



Strategic Planning Policy Statement (SPPS) for Northern Ireland

Strategic Environmental Assessment (SEA) Scoping Report



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Date: October 2013

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1. INTRODUCTION

1.1. Purpose of this Report

- 1.1.1. ADAS has been instructed by the Department of Environment (DOE) to carry out a Strategic Environmental Assessment (SEA) for the Strategic Planning Policy Statement (SPPS) for Northern Ireland (NI).
- 1.1.2. SEA is a systematic process for evaluating the environmental consequences of proposed plans or programmes to ensure environmental issues are fully integrated and addressed at the earliest appropriate stage of decision making, with a view to promoting sustainable development. The process of SEA was introduced under European Directive 2001/42/EC12 on the assessment of the effects of certain plans and programmes on the environment (SEA Directive), and came into force in 2001.
- 1.1.3. The Directive requires the DOE, as the programming authority, to assess the likely significant effects of its plans and programmes 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 of the above factors” including “secondary, cumulative, synergistic, short, medium, and long-term, permanent and temporary positive and negative effects”.*
- 1.1.4. The requirements of the SEA Directive are transposed into Northern Irish domestic law through the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (SR 280/2004). Also of relevance are the Environmental Assessment of Plans and Programmes Regulations 2004 (SI 1633/2004) (the UK Regulations) and, in Ireland, the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Irish SI 435/2004 and SI 200/2011), and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (Irish SI 436/2004 and SI 201/2011).

1.1.5. Scoping is the process of determining the range and level of detail of the environmental issues to be taken forward in the SEA. The scope of the SEA depends on what is being proposed within the Programme, its geographical and temporal coverage, and the nature of the receiving environment. The scoping process also identifies the methods to be used, the organisations and/or individuals to be consulted during the assessment, and the timing and length of the consultation period.

1.1.6. The aim of this Scoping Report is thus to set the scope of the work to be included in the SEA, and to provide a framework for the Environmental Report which will form the main output of the SEA process.

1.2. Structure of this Report

1.2.1. The areas considered in this scoping report, and their location in the report, are as follows:

- Summary of the SPPS – Section 1.3;
- Spatial and temporal scope – Section 2.4;
- Identification of other plans, programmes and environmental protection objectives to be assessed against the SPPS – Section 2.5;
- Summary of baseline environmental data – Chapter 3;
- Identification of key environmental and sustainability issues in NI – Section 3.12;
- Setting of draft SEA objectives – Chapter 4;
- Consideration of alternatives – Section 5.1;
- Identification of likely significant impacts – Section 5.2; and
- Scoping of topics to be considered in the SEA – Section 5.3.

1.3. The Strategic Planning Policy Statement

- 1.3.1. The SPPS is being prepared in the context of wider planning and local government reforms which involves the establishment of a new 11 Council model and the transfer of the majority of planning functions from DOE to local councils on 1 April 2015. The SPPS will have a key role in the future implementation of these reforms by explaining the core planning principles of the reformed two tier planning system and key concepts such as sustainable development, well-being and economic considerations. It will also provide a statement on the Executives' purpose for planning. The intention is to ensure that regional planning policy is pitched at a higher, more strategic level. The SPPS will provide a shorter, more simple and more accessible statement of planning policy for all users of the planning system. It will be used by Planning Authorities to inform the content of development plans, and be a material consideration in decisions on individual planning applications and appeals.
- 1.3.2. Existing planning policies, as contained within the current Planning Policy Statements (PPSs), are detailed and operational in nature. However, in preparing for the introduction of the two-tier planning system it is intended that these be consolidated in the single planning policy document.
- 1.3.3. The policy provisions in the Planning Strategy for Rural Northern Ireland (PSRNI; 1993), which remain in force presently will also be consolidated into the SPPS.
- 1.3.4. The primary purpose of this exercise will be to re-format and reconfigure existing policy provisions so that central government policies are more proportionate and appropriate to the new two-tier planning system. However, additional provisions including minor policy updates, revisions, and revocations will also be considered, where appropriate. In the case of PPS 5 (published in 1996), existing policy on retailing and town centres is to be replaced with new retail policy through the SPPS.

