilisers (could also affect biodiversity). However, use of Origin Green should mitigate effects by providing environmental targets to promote environmental protection.
Processing actions	0	+	+	+	+	+	0	0	0	+	+	+	+	+	+	0	0	The promotion of Origin Green amongst growers will have positive benefits as the scheme encourages farmers to set achievable goals while promoting sustainable farming practices.
Department actions	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Supply chain inspection of country of origin labelling may have positive effects on human health risks. There is unlikely to be effects on the environment
Other agency actions	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	The actions on promotion of healthy eating and health benefits of fresh produce, and getting active by gardening will have a positive contribution to human health. Promotion of gardening will have benefits for landscape and ecology, and the wider environment. The roll out of the Origin Green programme will have positive effects on the sustainability credentials of the industry and associated environmental benefits.
Government actions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Actions are focussed on costs, funding, and contracts and are unlikely to have an effect on the environment

10.1.9 Prepared Consumer Foods (PCF) and Alcoholic Beverages Sector

For the purposes of the SEA assessment the PCF sector actions were grouped in two categories: Industry actions and Department & State Agency Actions. Alcoholic beverage sector actions were grouped in three categories: Producer actions, Industry actions and Department & State actions. Actions for the Artisan/Small Food Business sector fall within the Department & State Agency category. (Refer to Tables 10-17, 10-18 and 10-19.) The results of the SEA assessment completed on the poultry sector actions contained within *Food Wise 2025* are detailed in Table 10-20.

Table 10-17 Categorisation of PCF Sector Actions for SEA Assessment

Industry Actions	Departments & State Agencies
All companies to sign up to Origin Green initiative	Government agencies in consultation with the industry to align the definition of PCF and co-ordinate their approach accordingly
Increase industry expenditure on R&D and innovation by setting a target of a 10% increase in funding per annum	Continue to work directly with indigenous companies to identify new export market opportunities and develop services and supports for companies to facilitate export growth
Develop a sectoral strategy for food and drink SMEs, which sets out supports, targets and best practice for the entry, development and progression of these companies to 2025	Implement the Competition and Consumer Protection Bill when enacted
	Drive greater participation by the sector in the Innovation Voucher and Innovation Partnership Programmes
	Continue and expand the Employment and Investment Incentive Scheme (Enterprise Ireland) and Seed Capital Scheme to encourage more investment in small PCF companies
	Bord Bia to maximise the use of Origin Green and their Quality Assurance programmes to differentiate Irish produce
	Continuation and possible expansion of the Foreign Earnings Deduction (F.E.D.)

Table 10-18 Categorisation of Alcoholic Beverage Sector Actions for SEA Assessment

Producer Actions	Industry Actions	Department & State Agencies
Establish discussion groups for malting barley growers	All companies to sign up to Origin Green initiative	Develop fiscal and other revenue generating initiatives which will enable the Irish Whiskey industry to fund the minimum three year maturation process
	Increase industry expenditure on R&D and innovation by setting a target of a 10% increase in funding per annum	Assist development of new industry entrants by structured knowledge transfer systems including mentoring, training and skills transfer
	Industry to continue to highlight the value to the national economy of the drinks sector and work to reduce the fiscal and regulatory burden	Continue to support, protect and promote Ireland’s spirit GIs (Geographical Indications)
	Industry and state agencies to work collaboratively to develop an Irish Whiskey and food pairing trail as a major tourist attraction and to differentiate Irish food and drink produce	Develop a sectoral strategy for food and drink SMEs, which sets out supports, targets and best practice for the entry, development and progression of these companies to 2025
	Industry to work with D/ECLG and EPA to improve waste recycling levels, facilities, implementation and to measure change on an ongoing basis	Continue to work directly with indigenous companies to identify new export market opportunities and develop services and supports for companies to facilitate export growth
	Facilitate the growth of the premium drinks categories by providing market knowledge for the US market	Continuation and possible expansion of the Foreign Earnings Deduction (F.E.D.)
		The CSO/DJEl survey to track the Business Expenditure on R&D (BERD) performance of the PCF sector

Table 10-19 Categorisation of Artisan/Small Food Business Actions for SEA Assessment

Department & State Agencies
Creation of civic and festival markets similar to the English Market in Cork and Harvest Festival in Waterford in our major cities and towns.
Expansion of Dublin Food Chain initiative to other cities.
Create a pipeline of companies growing beyond Artisan/Small Food Business definition via the introduction of both bespoke 1:1 and group multi-level supports across strategic planning, marketing and marketing finance (for example Ascent, Superbrands and Step Change Fund).
Introduce a new support programme for Direct to Consumer producers aimed at enabling producers to extend their local and regional business reach and resulting in a pipeline for new entrants to the Artisan Food Market at Bloom.

Department & State Agencies
Increase the opportunity for successful meet the buyer occasions through market focused relationship development with distributors, specialist retailers, and other retail and foodservice buyers on the domestic and international markets.
Annual investment in and delivery of small business specific consumer and market insights.
Formal opportunities to transfer learnings from craft food and drink production to new sector entrants via food apprenticeships and placements

Table 10-20 Assessment Matrix - PCF & Alcoholic Beverages Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Producer actions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	The action is to establish discussion groups for malting and barley growers. This is unlikely to affect the environment unless discussion groups share sustainable practices and raise environmental awareness.
Industry actions	0	0	0	+	0	+	0	+	0	+	+++	++	+	++	+++	0	0	All companies are to sign up to Origin Green which will provide environmental protection and sustainability credential for the sector. It does not specifically state whether increasing expenditure on R&D and innovation and training includes environmental management and sustainable practices. However, if it does then there will be positive effects for the environment. Improving waste recycling levels will have positive effect in terms of using resources more efficiently and reducing waste material generated. The action to develop an Irish Whiskey and food paring trail as a major tourism attraction will have positive effects for the economy and tourism.
Departments & State Agencies	0	0	0	-	0	0	0	-	0	0	-	0	0	0	0	0	-	Although not explicitly stated, the actions are likely to lead to increased growth and production. Intensification of harvest patterns and monocultures are likely to affect the landscape. Intensification of harvest patterns may also have negative effects on biodiversity and water quality (and WFD targets) from use of fertilisers and pesticides. However, the action to use Origin Green is likely to contribute to environmental protection within the sector.

10.1.10 Forestry Sector

For the purposes of the SEA assessment forestry sector actions were grouped into eight categories: Expansion of the forest resource; Management of the resource; Supply chain; Wood processing; Funding; Forest protection and health; Education, training, and research; and Quality, standards and certification. (Refer to Table 10-21.) The results of the SEA assessment completed on the forestry sector actions contained within *Food Wise 2025* are detailed in Table 10-22.

Table 10-21 Categorisation of Forestry Sector Actions for SEA Assessment

Expansion of the forest resource	Management of the resource	Supply Chain	Wood Processing	Funding	Forest Protection & Health	Education, training & research	Quality, standards & certification
Increase the forest area in accordance with sustainable forest management principles, to support long term sustainable roundwood supply through an increase in the annual afforestation level to 15,000 ha from 2021, subject to demand and the availability of funding	Sustainably manage the forest resource, including genetic resources through the introduction of a national forest management planning system and state support for seed stand management and the establishment of seed orchards thereby ensuring the provision of a full range of timber and other benefits	Increase the roundwood harvest to 4.6 m cubic metres by 2025. Produce a new all Ireland roundwood production forecast. Develop a flexible and environmentally responsible roundwood supply chain to enhance the competitiveness of the processing sector and the production of high value products	Support the development of a competitive, innovative, value-added and market focused sector	DAFM should explore innovative financial and funding mechanisms to encourage greater level of institutional investment in afforestation and in mobilising wood supply from the existing private forest estate	Maintain a healthy forest environment through sustainable forest management and through early detection and control measures for pests and diseases	Ensure the availability of suitable programmes of education and training across the sector and research programmes targeted at identified needs. The importance of investment in training, research and development is recognised and the strategic actions focus on a more co-ordinated overall approach in these important areas	Forest products, forest services and the management of the forest resource must have a strong, market-led, quality focus
	Ensure that afforestation, management of existing forests and the development of the forest sector are undertaken in a manner that enhances their contribution to the environment, takes account of the Environmental Report of the Forestry Programme 2014-2020, and fulfils their capacity to provide public goods and services	Ensure that the tax treatment of forestry does not act as a disincentive for the achievement of national policy goals in particular forest cover, roundwood supply to industry and climate change mitigation					

Table 10-22 Assessment Matrix - Forestry Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Expansion of the forest resource	0	0	0	-	+	++	0	-	0	-	0	+	0	0	0	0	0	<p>In the absence of any safeguards the impact of increased afforestation rates on the integrity of European sites and sensitive or valued landscapes could be both positive and negative depending on the location of the afforestation and associated forest roads, the habitat which it is replacing and the species being planted. These activities may result in an increased homogenisation of local landscapes. Negative effects on biodiversity might also be anticipated from the forestry sector since the primary emphasis is on non-native species - although it is noted that the Forestry Programme includes specific requirements to promote biodiversity in new afforestation.</p> <p>Negative effects on surface water quality might also be anticipated from forestry as a result of fertiliser run off, siltation, and acidification which affect WFD targets. Soil degradation (with regards to acidification, nutrient imbalance or soil biodiversity deterioration) can derive from activities from the forestry sector.</p> <p>Forest expansion would create more carbon sinks and have positive effects for air quality and climate change.</p>
Management of the resource	0	0	+	++	0	0	+	+	+	+	+	+	+	0	0	+	+	<p>Providing a range of species types will benefit biodiversity and landscape and move away from monocultures.</p> <p>The introduction of a National Forest Management Planning System will provide a strategic framework for the forestry sector and help to protect the environment and consider cumulative effects.</p> <p>Positive effect on designated sites as sustainable forest management is required for some Annex II species and assists in catchment management, thereby benefitting aquatic European sites.</p>
Environment and public goods	++	0	++	++	+	+	+	+	+	+	+	+++	++	0	++	+	++	<p>Providing forest public services could be for use as a recreational or educational asset which can benefit human health and well-being, and tourism.</p> <p>Environmental enhancement under this action could provide benefits for biodiversity, water quality, land/resource use, and landscape.</p> <p>Positive effect on designated sites as sustainable forest management is required for some Annex II species and assists in catchment management, thereby benefitting aquatic European sites.</p>
Supply chain	0	0	0	-	+	++	0	-	0	-	0	+	0	0	0	0	0	<p>The action is to increase roundwood harvest which could have negative effects on designated sites and sensitive or valued landscapes depending on the location. However, the action also places a strong emphasis on environmental responsibility and therefore, it would be</p>

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
																		anticipated that afforestation would not be allowed where it would harm a designated site. Negative effects on biodiversity might also be anticipated from the forestry sector since the primary emphasis is on non-native species - although it is noted that the Forestry Programme includes specific requirements to promote biodiversity in new afforestation. Negative effects on surface water quality might also be anticipated from forestry as a result of fertiliser run off, siltation, and acidification which could affect WFD targets. Soil degradation (with regards to acidification, nutrient imbalance or soil biodiversity deterioration) can derive from activities from the forestry sector. Forest expansion would create more carbon sinks and have positive effects for air quality and climate change.
Funding	0	0	+	+	0	+	0	+	0	+	+	+	+	+	0	0	+	Whilst not directly linked to the environment, funding from both private and State sectors will be essential for expansion of the sector and implementation of environmental protection measures. In the absence of funding there could be a greater need to reduce spending on environmental measures and climate change mitigation. Overall this action is regarded to be a positive potential impact.
Forest protection and health	+	0	++	++	0	0	0	0	+	+	+	+	+	0	0	0	+	Positive effect on designated sites as sustainable forest management is required for some Annex II species and assists in catchment management, thereby benefitting aquatic European sites. This action will also serve to benefit native flora and fauna through the control of non-native species. Maintaining a healthy forest environment and early detection and control of pest and diseases will have positive effect on human health and general biodiversity and landscape.
Education training & research	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	The action does not state whether training will include environmental awareness raising and sustainable practices. Therefore, effects are considered neutral. However, if environment and sustainability training is provided then there will be positive effects as professional development will lead to increased understanding of sustainable forest management in the context of maintaining and restoring the condition of European sites and the wider environment.
Quality, standards & certification	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	The quality focus does not specifically state whether environmental criteria could be included. Therefore, effects are considered neutral. However, if environmental standards and quality criteria are to be included then this would have positive effects for the environment.

10.1.11 Seafood Sector

For the purposes of the SEA assessment the seafood sector actions were grouped into two categories: Expand the raw material base; and Optimise product added value, export markets and environmental sustainability. (Refer to Table 10-23.) The results of the SEA assessment completed on the horticulture sector actions contained within *Food Wise 2025* are detailed in Table 10-24.

Table 10-23 Categorisation of Seafood Sector Actions for SEA Assessment

Expand the raw material base	Optimise product added value, export markets & environmental sustainability
Commission an independent review of the existing aquaculture licensing system involving all key stakeholders, to identify the current shortcomings and bottlenecks (legislative, resource and logistical), to report by early 2016 and implement necessary changes to the aquaculture licensing system as a matter of priority	Develop a strategic plan with practical and implementable actions to significantly increase the quantity of seafood added value across all main species groups. This strategy should complement the strategic plan to deliver scale in the key seafood sectors, including food ingredients and should, at a minimum reduce the level of produce sold in commodity form from 70% to below 50%
Develop a strategy to expand shellfish and aquaculture production taking account of the carrying capacity of bays	Progress participation and engagement of Origin Green with seafood companies with the aim of bringing all seafood companies under the programme by 2016
Develop and initiate practical and competitive measures to attract additional landings into Irish ports and continue to invest significantly in necessary infrastructure at the Fishery Harbour Centres	Improve the environmental sustainability of the sector including fishermen gear sensitivity and replenishment of depleted inshore stocks
Develop a strategy with practical and implementable actions to deliver scale in the key seafood sectors, including food ingredients	Give renewed priority to R & D into seafood based new product development, food ingredients and functional foods. This research should also include both harvested wild and farmed seaweeds and their by-products.
Improve the environmental sustainability of the sector including fishermen gear sensitivity and replenishment of depleted inshore stocks	Develop a strategic plan with practical and implementable actions to significantly increase the quantity of seafood added value across all main species groups. This strategy should complement the strategic plan to deliver scale in the key seafood sectors, including food ingredients and should, at a minimum reduce the level of produce sold in commodity form from 70% to below 50%
	Progress participation and engagement of Origin Green with seafood companies with the aim of bringing all seafood companies under the programme by 2016

Table 10-24 Assessment Matrix - Seafood Sector

Priority Actions	Strategic Environmental Objectives																	Comments
	1. Risks to human health	2. Sustainable development	3. Designated habitats or species	4. General biodiversity	5. Air Quality	6. GHG emissions	7. Adapt to climate change	8. Surface and groundwater quality	9. Flood Risk	10. Soil quality	11. Waste emissions, and agro-chemicals	12. Sustainable agriculture development	13. Sustainable use of land, mineral resources or soils	14. Support economic activities	15. Sustainable agri-tourism	16. Cultural Heritage	17. Landscape	
Expand the raw materials base	0	0	- -	- -	0	0	0	-	0	0	-	0	0	0	0	0	-	<p>There is an action to develop a strategy to expand shellfish and aquaculture production. In the absence of safeguards this could have adverse effects on the European sites through loss of feeding resources for birds and Annex II species, damage and deterioration of offshore and coastal habitats, and degradation of local habitats resulting from alterations of nutrient balance and waste, as well of flora and fauna deriving from altered gene pools, disease, disturbance or invasive species. Impacts from projected exploitation of novel species new to cultivation have yet to be explored. Special consideration will be required where aquaculture operations occur in the vicinity of Natura 2000 sites.</p> <p>Expansion of shellfish and aquaculture could also affect estuarine water quality and seascape.</p>
Optimise product added value, export markets & environmental sustainability	0	0	-	-	0	0	0	-	0	0	-	0	0	0	0	0	-	<p>Actions relating to the expansion of the sector to marine species of fish, shellfish and seaweed as possible new products could have adverse effects on the European sites through loss of feeding resources for birds and Annex II species, damage and deterioration of offshore and coastal habitats.</p> <p>Expansion could also affect estuarine water quality and seascape.</p> <p>100% seafood exports verified Origin Green will contribute to environmental protection and sustainability credentials within the industry.</p>

10.2 Annex II – Statutory & Public Consultation

The draft *Food Wise 2025* and the accompanying SEA Environmental Report and the NIR were circulated to the statutory bodies and made available to the general public through DAFM's website on 2nd July 2015. The public consultation remained open until 28th August 2015.

A number of submissions raised issues which were outside the scope of the SEA and the preparation of *Food Wise 2025* all these submissions were forwarded to DAFM for their consideration.