1.3.5. The new set of overarching Core Planning Principles are intended to underpin delivery of the planning reforms set out under the Planning Act (Northern Ireland) 2011¹. These are likely to be based around the following:

- A Plan-led System;
- Spatial Planning;
- Good Design and Placemaking;
- Sustainable Development;
- Responding to Climate Change;
- Promoting Well-being;
- Meaningful Engagement;
- Sustainable Economic Growth;
- Front-loading;
- Proportionality;
- Democratic Accountability;
- Confidence and Transparency; and
- Outcomes.

1.3.6. Subject policies within the SPPS (based on current PPSs, and the PSRNI) are likely to include:

- Natural Heritage;
- Access, Movement and Parking;
- Planning and Economic Development;
- Town Centres and Retailing (NEW);
- Planning, Archaeology and Built Heritage;
- Quality Residential Environments;

¹ Environment Minister Mark Durkan introduced the Local Government Bill into the Assembly on Monday 23rd September 2013. The Bill provides the legislative basis for the local government reform programme.

- Open Space, Sport and Outdoor Recreation;
- Telecommunications;
- Planning and Waste Management;
- Housing in Settlements;
- Transportation and Landuse;
- Planning and Flood Risk;
- Tourism;
- Control of Outdoor Advertisements;
- Renewable Energy;
- Sustainable Development in the Countryside;
- Enabling Development; and
- Other (e.g. Industry and Commerce/Coast / Minerals / Public Services and Utilities).

Geographic Coverage

1.3.7. The reform of local government will see the reduction of 26 councils to 11; the process will be completed by April 2015. Legislation to finalise the boundaries of the new 11 local government districts was approved by the NI Assembly on 12th June 2012. The legislation sets the boundaries of the new local government districts as well as the number, boundaries and names of the wards into which each district will be divided.

1.3.8. The geographic area covered by the SPSS comprises the whole of NI. With key functions such as planning, urban regeneration, local economic development and local tourism being transferred from central government to these 11 local councils in 2015, it is considered useful to show these new local authority districts graphically in the SEA. These can be seen in Figure 1.1 below.

NEW MODEL FOR LOCAL DEMOCRACY



11 New Local Authority Districts

- Derry and Strabane
- Causeway Coast and Glens
- Mid and East Antrim
- Antrim and Newtownabbey
- Belfast
- Lisburn and Castlereagh
- North Down and Ards
- Newry, Mourne and Down
- Armagh, Banbridge and Craigavon
- Mid Ulster
- Fermanagh and Omagh