For the purposes of analysis responses relevant to the SEA Environmental Report and NIS were grouped as follows:

- Water
- Emissions to air (including GHGs and ammonia)
- Biodiversity and flora & fauna
- General issues

10.2.1 Water

Issues raised during Consultation
<ul style="list-style-type: none"> ▪ A large number of the responses received expressed concern about the protection of water quality and the key role of the agri-food industry plays in relation to water quality. ▪ The responses reflected concern for the protection of surface waters, groundwaters, transitional waters and estuarine waters. The influence of water quality on ecosystems and biodiversity was highlighted as was the importance of ground water resources to human health. ▪ A number of submissions called for more detail in relation to catchment level monitoring and potential impacts together with sector specific mitigation measures. ▪ Increased focus on Ireland's obligations under the Water Framework Directive was called for and the difficulty of meeting current obligations arising from present agricultural practices was highlighted. ▪ The inclusion of up to date mapping in the base line section was suggested. ▪ Some submissions highlighted the importance of phosphorus and sediments as pollutants and the monitoring of atmospheric depositions of ammonia was called for. The risk to fish and fisheries from diffuse and point source pollution was also noted. ▪ Many submissions referred to the risk of increased run off of phosphorus, nitrogen and sediments as a result of intensification at farm level. ▪ There was concern that any increase in farm herd numbers would lead to intensification in areas which are already farmed intensively and thus increase the pressure on both ground water and surface water. ▪ The risk of increased pollution from pesticides and of increased transport of sediments to water courses through more intensive tillage was also raised. ▪ The area of targeted research into run off patterns and linkages between agriculture and pollution was noted as was the 2012 EPA Report on water quality which highlights the fact that a significant proportion of actual pollution incidence arise from agricultural sources both point and diffuse. ▪ Trends towards increased uses of fertiliser associated with increased stock numbers, especially dairy stock were used to justify greater investment in catchment monitoring and catchment management plans.
<i>Food Wise 2025</i> Response and Changes Made
<ul style="list-style-type: none"> ▪ In response to concerns in relation to the protection of ground waters, surface waters and transitional and estuarine waters changes were made to the SEOs and to the recommendation for monitoring and mitigation in the SEA Environmental Report. These changes have been translated into recommendations within <i>Food Wise 2025</i>. ▪ In relation to catchment monitoring, recommendations for the resourcing and roll-out of catchment management and monitoring have been strengthened within the SEA Environmental Report and these have been translated into recommendations within <i>Food Wise 2025</i>. ▪ Obligations under The Water Framework Directive have been clarified within the SEA Environmental Report and this is reflected through the sustainability actions in <i>Food Wise 2025</i>.

- The SEA Environmental Report has been revised to include the most up to date mapping and data sets available in relation to water quality in Ireland.
- The potential for damage to water quality through migration of phosphorus or sediments through the drainage systems or directly as runoff from agricultural land has been given greater prominence in the SEA Environmental Report.
- The SEA Environmental Report recommends the DAFM cooperates with other relevant government agencies to develop a suitable ammonia monitoring methodology.
- The risks posed by intensification generally and in particular the risks of intensification in the dairy industry where dairy cow numbers are already high have been highlighted in the SEA Environmental Report.
- In addition it is recommended that specific catchment monitoring be undertaken in areas where large increases in dairy cow numbers occur. This has been translated into specific recommendations in *Food Wise 2025*.
- Concerns in relation to pesticides and increased risks to waters from intensification or changes in crop rotations in response to changes in demand for animal feeds are reflected in text changes within the SEA Environmental Report and specific recommendations within *Food Wise 2025*.
- The SEA Environmental Report contained an increased emphasis on targeted scientific research both in relation to cause and effect within agricultural practises and the need for new and tailored mitigation measures.
- The roles and responsibilities of agriculture in relation to the influence of farm practises as they affect the risk to water quality has been further highlighted through text changes in the base line section of the SEA Environmental Report. These concerns are fully recognised throughout *Food Wise 2025* and in particular in the implementation chapter.

10.2.2 Emissions to air (including GHGs and ammonia)

Issues raised during Consultation

- The majority of submissions touched on air quality. Every day topics like noise and odour were felt to have been given insufficient attention. Many submissions called for increased emphasis on Ireland's international commitments and obligations especially The EU Clean Air Policy Package, The CAFE Directive, the National Emissions reduction Target for PM_{2.5}, and the DECLG plan for A National Clean Air Strategy. Many submissions recognised the importance of GHGs and emphasised Ireland's national and International commitments. The difference between Ireland's obligations and responsibilities in relation to the role it adopts with respect to GHGs and how this will effect third world countries was highlighted by some submissions.
- There were repeated calls for more detail on proposed mitigation and serious doubt was expressed about agricultures ability to deliver on present commitments.
- Many submissions perceived within *Food Wise 2025* the possibility of increased livestock numbers directly contributing to increased emissions of greenhouse gases and ammonia and in consequence called for increased mitigation measures within the SEA Environmental Report.
- Submissions noted the increased threat to human health through emissions to air of ammonia with a consequent increase in PM_{2.5}. The possibility of a critical nitrogen load exceedance and consequent damage to ecosystems and biodiversity on both land and water based was noted.
- Increased monitoring was called for particularly in areas where increases in livestock numbers occur.
- A number of submissions pointed to the lack of novel mitigation measures and questioned the ability of in-the-pipeline research to deliver adequate mitigation measures so that Ireland could comply with its international obligations.
- Some submissions challenged the claim that Irish Agricultural production was a world leader in terms of low intensity carbon production and called for an evidence base for such claims.
- Additional research into the carbon sequestration potential of forests and grass land was also called for.

Food Wise 2025 Response and Changes Made

- The Baseline Section and the Strategic Environmental Objectives have been expanded within the SEA Environmental Report to reflect concerns raised about noise and odour.
- Recommendations within the implementation chapter of *Food Wise 2025* reflect the imperative that farming activities and in particular industrial and processing facilities associated with food production adhere to the highest standards and at a minimum fulfil their legal obligations.
- Changes have been made within the SEA Environmental Report to additionally reflect Ireland's international commitments and obligation with specific reference to the EU Clean Air Policy Pack, the CAFE Directive and National Emission Reduction Targets in relation to PM_{2.5}.
- Agriculture's commitment to adhere to provisions of a future DECLG National Clean Air Strategy are reflected in the recommendations of *Food Wise 2025*.

- Text changes within the SEA Environmental Report give greater emphasis to Ireland's international obligations in relation to GHGs.
- Ireland's role as a food producer adhering to the highest standards and achieving a low carbon footprint per unit of product is reflected in *Food Wise 2025*. The recommendations within the implementation section of *Food Wise 2025* point to further relevant actions in recognition of Ireland's responsibilities in relation to global GHG emissions.
- The role and need for additional mitigation has received increased emphasis throughout the SEA Environmental Report and the consequences of failure to deliver on mitigation has been highlighted. The implementation section of *Food Wise 2025* recommends increased research and funding in relation to the rollout of mitigation measures.
- The SEA Environmental Report has placed greater emphasis on the necessity to develop and improve mitigation measures as a precursor to any increases in overall livestock numbers. This is in recognition of the direct relationship between greenhouse gas and ammonia emissions and gross livestock numbers. The implementation section of *Food Wise 2025* strengthens the commitment to sustainability and the achievement of increases in output only through sustainability.
- The threat to human health through emissions of ammonia and a consequent increase in particulate matter has received further attention in the SEA Environmental Report and is reflected through text changes both in the SEOs and proposed mitigation. This is reflected in the implementation section of *Food Wise 2025* through the proposals in relation to ammonia monitoring.
- There is increased emphasis within the SEA Environmental Report on the direct relationship between increases in livestock numbers and increased emissions of ammonia and GHGs to the atmosphere. This is further reflected in the recommendations section of *Food Wise 2025*. There is additional reference and clarification within the SEA Environmental Report in relation to Ireland's compliance with its international obligations in relation to both ammonia and GHGs.
- There are further reference to the challenges faced by the agri-food industry generally post 2020 if ongoing international discussions and agreements result in the necessity for further reductions in GHG and ammonia emissions. Attention is drawn to the direct link between animal numbers and GHG and ammonia emissions. Recommendations within *Food Wise 2025* further emphasise the commitment to strengthen measurement of emissions and to bring forward mitigation measures.
- The need for carbon efficiency and the developments reputation and a world leadership role in relation to low carbon intensity production systems is strengthened through increased commitment in *Food Wise 2025* implementation section to measuring, monitoring and research in this area.
- Amendments have been made to the SEA Environmental Report to strengthen the calls for research and action in relation to carbon sequestration potential both in forest and permanent grassland. These are reflected in the recommendations section in the Implementation Chapter of Food Wise 2025.

10.2.3 Biodiversity and Flora & Fauna

Issues raised during Consultation

- The risks to biodiversity presented by the expansion of the forestry sector was raised in many submissions.
- The risk to biodiversity supported by peatlands in particular was highlighted. Practices such as burning on marginal lands were highlighted.
- Many submissions raised the threat to wider biodiversity presented by the intensification of agricultural practices both in cropping and animal numbers.
- The threat to hedgerows and particularly species mixed within hedgerows was raised in relation to biodiversity.
- Submissions called for increased detail in the SEA Environmental Report in relation to birds. Specific actions in relation to hen harriers and other birds was called for.
- Submissions pointed to legal obligations in relation to bird populations while others called for objectives to be set for increases in currently declining bird populations.
- It was suggested that the SEA Environmental Report could be strengthened by the inclusion of a bird sensitivity map.
- Submissions called for a greater emphasis to be given to the role and importance of pollinators.

Food Wise 2025 Response and Changes Made

- Within the SEA Environmental Report greater emphasis has been given to the measures contained within the Forestry Programme 2014 – 2020 to ensure the protection of biodiversity in all afforestation proposals. In recognition that Food Wise 2025 runs for five years outside the current forest programme these objectives are translated to action within Food Wise 2025.

- The SEA Environmental Report has highlighted the protection of peatlands under the Forrester program 2015-2020. These protections are reflected and carried forward in *Food Wise 2025*.
- Text changes within the SEA Environmental Report call for adherence to GAEC.
- The issue of intensification has been addressed throughout the SEA Environmental Report by increasing the emphasis on sustainability representing the bringing forward of mitigation measures prior to any planned increases in livestock numbers. These commitments are represented by actions within *Food Wise 2025*.
- Matters in relation to the removal of hedgerows are covered within the SEA Environmental Report through recommendations for continuation of conditions under the basic payment scheme. A new recommendation in relation to replanting hedgerows and species mix has been added.
- Greater detail in relation to birds has been included in the SEA Environmental Report together with the addition of monitoring recommendations. These are reflected in the implementation section of *Food Wise 2025*.
- The SEA Environmental Report contains text changes to reflect obligations under the Birds directive. Increased monitoring of bird populations is recommended. A recommendation for the creation of a bird sensitivity map has been included in the SEA Environmental Report.
- The role of pollinators has been emphasised through the strategic environmental objectives of the SEA Environmental Report and through recommendations on monitoring.

10.2.4 General issues

Issues raised during Consultation

- Submissions pointed to a lack of detail in relation to the choice of scenarios to be analysed and in the definition of scenarios.
- Submissions suggested that the choice of the sustainable growth scenario represented an acceptance that the agri-food industry was on a growth path.
- Submissions called for the development of an alternative scenario involving reductions in output at primary production level.
- It was the opinion of some submissions that the *Base Case Scenario* did not represent the do-nothing scenario and that a separate do-nothing scenario should have been analysed.

Food Wise 2025 Response and Changes Made

- *Food Wise 2025* represents a vision or plan for the agri-food industry including primary production, processing, market selection, product mix, input from government and agencies which seeks to encapsulate an optimum, sustainable and profitable output growth path to 2025. *Food Wise 2025* does not contain any specific proposals for increases in livestock numbers. The target of increasing the value of primary production by 65% is to be achieved through a combination of improved market participation, improved product mix, better adoption of already available technologies at farm level, changes in enterprise mix at farm level and where mitigation is available possibly by increases in livestock numbers. It has been adopted within a rapidly changing regulatory, production and demand environment. It is addressed to a sector that is subject to constant change and volatility. The major change in income levels and production economics brought about by reductions in world commodity prices witnessed since the draft document was published in July of 2015 is evidence of this volatility. Historically expansion or contraction at primary production level is driven, primarily by world product prices as they affect profitability.
- *Food Wise 2025* is a high level strategy which seeks to guide the individual sectors on a path towards sustainability. The adoption of the *Sustainable Growth Scenario* and the rejection of alternatives which were demonstrated to increase the risk of failure to meet Ireland's international obligations with respect to climate change, air quality, water quality and biodiversity represents a new focus by the broader agri-food industry of its specific role and obligations with regard to the environment.
- In response to the submissions the SEA Environmental Report has been amended to clarify and better define the scenarios examined. Text changes amplify the rationale for the selection of the *Sustainable Growth Scenario* by the *Food Wise 2025* committee. The SEA Environmental Report has included a recommendation in relation to the monitoring of livestock numbers as a proxy for GHG and ammonia emissions. These changes have been carried through to *Food Wise 2025* and are reflected in the implementation section of the final *Food Wise 2025* report.
- A recommendation that DAMF commission further research on production methodologies to facilitate the development of the sustainability scenario is included in the SEA Environmental Report and the implementation section of *Food Wise 2025*. In addition a recommendation for cost benefit analysis in relation to mitigation measures for ammonia emissions is included in the SEA Environmental Report and the implementation section of *Food Wise 2025*.

Issues raised during Consultation

- Many submissions noted the absence of specific growth targets in both the draft SEA Environmental Report and *Food Wise 2025*. On this basis it was noted that a quantitate analysis of increases in GHG or ammonia emissions was impossible.
- Some submissions claim an already increasing trajectory in livestock numbers will inevitably lead to breaches in greenhouse gas and ammonia targets.

Food Wise 2025 Response and Changes Made

- While *Food Wise 2025* targets an increase in the value of primary production of 65% it does not specify any increases in livestock numbers. On the contrary as a high level plan it adopts sustainability as its central theme. *Food Wise 2025* states: “Environmental protection and economic competitiveness are equal and complementary: one will not be achieved at the expense of the other.”

Issues raised during Consultation

- Some submissions questioned the basis of the plan and suggested that any plan which foresaw the continuation of ruminant based production systems was not compatible with Ireland’s obligation in relation to GHGs. Submissions called for a reduction in what they described as non-profitable suckler beef enterprises as a means of reducing GHG emissions.
- It was the opinion of some submissions that carbon efficiency was not a legitimate or provable claim and consequently a gross reduction in GHG emissions from the agriculture sector was required rather than improvements in carbon efficiency.

Food Wise 2025 Response and Changes Made

- *Food Wise 2025* is intended to inform policy makers and shape the overall direction of the agri-food industry for the period to 2025. It is not intended as a specific policy instrument aimed at individual sectors but rather it is intended to provide guidance and parameters within which the industry should develop. In practise the adoption of *Food Wise 2025* will see the acceptance at policy level that livestock numbers must be monitored into the future as a direct proxy for GHG emissions. In this regard there may be need for direction change at the implementation stage should increased numbers occur in the absence of additional mitigation.

Issues raised during Consultation

- Submissions point to perceived current breaches in regulation and speculated implied future breaches in relation to biodiversity and water quality.
- Submissions suggested that current legislation was weak and inadequate to future requirements. Submissions called for increased enforcement measures and increased prosecutions under existing legislation.

Food Wise 2025 Response and Changes Made

- *Food Wise 2025* anticipates the continuation of all existing agri-environment codes and regulations. The SEA Environmental Report contains at Annex VI the complete suite of existing regulation applicable under GAEC together with the additional conditionality attached to the basic payments scheme system.
- Text changes have been made in the SEA Environmental Report to reflect the importance of continued adherence to regulation. The key role of knowledge transfer in improving compliance have been strengthened and these concerns are reinforced throughout *Food Wise 2025* and in the implementation chapter of that document.

Issues raised during Consultation

- The need for policy coherence between *Food Wise 2025* and other government policies was the subject of a number of submissions.
- It was proposed that the promotion of a healthy diet worldwide and the consequent reduction in food production requirements represented the most viable mitigation measure available.
- Issues in relation to world food security as it is affected by GHG emissions from developed countries were raised.
- Submissions called for the extension of the polluter pays principle to be applied at sectoral level within the agri-food industry.

Food Wise 2025 Response and Changes Made

- *Food Wise 2025* is intended as a national high level indicator of the direction which the Irish agri -food industry should follow towards a path to achieving a high sustainability status towards 2025. This Plan is intended to guide the agri-food industry and ensure that decision makers can act at an early stage to achieve compliance with all present and foreseen national and international obligations. In addition the Plan promotes healthy living and the development of human capital through education, upskilling, knowledge transfer and economic sustainability
- In so far as possible and in so far as the above submissions are not too remote to the SEA Environmental Report or *Food Wise 2025* text changes have been made which emphasise the importance of these topics.