Area Planning Offices

- Planning Area Border

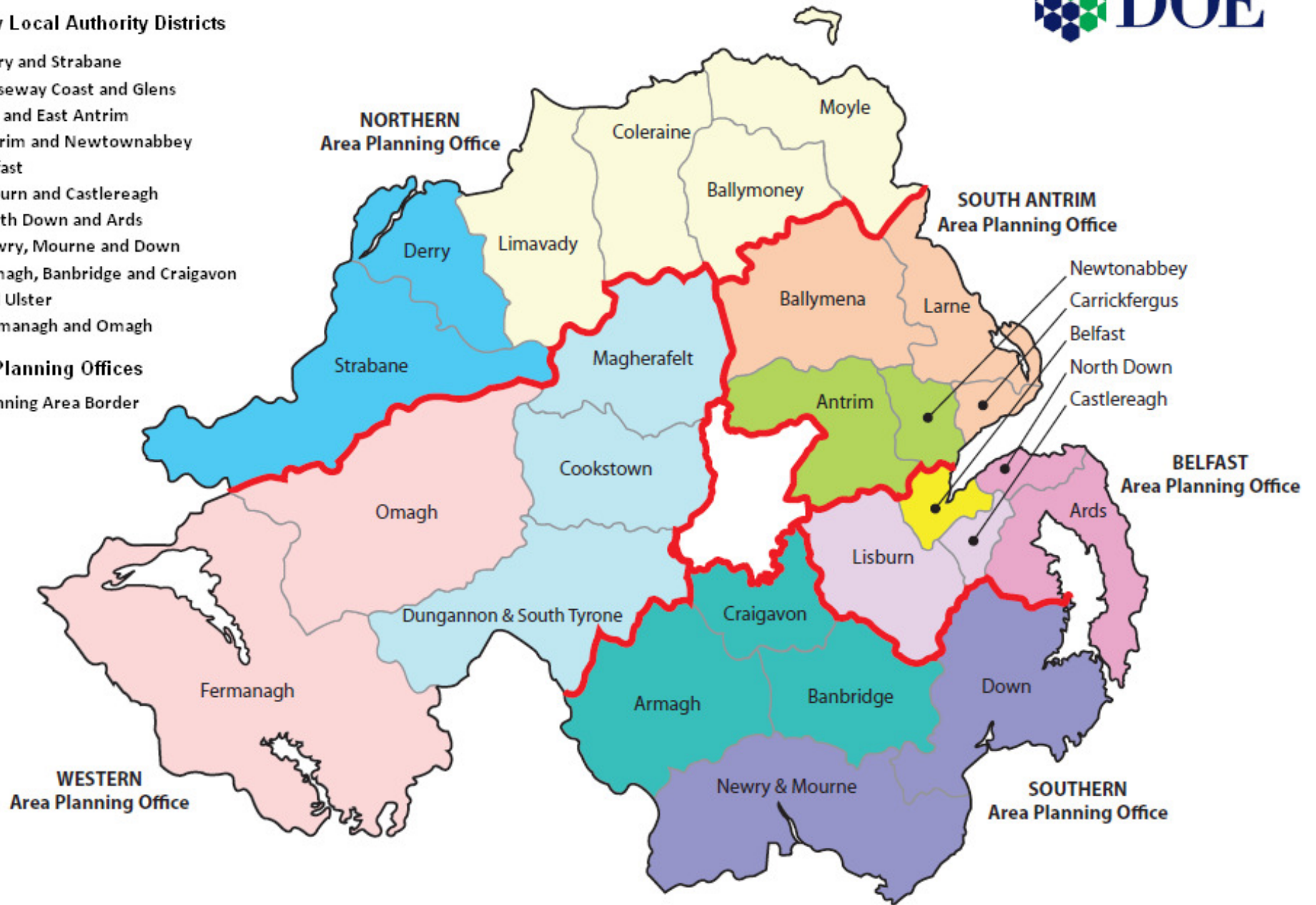


Figure 1.1: Geographic Coverage of the Strategic Planning Policy Statement

1.4. Characterisation of the SPPS Area

1.4.1. NI is one of four administrative regions of the UK. It is a predominantly rural region, with 80% of the landmass in agricultural and forestry use. Almost two fifths of the urban population live within the Belfast Metropolitan Area with another sizeable concentration of population around Derry/Londonderry. The region has a distinctive cultural heritage and retains strong rural dimensions through the importance of agriculture, tourism and their interactions with the landscape.

1.4.2. Table 1.1 below provides statistics on the land area, population size and population density of the new local government districts included in the SPPS as well as for NI as a whole.

Table 1.1: Area and Population of NI

Local Authority District (2015)	Area (km²)	Population (2011)	Population Density (people/km²)
Antrim and Newtownabbey	571	138,567	243
Armagh, Banbridge and Craigavon	1,399	200,702	143
Belfast	109	280,962	2,568
Causeway Coast and Glens	1,980	140,877	71
Derry and Strabane	1,237	147,720	119
Fermanagh and Omagh	2,847	113,161	40
Lisburn and Castlereagh	527	187,407	356
Mid and East Antrim	1,046	135,338	129
Mid Ulster	1,848	139,903	76
Newry, Mourne and Down	1,541	169,211	110
North Down and Ards	458	157,015	343
NI	13,562	1,810,863	134

Source: DOE

1.4.3. There are a number of nature conservation, landscape and cultural heritage designations in NI. These are designated as either statutory (protected by law) or non-statutory (a material planning consideration), and can be of international, national or local importance. Information on local and/or non-statutory designations is held by individual local

authorities and has not been obtained for this strategic level assessment.

1.4.4. The number and/or area of statutory nature conservation, landscape and cultural heritage designated sites in NI are provided in Table 1.2 below (obtained from various GIS data sets). Further details on designated sites are provided in Chapter 3.

Table 1.2: Designated Sites in NI

	Number	Area (ha)
Special Protection Areas (SPA)	17	114,123
Special Areas of Conservation (SAC)	57	85,903
Ramsar sites	21	88,258
Areas of Special Scientific Interest (ASSI)	360	104,414
National Nature Reserves (NNR)	8	5,403
World Heritage Sites	1	262
Scheduled Monuments	1,901	n/a
Monuments in State Care	190	n/a
Listed Buildings	8,497	n/a
Historic Parks, Gardens and Demesnes	248	21,014
National Parks	0	n/a
Areas of Outstanding Natural Beauty (AONB)	8	341,180

2. APPROACH TO THE SEA

2.1. Best Practice Guidance

2.1.1. Our SEA approach takes into account the procedures provided under the following guidance documents:

- European Commission (2003), 'Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment';
- ODPM, Scottish Executive, Welsh Assembly Government and DOE (2005), 'A Practical Guide to the Strategic Environmental Assessment Directive';
- Northern Ireland Environment Agency (2009), 'Strategic Environmental Assessment: Consultation Bodies' Services and Standards for Responsible Authorities';
- United Nations Economic Commission for Europe (2012) 'Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment'.
- Cooper, L.M. (2004), 'Guidelines for Cumulative Effects Assessment in SEA of Plans' (Imperial College London);
- Collingwood, LUC, Levett-Therivel, Scott Wilson, TEC and C4S (2006), 'Working with the SEA Directive: Do's and Don'ts Guide to generating and developing alternatives';
- Department of Health (2007), 'Draft Guidance on Health in Strategic Environmental Assessment';
- Levett-Therivel, Environment Agency, Countryside Council for Wales, UKCIP, Natural England, InteREAM, and CAG Consultants (2007), 'Strategic Environmental Assessment and Climate Change: Guidance for Practitioners';
- Countryside Council for Wales, English Nature, Environment Agency and RSPB (2004), 'Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners'; and

- SNIFFER (online) ‘Strategic Environmental Assessment Guidance on Air, Water and Soil’.

2.1.2. To ensure this SEA follows best practice and adds real value to the SPPS, we shall also draw on the following relevant documents:

- Northern Ireland Executive (2012), ‘Economic Strategy: Priorities for sustainable growth and prosperity’;
- Northern Ireland Executive (2012), ‘Programme for Government 2011-15’;
- NI Department for Regional Development (2010), ‘Regional Development Strategy 2035’;
- NI Department of Environment (2013) ‘Format for a Prioritised Action Framework (PAF) for Natura 2000 For the EU Multiannual Financing Period 2014-2020: Northern Ireland (Draft)’.
- UK National Ecosystem Assessment (2011) ‘Chapter 18: Status and Changes in the UK Ecosystems and their Services to Society: Northern Ireland. UK National Ecosystem Assessment: Technical Report’;
- Bullock et al (2008) ‘The Economic and Social Aspects of Biodiversity: Benefits and Costs of Biodiversity in Ireland. (Report to DEHLG)’;
- Environmental Protection Agency (2012) ‘Review of Effectiveness of SEA in Ireland Key Findings & Recommendations’;
- Scottish Government (2013) ‘National Planning Framework 3 Scottish Planning Policy: Strategic Environmental Assessment Environmental Report’;
- Scottish Natural Heritage (2009) ‘Applying an Ecosystem Approach in Scotland: a Framework for Action’;
- European Environment Agency (2011) ‘Green infrastructure and territorial cohesion: The concept of green infrastructure and its

integration into policies using monitoring systems (Technical Report No. 18/2011)';

- Organisation for Economic Co-operation and Development (2008) 'Strategic Environmental Assessment and Ecosystem Services';
- Partidario, M.R. and Gomes, R.C. (2013) 'Ecosystem services inclusive strategic environmental assessment'. Environmental Impact Assessment Review;
- RSPB, RTPI and CIEEM (2013) Planning Naturally. Spatial planning with nature in mind: in the UK and beyond;
- Secretariat of the Convention on Biological Diversity (2004) 'The Ecosystem Approach (CBD Guidelines)', Montreal; and
- White, S., Simmons, B. and ten Brink, P. (2009) 'Integrating ecosystem and biodiversity values into policy assessment' in TEEB (2009) 'The Economics of Ecosystems and Biodiversity for National and International Policy Makers'.