10.3 Annex III - Attendees at the *Food Wise 2025* SEA Scoping Workshop

The Scoping Workshop took place at Agriculture House, Kildare St., Dublin 2 on 9 April 2015. The attendees were:

DAFM:	Paul McKiernan (Chair), Danielle Coll, Rónan Gleeson (Climate Change), Noel Collins, Lynn Broderick, Wila Bruce (Economics & Planning), Bill Callanan, Jerome Walsh (Nitrates Bio-diversity and Engineering), Josephine Kelly (SFPD), and Batt Whelton (Aquaculture Licensing).
EPA:	Tadhg O'Mahony (SEA), and Donal Daly (WFD).
Teagasc:	Rogier Schulte
Marine Institute:	Eugene Nixon
Consultants:	Philip Farrelly and Barry McDonnell (Philip Farrelly & Co); Lianda d'Auria (Environmental Consultant) and John Fry (UCD); and Paul Scott (Scott Cawley Ltd.).
Environmental Pillar:	Anja Murray and Oonagh Duggan (Birdwatch Ireland).
Oxfam (Stop Climate Chaos):	David Healy
Food Wise 2025 Strategy Committee Members:	Helen Brophy (Seafood Subgroup), Tom Moran (Chair of Dairy Subgroup), Martin Keane and John Comer, Dolores O'Riordan and Tony Keohane (Processed Consumer Food Subgroup), Thomas Ryan (IFA) (representing Eddie Downey) (Meat and Cereals Group), Siobhán Egan and Kieran O'Dowd (Environment, Forestry and Climate Change Subgroup).
Trocaire:	Niamh Garvey

10.4 Annex IV – Stakeholders invited to provide observations on the scoping phase of this process

Statutory Consultees	Environmental Groups	Farming Organisations	Other Organisations
Environmental Protection Agency (EPA)	Irish Environmental Network (IEN)	Irish Farmers Association (IFA)	Irish Co-operative Organisation Society (ICOS)
Department of Agriculture, Food and the Marine (DAFM)	The Environmental Pillar	Irish Creamery Milk Suppliers Association (ICMSA)	Irish Business and Employers Confederation (IBEC)
Department of Arts, Heritage and the Gaeltacht (DAHG)	Stop Climate Chaos	Macra Na Feirme	Teagasc
Department of Communications, Energy and Natural resources (DCENR)	SWAN - Sustainable Water Network	Irish Timber Growers Association (ITGA)	Marine Institute
Department of Environment, Community and Local Government (DECLG)	An Taisce	ICSA	Collite
	Friends of the Irish Environment		
	Birdwatch Ireland		

10.5 Annex V – Legislation Matrix

Legislation	Biodiversity	Flora/Fauna	Water Quality (incl. drinking water)	Soil	Air Quality	Landscape & Buildings	Climatic Factors (incl. GHG)
Transnational Agreements							
United Nations Framework Convention on Climate Change - The Kyoto Protocol (2002)							✓
EU Climate and Energy Package 2008							✓
EU Legislation							
EU Habitats Directive (92/43/EEC)	✓	✓	✓				
Birds Directive (79/147/EU)	✓	✓	✓				
Water Framework Directive (2000/60/EEC)	✓	✓	✓				
Nitrate Directive (91/676/EEC)	✓	✓	✓				
Fresh Fish Directive (78/659/EEC)	✓	✓	✓				
Groundwater Directive (2006/118/EEC)	✓	✓	✓				
Environmental Impact Assessment Directive (85/337/EEC as Amended 91/11/EC; 1007/11/EC; 2003/35/EC & 2009/31/EC)	✓	✓	✓	✓		✓	
EU National Emissions Ceiling Directive (2001/81/EC)					✓		
IPPC Directive (2008/1/EC)	✓	✓	✓				
Sewage Sludge Directive (86/278/EEC)	✓	✓	✓				
Proposed Soil Framework Directive COM (2006/232)				✓			
National Legislation							
The Wildlife Act, 1976, Wildlife (Amendment) Act, 2000	✓	✓	✓				
Local Government (Water Pollution) Act, 1977 & Water Pollution (Amendment) Act, 1990	✓	✓	✓				
The Forestry Act 1946-1988	✓	✓	✓				
Arterial Drainage Acts 1945-1995	✓	✓	✓				
Waste Management Act 1996	✓	✓	✓				
EPA Act, 1992	✓	✓	✓				
Planning & Development Acts 2000-2011						✓	
Statutory Instruments							
S.I. No. 477 of 2011 - European Communities (Birds and Natural Habitats)	✓	✓					
S.I. No. 296 of 2009 - The European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009	✓	✓					

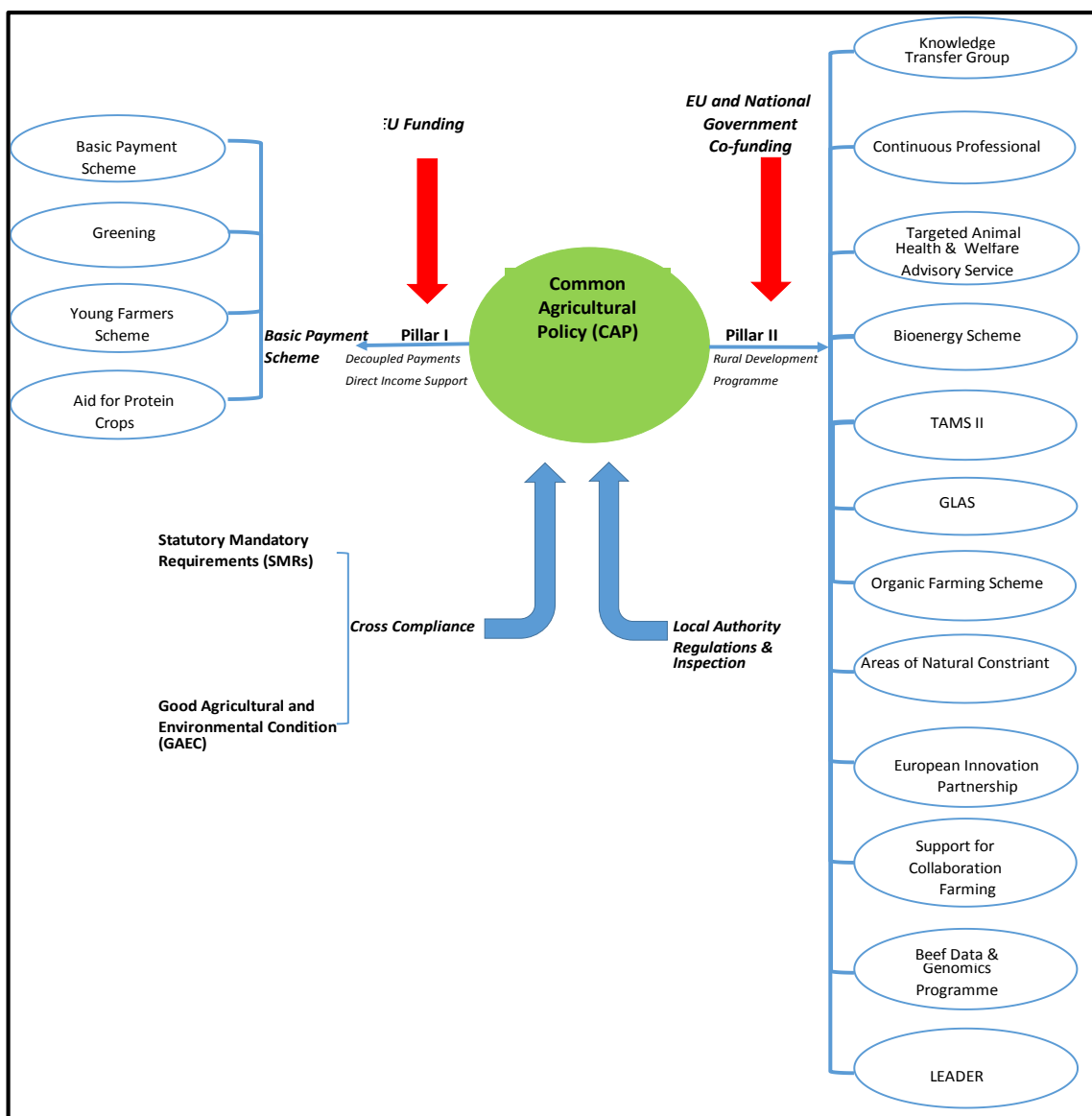
Legislation	Biodiversity	Flora/Fauna	Water Quality (incl. drinking water)	Soil	Air Quality	Landscape & Buildings	Climatic Factors (incl. GHG)
European Communities (Good Agricultural Practice for the Protection of Waters) Regulations (S.I. No. 610 of 2010)			✓				
European Communities Environmental Objectives Groundwater Regulations 2010 (S.I. No. 9 of 2010)			✓				
European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009)			✓				
Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011)					✓		
Environmental Impact Assessment Regulations for On-Farm Development 2011 (S.I. No. 456 of 2011)				✓			
S.I No. 155/12 EC(Sustainable use of Pesticides) Regulations 2012	✓	✓	✓				
Other Relevant Publications							
DOEHLG 2007. National Climate Change Strategy 2007-2012							✓