2.2. The SEA Process

2.2.1. The SEA Guide produced by ODPM (now DCLG), Welsh Assembly Government and DOE in 2005, in common with other SEA guidance documents, sets out a five stage process for carrying out SEA. These stages are summarised in Table 2.1 below.

Table 2.1: Stages in the SEA Process

Stage	Tasks
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	A1: Identifying other relevant plans, programmes and environmental protection objectives
	A2: Collecting baseline information
	A3: Identifying environmental problems
	A4: Developing SEA objectives
	A5: Consulting on the scope of SEA
Stage B: Developing and refining alternatives and assessing effects	B1: Testing the plan or programme objectives against the SEA objectives
	B2: Developing strategic alternatives
	B3: Predicting the effects of the plan or programme, including alternatives

	B4: Evaluating the effects of the plan or programme, including alternatives
	B5: Mitigating adverse effects
	B6: Proposing measures to monitor the environmental effects of plan or programme implementation
Stage C: Preparing the Environmental Report	C1: Preparing the Environmental Report
Stage D: Consulting on the draft plan or programme and the Environmental Report	D1: Consulting the public and Consultation Bodies on the draft plan or programme and the Environmental Report
	D2: Assessing significant changes
	D3: Making decisions and providing information
Stage E: Monitoring the significant effects of implementing the plan or programme on the environment	E1: Developing aims and methods for monitoring
	E2: Responding to adverse effects

2.2.2. This Scoping Report is the main output of Stage A of the SEA process presented above. Chapter 6 discusses in more detail the subsequent stages and outputs of the SEA process that will be carried out following the conclusion of Stage A.

2.3. Sustainability Topics

2.3.1. The baseline data, key environmental issues and SEA Objectives have been presented through a series of sustainability topics derived from Annex I(f) of the SEA Directive, namely: biodiversity, flora and fauna; population; human health; soil; water; air; climatic factors; material assets; cultural heritage (including architectural and archaeological heritage); landscape; and the inter-relationship between these.

2.3.2. The topics considered in the SEA will be in accordance with these requirements, updated to align more closely with the requirements of the SPPS, and expanded for clarity (see Table 2.2 below). In order to address recently highlighted concerns on the effects that human activities have had on the world's ecosystems, and on the public benefits that ecosystems provide, we have included an additional sustainability topic as part of our ecosystems approach to this SEA.

Table 2.2: Sustainability topics

Sustainability topic	Sub-Topics	Relevant topic in SEA Directive
Ecology and Nature Conservation	<p>Internationally and nationally designated sites (including those in the marine environment)</p> <p>Locally designated sites and priority habitats</p> <p>Protected and priority species</p> <p>Biodiversity outside designations</p> <p>Ecological networks and connectivity</p>	<p>Biodiversity</p> <p>Flora and fauna</p>
Socio-Economics	<p>Accessibility to education, employment, housing and community facilities/services</p> <p>Deprivation, inequality and exclusion</p> <p>Crime and road safety</p> <p>Population size, density and structure</p>	Population
Health and Quality of Life	<p>Health and wellbeing</p> <p>Walking, cycling and access to greenspace</p> <p>Accessibility to education, employment, housing, community facilities/services and greenspace</p> <p>Deprivation, inequality and exclusion</p> <p>Crime and road safety</p> <p>Population size, density and structure</p> <p>Noise and vibration</p>	<p>Human health</p> <p>Population</p>
Soil and Land Use	<p>Soil and agricultural land quality</p> <p>Provision of land-based goods and services</p> <p>Previously developed and contaminated land</p> <p>Carbon storage and water attenuation</p> <p>Geology (including designated sites)</p>	Soil
Water	<p>Water resources and availability</p> <p>Water quality</p> <p>Flood risk</p>	Water
Air Quality	<p>Air pollution (both national and local levels)</p> <p>Travel and transport</p>	Air
Climate Change	<p>Energy conservation and efficiency</p> <p>Renewable energy</p> <p>Sustainable transport</p> <p>Adaptation to relevant climate change risks and opportunities, such as flooding and global warming</p>	Climatic factors
Material Assets	<p>Natural resources including minerals</p> <p>Material recovery, re-use and recycling</p> <p>Waste generation and disposal</p>	Material assets

Cultural Heritage	Designated and non-designated built heritage Archaeological assets Quality and character of townscape / villagescape	Cultural heritage (including architectural and archaeological heritage)
Landscape	Quality and character of landscape, seascape and coastal areas Designated and other important sites (including greenspace) Visual aesthetics Light pollution	Landscape
Green Infrastructure and Ecosystem Services	Connectivity and multifunctionality of green and blue spaces including ecological networks Provisioning services that GI provides, e.g. food, fuel and freshwater Regulating services that GI provides, e.g. control of natural processes such as soil, air and water quality and climate regulation Cultural services that GI provides, e.g. recreational, educational and ethical benefits Supporting services that GI provides e.g. habitat and natural cycles	The inter-relationship between these

2.4. Spatial and Temporal Scope

2.4.1. The spatial scope for the assessment is all of NI. As required by the SEA Directive the assessment will also take into account trans-boundary impacts where it is identified that actions taken under the SPPS have the potential to impact on the topic areas identified in other states, particularly the Republic of Ireland. Consideration of trans-boundary impacts is likely to be particularly relevant with some of the environmental topics that transcend national boundaries, for example ecology, climate, air, water and landscape.

2.4.2. The SPPS is proposed to be finalised in time for the transfer of planning functions to local councils on 1st April 2015. It will be updated as and when is deemed necessary; as such there is no specific temporal scope. With certain aspects of the environment such as climate, ecology and landscape, any positive or negative impacts associated with the SPPS may take effect over a time period of many

decades. For this reason, a longer term view will be taken on potential impacts where appropriate.

2.5. Other Plans, Programmes and Conservation Objectives

2.5.1. Assessing the relationship of the SPPS with the existing international, European and national framework of plans and programmes and identifying gaps and conflicts is a key part of the SEA process. This includes the consideration of statutory and non-statutory environmental protection objectives.

2.5.2. The plans and programmes that have been considered are listed in full in Appendix A. The review comprises a short description of the plan or programme, an outline of what its scope and objectives are, how it relates to the SPPS, and whether it is likely to have in-combination effects.

2.5.3. In many cases, the SPPS is expected either to support the other plans and programmes through similar objectives or to have no relationship with them. Other plans and programmes with environmental protection objectives that the SPPS could support will be considered further at the next stage of the process.

2.5.4. Plans and programmes which may have negative in-combination effects with the SPPS, also to be assessed further at the next stage of the process, are thought to be:

Northern Ireland

- DARD (2012) Rural White Paper Action Plan;
- DARD (2012) Strategic Plan 2012-2020;
- DARD (2010) Renewable Energy Action Plan;
- DCAL (2009) The Northern Ireland Strategy for Sport & Physical Recreation 2009 – 2019;
- DETI (2012) Offshore Renewable Energy Strategic Action Plan 2012-2020;
- DETI (2012) Sustainable Energy Action Plan 2012-2015;

- DETI (2010) Energy: A Strategic Framework for Northern Ireland;
- DETI (2010) Northern Ireland Tourism Strategy;
- DOE (2012) Draft Northern Ireland Marine Position Paper (for the Marine Plan);
- DOE (2006) An Integrated Coastal Zone Management Strategy for Northern Ireland 2006 – 2026;
- DRD (2012) Ensuring a Sustainable Transport Future: A New Approach to Regional Transportation;
- DRD (2010) Regional Development Strategy 2035;
- DSD (2013) Urban Regeneration and Community Development Policy Framework;
- DSD (2012) Facing the Future: Housing Strategy for Northern Ireland;
- Northern Ireland Executive (2012) Economy and Jobs Initiative;
- Northern Ireland Executive (2012) Northern Ireland Economic Strategy;
- Northern Ireland Executive (2011) Programme for Government 2011-15;
- Northern Ireland Executive (2008) Investment Strategy for Northern Ireland 2008-2018;
- Northern Ireland Executive (2010) Sustainable Development Strategy;