10.6 Annex VI - Schemes, Regulations and Financial Framework

10.6.1 Common Agricultural Policy

At farm-level, primary agricultural production is both highly dependent on, and highly regulated by, financial support through direct subsidies emanating from the Common Agricultural Policy (CAP). Since inception the CAP has undergone a series of reforms culminating with the 2013 reform, which provided the foundation for the current regulatory framework for the period 2014-2020. CAP has a new architecture for direct payments, with the objective that payments be better-targeted, more equitable and 'greener', and would both deliver an enhanced safety net and strengthen rural development. CAP payments are divided into two umbrella groups – Pillar 1 and Pillar 2. Figure 10-1 illustrates initiatives undertaken at national level under Pillar 1 and Pillar 2.

Figure 10-1 Initiatives undertaken at Irish national level under Pillar 1 and Pillar 2 of CAP



10.6.2 Pillar I

Pillar I of CAP is the larger pillar, accounting for approximately 75% of the CAP budget. It is totally funded by the EU budget and encompasses all direct payments to farmers (Table 3-1). This is a decoupled payment (i.e. it is not linked to stock numbers or crop area). In Ireland the main form of Pillar I funding is through the Basic Payment Scheme (BSP), which prior to 2015 was known as the Single Farm Payment (SFP). As detailed in Table 10-25, payments under SFP amounted to €1.18 billion in 2014, or approximately half the national expenditure on agriculture.

Table 10-25 DAFM Expenditure on Irish Agriculture (1 January to 31 December 2014) (DAFM 2015)

	€ million
EAGGF Guarantee direct expenditure	1,194.0
Single Farm Payment	1,178.0
Grassland Sheep, Burren Life, Dairy Efficiency Schemes	24.0
Export Refunds	0.0
Intervention	0.0
Other Market Supports & Recoveries	(8.0)
Voted Expenditure (excluding Administration)	978.3
Rural Development*	405.0
Structural Measures*	31.7
State Bodies	187.9
Horse and Greyhound Fund	54.2
Animal Health	79.4
Research and Training	25.9
Market Support Costs*	8.8
Forestry and Bio-Fuels	112.0
Fisheries	15.9
Food Aid	9.9
Other	47.6
Administration	213.1
Total Voted Expenditure	1,191.4
Total DAFM Expenditure	2,385.4

The direct (Pillar I) payment that a farmer receives is no longer a 'single payment', but a combination of possible payments under four distinct schemes (discussed below). All eligible farmers will receive a payment under the *BPS* (44%) and a *Greening Payment* (30%), while some farmers may also qualify for a further payment under the *Young Farmers Scheme* or under the *Aid for Protein Crop Scheme*.

Basic Payment Scheme (BPS)

Payments under the BPS are made to applicants who meet the active farmer requirements on payment entitlements they hold. To receive entitlements under BPS, all farmers must make an annual application to DAFM in which they declare all eligible land and calculate the area suitable for agricultural production ('utilisable area'). The application process involves the farmer declaring that he/she is an active farmer who complies with all scheme regulations, and that farming activities are carried out in compliance with Good Agricultural and Environmental Condition (GAEC). All BPS recipients are subject to desk-audit by DAFM to ensure compliance with the Nitrates Directive (EC, 1991). In addition, both random and risk-assessment based farm inspections are undertaken by DAFM.

Greening Payment

All farmers who declare 10 hectares or more of arable crops have an obligation under 'Greening' to undertake Crop Diversification and/or Ecological Focus Areas.

- *Crop Diversification* – this measure is designed to encourage a diversity of crops on holdings with arable land. Where a farmer holds between ten and thirty hectares of arable land, he is obliged to grow at least two crops, of which the primary crop shall not cover more than 75% of the arable land. Where a farmer holds more than thirty arable hectares, he is obliged to grow at least three crops, of which the main crop shall not cover more than 75% of that arable land, while the two main crops together shall not cover more than 95% of the arable land.
- *Ecological Focus Area (EFA)* – Farmers who declare 15 hectares or more are obliged to allocate 5% of that arable land to Ecological Focus Areas. Ecological Focus Areas include: hedges, drains, buffer strips and the creation or maintenance of ecological habitats.

Young Farmers Scheme

Reflecting the unsatisfactory ageing profile of farmers and to encourage new entrants, a national reserve was established using 3% of the basic payment ceiling for priority allocation to new entrants and young farmers. Young farmers or new entrants must have completed, or intend to complete, a Level 6 educational requirement to qualify. Entitlements will be granted, subject to availability, up to a maximum 90 eligible hectares. Payments will be based on the national average payment.

Aid for Protein Crops Scheme

To promote the cultivation of protein-rich crops a subsidy is available for the sowing of peas, field beans and lupins. The national funding ceiling for Aid for Protein Crops is €3 million.

10.6.3 Pillar II

Pillar II spending under CAP will be administered under the Rural Development Programme 2014-2020. This spending is co-funded by the European and national governments. Figure 10-1 details the target areas for spending under Pillar II in Ireland.

Knowledge Transfer Scheme

It is intended that the Knowledge Transfer Scheme will encourage farmers to engage in best practice to improve farm efficiency and sustainability, while also enhancing farm viability and competitiveness. Farmers will receive compensation for participating in targeted knowledge transfer groups. Professional agricultural advisors will be trained in facilitation techniques and will receive compensation for facilitating groups. The proposed Knowledge Transfer Measures are based on four elements: European Innovation Partnerships (EIP), Knowledge Transfer Groups, Continued Professional Development and Targeted Advisory Services. As part of the Knowledge Transfer Scheme, farmers will be required to complete a Farm Improvement Plan, which will include a Farm Profit Monitor, Sustainable Management Plan, Herd Health Plan and a Farm Breeding Plan.

European Innovation Partnerships: The aim of this action is to establish greater linkages between research and on-farm implementation. This measure aims to play an important role in increasing efficiency and competitiveness within the agricultural sector while providing new technologies to aid in the sustainable development of the sector.

Continuous Professional Development: This action aims to facilitate professional agricultural advisors working within the sector to enhance and develop their knowledge base. This in turn will allow for the effective transfer of best practice to farm level, the aim of which is to increase the uptake of new technologies that will aid sustainable development in the Irish agricultural sector.

Targeted Animal Health & Welfare Advisory Service: This measure will allow for the targeted investment in efforts to manage and eradicate a number of animal diseases prominent within Ireland - such as Johne's disease, bovine viral diarrhoea (BVD), health issues within the pig sector etc. This action will involve specialist training of veterinarians to deliver on-farm advisory services.

Targeted Agricultural Modernisation Scheme (TAMS) II

The aim of Targeted Agricultural Modernisation Scheme II is to encourage investments in physical assets to help farmers improve the efficiency, competitiveness and sustainability of their holding. Funding will be designated for a number of assets such as: dairy equipment, low emission slurry spreading, animal welfare and farm safety measures. A basic grant aid rate of 40% will apply to applicants, but young farmers will gain priority access and are eligible to receive grant aid of 60%.

Green Low Carbon Agri-Environment Scheme (GLAS)

The Green Low-Carbon Agri-Environment Scheme (GLAS) is the successor agri-environmental scheme to the Rural Environment Protection Scheme (REPS) and Agri-Environment Options Scheme (AEOS). GLAS aims to address climate change issues, protect water quality and protect and enhance biodiversity. Applicants must have their GLAS plan drawn up by a suitably qualified agricultural advisor and complete a Nutrient Management Plan by the end of the first year of their contract. Entry into the scheme is based on a three-tier system: with Tier 1 applicants having priority access status followed by Tier 2 applicants and finally Tier 3 applicants.