Republic of Ireland

- Border Regional Authority (2010) Regional Planning Guidelines 2010-2022;
- DCENR (2012) Strategy for Renewable Energy: 2012-2020;
- DCENR (2010) Draft Offshore Renewable Energy Development Plan (OREDPA) for Ireland;

UK

- HMSO (2005) Sustainable Development Strategy;

Europe

- EC (2013) Action Plan for a Maritime Strategy in the Atlantic Area;
and
- EC (2010) Europe 2020 Economic Strategy.

3. BASELINE DATA

3.1.1. Schedule 2 of the NI SEA Regulations specifies that the Environmental Report must contain the following information in respect of baseline conditions:

“2. The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.

3. The environmental characteristics of areas likely to be significantly affected.

4. Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive.”

3.1.2. A description of the current state of the environment in NI, in respect of each of the sustainability topics is provided below. Where appropriate, Geographic Information Systems (GIS) have been used to assist with analysis of this data; maps have been produced to display relevant spatial information and can be seen in Appendix B.

3.1.3. Analysis of baseline information has been carried out to provide an evidence base for current and likely future environmental conditions without the SPPS. Key environmental and sustainability issues for NI have also been identified.

3.1.4. Information for this section has been obtained from the DOE, Northern Ireland Environment Agency (NIEA) and Northern Ireland Statistics and Research Agency (NISRA) websites. Information has also been drawn from Strengths, Weaknesses, Opportunities and Threats (SWOT) analyses carried out by the Department for Agriculture and Rural Development (DARD) and the Special EU Programmes Body (SEUPB) for various 2014-2020 EU funded programmes for NI.

3.2. Ecology and Nature Conservation

- 3.2.1. NI has a large area of land of international nature conservation value, including 17 Special Protection Areas (SPAs) designated under the EC Birds Directive (9 of which are designated for marine components); 57 Special Areas of Conservation (SACs) designated under the EC Habitats Directive (9 of which with marine components); and 21 Ramsar sites designated under the Convention on Wetlands (7 with marine components). SPAs and SACs are known collectively as Natura 2000 sites. A map showing international nature conservation designations across NI can be seen in Appendix B.
- 3.2.2. A proportion of Natura 2000 sites are in poor condition, however, whilst only 6% have management plans. NI hosts 52 habitat types of Annex I and 19 species on Annex II under the Habitats Directive; the UK as a whole hosts 81 habitat types and 44 species. NI has designated SPAs for 27 Annex I and other regularly occurring migratory species under the Birds Directive. NI has 25 species which are included as SPA Assemblage features.
- 3.2.3. As of March 2013, NI has 360 Areas of Special Scientific Interest (ASSIs), defined as being NI's very best wildlife and geological sites. 31% of ASSI habitat features are in unfavourable condition, compared to 66% in favourable condition. 22% of ASSI species are in unfavourable condition with 78% in favourable condition. NI also has eight National Nature Reserves and one Marine Nature Reserve (Strangford Lough). A map showing national nature conservation designations across NI can be seen in Appendix B.
- 3.2.4. The Northern Ireland Biodiversity Action Plan (NI BAP), in addition to implementing UK-wide biodiversity priorities in NI, identifies habitats and species that are of particular importance in the NI context. NI has a special responsibility as it is at the western edge of the range of European habitats and species. Such habitats include lowland raised bog, blanket bog, montane heath and fen. Species identified as being particularly important in NI include the Irish Hare (*Lepus timidus*

hibernicus), Chough (*Pyrrhocorax pyrrhocorax*), Curlew (*Numenius arquata*) and Red Squirrel (*Sciurus vulgaris*). In 2008, 31% of priority BAP habitats were classed as declining, whereas 11% were stable and 11% were improving. However, for 20% the situation was unknown. For priority BAP species in 2008, 8% were classed as declining, 14% as stable and just 1% as improving; for the majority of species (63%) no information on trends was available.