Tier 1 applicants are designated as having priority environmental assets and actions including Natura 2000 sites, farmland birds or commonages. Tier 2 applicants gain priority access to the scheme if they are in a vulnerable water area or by choosing certain actions including catch crops, wild bird cover or low emission slurry spreading. Tier 3 actions include planting of hedgerows, planting a grove of native trees, and installing bird and bat boxes. The scheme will run for a five year period with a maximum annual payment of €5,000. In addition applicants who undertake particularly challenging actions or who are compelled to take on a high number of compulsory actions, may qualify for a top-up payment of up to €2,000 per annum. This action is known as GLAS+.

Organic Farming Scheme

The Organic Farming Scheme aims to deliver enhanced environmental and animal welfare benefits. In addition to this it is aimed at encouraging producers to respond to the market demand for organically produced food. Organic farmers will also gain priority access to the GLAS scheme. Organic farming practices promote actions which improve soil and water quality, as well as the improvement of biodiversity, e.g. by crop rotation, use of organic fertilisers, improvement to soil organic matter and by non-use of synthetic plant protection products or synthetic fertilisers.

Areas of Natural Constraint

The Areas of Natural Constraint scheme was formally known as the Disadvantaged Payment Scheme. The purpose of this scheme is to enhance farm viability and competitiveness, restore, preserve and enhance ecosystems while maintaining and promoting sustainable farming systems. This scheme is aimed towards farmers in less favourable areas who face issues with remoteness and poor soil conditions. These farms have lower productivity and also encounter higher production costs. Through this scheme farmers are given financial support to ensure the viability and future sustainability of their holding. Farmers who join this scheme are required to commit to the scheme for five years and maintain an average minimum stocking rate of 0.15LU per hectare.

Support for Collaboration Farming

Collaborative Farming is aimed at facilitating farmers in overcoming issues associated with work-life balance, lack of land mobility etc. This measure will provide support for increased levels of collaborative farming across farm sectors. The action will provide financial support to all new farm partnerships in the form of a contribution of 50% towards their costs in legal, accounting and business planning expenditure involved in setting up the partnership up to a maximum of €2,500.

Beef Data and Genomics Programme (BDGP)

The aim of this scheme is to improve the competitiveness and quality of the Irish beef industry by improving the genetic quality of the national suckler herd through the collection of breeding and production information. The scheme also aims to contribute to the eradication of BVD in the national herd. Actions required within this scheme include animal data recording, genomic tagging and sampling (taking a tissue sample and having the DNA extracted genotyped). Additional requirements included assessment of carbon output through the completion of a Carbon Navigator exercise and an animal replacement programme involving the use of higher rated genetically improved sires intended to raise the genetic improvement within individual herds.

LEADER

LEADER has been in place since the 1990s. It was designed to aid the sustainable development of rural communities and its continuation was identified by many as being critical for the future development of rural Ireland. Ireland is currently moving towards a more integrated approach to the delivery of local development interventions and the participation of communities is central to the implementation of this approach. A revised LEADER programme based on community participation and supporting

tourism and enterprise development is seen as an essential tool in facilitation of rural development in Ireland.

10.6.4 Cross Compliance

In order to qualify for payments or participation in any of the above Pillar I or Pillar II schemes farmers are also obliged to comply with Cross Compliance regulations. Cross Compliance is divided into two elements:

- **Statutory Management Requirements (SMRs)** – these are existing and already legally binding standards defined by a range of 18 European regulatory requirements covering environmental, public health, plant health and animal health and welfare standards; and
- **Standards consistent with keeping land in “Good Agricultural and Environmental Condition” (GAEC)** including habitat conservation and soil protection.

Table 10-26 lists the Statutory Management Requirements, Table 10-27 highlights some of the relevant required actions required to remain in compliance with the SMRs, while Table 10-28 summarises the main issues, requirements and standards applicable to GAEC.

Table 10-26 Statutory Management Requirements (SMRs) under Cross Compliance

Code	Statutory Management Requirement
SMR1	Conservation of Wild Birds
SMR2	Protection of Groundwater
SMR3	Sludge
SMR4	Nitrates
SMR5	Conservation of Natural Habitats and of Wild Flora and Fauna
SMR6, 7, 8 & 8a	Identification and Registration of Animals (Bovine, Ovine, Porcine)
SMR9	Plant Protection Products (Pesticides)
SMR10	Hormones
SMR11	Food Hygiene
SMR12	Feed
SMR13	Foot and Mouth
SMR14	Swine Vesicular Disease
SMR15	Bluetongue
SMR16	Animal Welfare (Calves)
SMR17	Animal Welfare (Pigs)
SMR18	Animal Welfare (General)

Table 10-27 Required actions to remain Cross Compliant

SMR	Relevant Characteristic	Environmental	Required Actions to Remain Cross Compliant
SMR1 – Conservation of Wild Birds	Biodiversity		No unauthorised hunting/shooting/snaring /trapping or poisoning of birds or animals being practiced at any time with regards to protected species or in closed season with regards to other species No “notifiable actions” within Special Protected Areas
SMR 2 – Protection of Groundwater	Ground Water		Farm chemicals and waste oil are stored and managed in a way that prevents pollution Sheep dip is managed and disposed of in a way that prevents pollution
SMR 3 – Sludge	Ground Water Surface Water Soils		Where the farmer uses sewage sludge: Have a nutrient management plan that was prepared within the last 5 years Restrictions on land usage following application of treated sludge are being observed The quantity of treated sludge used does not exceed the amount permitted under the current nutrient management plan
SMR 4 – Nitrates	Ground Water Surface Water Soils		Livestock manures and other organic fertiliser storage facilities are constructed and managed in a way that prevents pollution There is sufficient storage capacity for livestock manure and other organic fertilisers Livestock manures, other organic fertilisers and chemical fertilisers are spread in accordance with the Regulations. Buffer zones from water are maintained when spreading livestock manure and other organic and chemical fertilisers Fertilisers are not spread in prohibited spreading periods Farmyard manure is only stored in the field during permitted spreading periods Green cover is provided where land is ploughed or sprayed with non-selective herbicide after July 1st. Grassland is not ploughed between 16th October and 30th November Maximum fertiliser rates for nitrogen and phosphorus are not exceeded Soiled water is minimised by ensuring clean water is diverted to a clean water outfall. A maximum of 170kgs/ha of nitrogen from livestock manure is applied in any calendar year or a maximum of 250kgs/ha of nitrogen from grazing livestock where a derogation was applied for.
SMR 5 – Conservation of Natural Habitats and of Wild Flora and Fauna	Flora/Fauna		No removal or damaging of protected plant species or deliberate introduction of non-native species which may damage protected plant species No “notifiable actions” within Special Protected Areas
SMR 9 – Plant Protection Products (Pesticides)	Flora/Fauna		Treatments must be undertaken in conformity with the conditions of their approved uses.

Table 10-28 Summary of the main issues, requirements and standards applicable to GAEC

Issues	Requirements	Standards
Soil Erosion	Protect soil through appropriate measures	Minimum soil cover Minimum land management reflecting specific conditions
Soil Organic Matter	Maintain soil organic matter levels through appropriate practices	Standards for crop rotation where applicable Arable stubble management
Soil Structure	Maintain soil structure through appropriate measures	Appropriate machinery use
Minimum level of maintenance	Ensure a minimum level of maintenance and avoid the deterioration of habitats	Minimum livestock stocking rates and/or appropriate regimes Protection of permanent pasture Retention of landscape features Avoiding the encroachment of unwanted vegetation

In practical terms compliance with GAEC ensures *inter alia*:

- Minimisation of soil erosion through avoidance of finely tilled soils being sown, severe poaching by livestock, overgrazing of lands, both enclosed and commonage, and sand dunes;
- Minimisation of soil structure being damaged by machinery. For example avoidance of misuse of machinery in waterlogged conditions;
- A minimum level of maintenance is being complied with. For example that the management regime for permanent pasture (grazing, cutting, topping) is adequate to allow agricultural production to take place the following year;
- Tillage crops are grown under normal husbandry conditions;
- Avoidance of damage to habitats designated as Natural Heritage Areas (NHA), Special Protected Areas (SPA) or Special Areas of Conservation (SAC);
- Minimisation of encroachment of invasive species, spread of noxious weeds, burning of growing vegetation between 1st March and 31st August;
- External farm boundaries are stock-proof where stock is present on the holding.

10.6.5 Environmental Impact Assessment (Agriculture) Regulations 2011

In addition to these CAP-derived requirements, three different types of on-farm activities subject to EIA under Directive 2011/92/EU. The Environmental Impact Assessment Regulations 2011 (for which DAFM is the competent authority) apply to:

- Restructuring of rural land holdings;
- Commencing to use uncultivated land or semi-natural areas for intensive agriculture; and
- Land drainage works on lands used for agriculture.

Where the applicant intends to undertake any of the outlined activities and the proposed works exceed the screening size threshold set out in the Regulations, the applicant must make an application to DAFM for screening giving details of the works. However, if the proposed activity does not exceed the size thresholds but is an activity identified as ‘requiring consent’, or is a ‘notifiable action’ in a European Site (e.g. SAC or SPA) or an NHA, EIA screening by DAFM may also be necessary. Once submitted, the DAFM will conduct screening of the project and notify the applicant if they can proceed with the intended work or if they need to apply for consent (which application must be accompanied by an Environmental Impact Statement and/or Natura Impact Statement).

10.6.6 Regulations and Inspections

DAFM are responsible for governance and ensuring compliance with regulations under all schemes operated under the auspices of CAP. The local authorities, on behalf of the Department of the Environment, Community and Local Government (DECLG) are responsible for governance and ensuring compliance with regulations regarding the Water Framework Directive (WFD). In its report on Environmental Enforcement during 2009-2012 the EPA (2014b) reports that in 2012 local authorities undertook 5,800 inspections under Water Framework Regulations and an additional unspecified number of inspections under the Water Pollution Act 1990, as a result of either pollution incidents or proactive inspections on a catchment basis for the purposes of achieving the objectives of the WFD. They further report that as part the Water Framework National Monitoring Programme and the surface and ground water protection measures an additional 59,500 visits were carried out.

DAFM aim to carry out inspections under Cross Compliance at a rate of between 1% and 3% of applicants (DAFM undertake a 100% check on all BPS applications for compliance with the Nitrates Directive). Along with Cross Compliance inspections, a further 1,600 risk-based Nitrates Directive inspections were carried out by DAFM on behalf of the local authorities, and 3% of Nitrates derogation applicants are also inspected.

DAFM reported that 19% of non-compliance detected from all inspection regimes in 2010 related to Nitrates (DAFM, 2013). This figure is further broken down as follows:

- 40% - Inadequate collection of manure, organic fertilisers, soiled water and silage effluent;
- 20% - Inadequate management of storage
- 16% - Structural defects
- 14% - Failure to minimise soiled water
- 6% - Manure stockpiling during prohibited period
- 4% - Others

10.7 Annex VII - Common Fisheries Policy

10.7.1 Introduction

The Common Fisheries Policy (CFP) is a set of rules for managing European fishing fleets and for conserving fish stocks. Designed to manage a common resource, it gives all European fishing fleets equal access to EU waters and fishing grounds and allows fishermen to compete fairly.

Stocks may be renewable, but they are finite. Some of these fishing stocks, however, are being overfished. As a result, EU countries have taken action to ensure the European fishing industry is sustainable and does not threaten the fish population size and productivity over the long term.

The CFP was first introduced in the 1970s and went through successive updates, the most recent of which took effect on 1 January 2014.

10.7.2 The aims of the Common Fisheries Policy

The CFP aims to ensure that fishing and aquaculture are environmentally, economically and socially sustainable and that they provide a source of healthy food for EU citizens. Its goal is to foster a dynamic fishing industry and ensure a fair standard of living for fishing communities.

Although it is important to maximise catches, there must be limits. We need to make sure that fishing practices do not harm the ability of fish populations to reproduce. The current policy stipulates that between 2015 and 2020 catch limits should be set that are sustainable and maintain fish stocks in the long term.

To this day, the impact of fishing on the fragile marine environment is not fully understood. For this reason, the CFP adopts a cautious approach which recognises the impact of human activity on all components of the ecosystem. It seeks to make fishing fleets more selective in what they catch, and to phase out the practice of discarding unwanted fish.

The reform also changes the way in which the CFP is managed, giving EU countries greater control at national and regional level.

The CFP has 4 main policy areas:

- Fisheries management
- International policy
- Market and trade policy
- Funding of the policy
 - EFF 2007-2013
 - EMFF 2014-2020

10.7.3 Fisheries Management

Fishermen catch fish from fish stocks, which generally have a high, but not unlimited, reproductive capacity. If fishing is not controlled, stocks may collapse or fishing may cease to be economically viable. It is in everyone's interest to have a fisheries management system in place to:

- safeguard stock reproduction for high long-term yield
- lay the foundations for a profitable industry
- share out fishing opportunities fairly, and
- conserve marine resources

The principal aim of fisheries management under the CFP is to ensure high long-term fishing yields for all stocks by 2015 where possible, and at the latest by 2020. This is referred to as maximum sustainable yield. Another increasingly important aim is to reduce unwanted catches and wasteful practices to the minimum or avoid them altogether, through the gradual introduction of a landing obligation. Lastly, the new CFP has overhauled its rules and management structure, with regionalisation and more extensive stakeholder consultation.

Fisheries management can take the form of input control, output control, or a combination of both. Input controls include:

- rules on access to waters – to control which vessels have access to which waters and areas
- fishing effort controls – to limit fishing capacity and vessel usage
- technical measures - to regulate gear usage and where and when fishermen can fish

Output controls mainly consist of limiting the amount of fish from a particular fishery, in particular through total allowable catches.

The CFP increasingly has recourse to multi-annual plans which often combine different management tools.

Fisheries management is based on data and scientific advice, and control measures to ensure that rules are applied fairly to and complied with by all fishermen.

10.7.4 International Policy

More than a quarter of the fish caught by European fishing boats are actually taken outside EU waters. Around 8 % of EU catches (2004-06) are made under fishing agreements with countries outside the EU, while another 20 % are taken on the high seas, mainly in regions under the care of regional fisheries management organisations.

As a major fishing power, and the largest single market for fisheries products in the world, the EU also plays an important role in promoting better governance through a number of international organisations. This involves developing and implementing policy on fisheries management and – more generally – the Law of the Sea. The EU works closely with its partners from around the globe through the United Nations system, including the Food and Agriculture Organisation (FAO), as well as in other bodies, such as the Organisation for Economic Co-operation and Development (OECD).

10.7.5 Market and Trade Policy

The Common Organisation of the Markets, the EU policy for managing the market in fishery and aquaculture products, is one of the pillars of the Common Fisheries Policy.

The Common Organisation of the Markets strengthens the role of the actors on the ground: producers are responsible for ensuring the sustainable exploitation of natural resources and equipped with instrument to better market their products. Consumers receive more and better information on the products sold on the EU market, which, regardless of their origin, must comply with the same rules. Thanks to dedicated tools, it is now possible to have a better understanding of how the EU market functions.

Today, the Common Organisation of the Markets has come a long way from its beginnings and is a flexible instrument that ensures the environmental sustainability and economic viability of the market for fishery and aquaculture products. The five main areas covered by the scheme are:

- **Organisation of the Sector:** Producer organisations are the key players in the sector. Through their production and marketing plans, they deliver the EU Common Fishery policy.
- **Marketing standards:** Common marketing standards lay down uniform characteristics for fishery products sold in the EU, whatever their origin. They are applied in accordance with conservation measures and help to ensure a transparent internal market that supplies high-quality products.
- **Consumer information:** Rules on the consumer information establish what information must be provided to the consumer or mass caterer who buys fishery and aquaculture products. They allow consumers to make informed purchasing choices.
- **Competition rules:** The Common Organisation of the Markets is subject to competition rules. Given the specificities of this scheme, exceptions to the application of these rules exist to ensure the functioning of the policy and the achievement of EU objectives.
- **Market intelligence:** The Commission has set up the European Market Observatory for Fishery and Aquaculture Products to contribute to market transparency and efficiency.

10.7.6 Funding of the CFP

The EMFF is the fund for the EU's maritime and fisheries policies for 2014-2020.

It is one of the five European Structural and Investment (ESI) Funds which complement each other and seek to promote a growth and job based recovery in Europe.

10.7.6.1 The fund

- helps fishermen in the transition to sustainable fishing
- supports coastal communities in diversifying their economies
- finances projects that create new jobs and improve quality of life along European coasts
- makes it easier for applicants to access financing.

Ireland has been allocated €147.6 million under the EMFF.

10.7.6.2 How it works

The Fund is used to co-finance projects, along with national funding.

- Each country is allocated a share of the total Fund budget, based on the size of its fishing industry.
- Each country then draws up an operational programme, saying how it intends to spend the money.
- Once the Commission approves this programme, it is up to the national authorities to decide which projects will be funded.
- The national authorities and the Commission are jointly responsible for the implementation of the programme.



Philip Farrelly & Co

Unit 5A, Fingal Bay Business Park,
Balbriggan, Co. Dublin.

Tel: (01) 690 6555

Email: info@pfarrelly.com