3.2.5. The increased movement of biological materials around the world for trade is leading to introduction of new pests and diseases such as *Phytophthora spp*, whilst invasive species are affecting rural land across NI, for example willow coppice used for biomass. The 2013 study by Kelly et al. has estimated the annual cost of invasive species to the NI economy to be £46.5 million.

3.2.6. NI comprises a wide range of habitats such as woodland, bog and grasslands, which are important for biodiversity and ecosystem services. The UK Land Cover Map 2007 (published in 2011 by NERC/CEH) reveals the proportion of land cover in each of nine aggregate habitat classes for NI as follows:

- 3.8% broadleaved, mixed and yew woodland (5.6% UK average);
- 4.6% coniferous woodland (6.1% UK average);
- 6.1% arable and horticulture (25.5% UK average);
- 49.8% improved grassland (25.3% UK average);
- 13.8% semi-natural grassland (13.3% UK average);
- 12.3% mountain, heath and bog (15.5% UK average);
- 4.4% freshwater (1.3% UK average);
- 4.5% built-up and gardens (5.9% UK average); and
- 0.6% coastal (1.5% UK average).

3.2.7. A more detailed breakdown of habitat classes from the UK Land Cover Map 2007 is shown spatially at a 1km resolution in Appendix B.

3.2.8. Upland blanket bogs and lowland raised bogs are well represented in NI. However, 90% of lowland raised bogs have been lost or altered due to peat extraction, forestry and drainage. Recent extents of bog have

changed little, compared with past decreases, mainly as a result of habitat conservation measures and the favourable economics of oil fuel prices between 1988 and 2007, compared with peat cutting costs. Many upland blanket bogs and lowland raised bogs are designated ASSI or given other protected status. Although most blanket bog has been physically modified, the majority is still capable of forming peat. NI has a large proportion of the UK and EU blanket peat resource.

3.2.9. Since 1986, the University of Ulster has assessed changes in the type and extent of habitats with a field-based ecological research programme: the Northern Ireland Countryside Survey (NICS). The rate of semi-natural habitat loss has continued between 1998 and 2007, though the rate of loss is lower compared to the pre 1998 rate. Agricultural conversion and rural building have continued to be the main processes resulting in habitat loss. A large increase in the area of rural building was almost twice that in 2007 compared to 1998. Building was mainly over productive agricultural grassland, though a relatively small area but wide range of semi-natural habitats was also built over, in particular broadleaf woodland and species-rich grassland.

3.2.10. No data is yet available for the rate of habitat loss since 2007; however, it is likely to have slowed again due to the global recession. Socio-economic analysis carried out by DARD revealed that the majority of sectors in NI have experienced falls in output because of the recession, with the construction sector particularly affected (output has fallen by 30% since the start of 2008 and by 37% since its peak at the beginning of 2007). The UK National Ecosystem Assessment (NEA) has revealed a much lower level of development across NI in 2009/10 in response to economic pressures, but stated there is still substantial pressure for housing in rural areas, including many extant planning permissions. Between 2007/8 and 2009/10 residential planning applications in NI fell from 19,273 to 14,246 (a 26% decline), whilst agricultural planning applications rose from 178 in 2007/8 to 335 in 2008/9 before falling to 213 in 2009/10.

- 3.2.11. Scrub/woodland succession in open habitats has been greater than pre-1998. Succession was associated with species-rich grasslands, agricultural grasslands with management constraints, fragmented heath and bog edge vegetation. A trend to a smaller area of arable crops has continued and a trend to more broadleaf tree planting on agricultural grassland has been recorded. Widespread damage to bogs from peat cutting no longer occurs.
- 3.2.12. Conversion rates of neutral grassland to improved agricultural grassland were high, but smaller than in 1998. Conservation initiatives, a small area of semi-natural habitat remaining in lowland landscapes and physical constraints to habitat conversion are likely reasons for this. A decrease in area of species-rich dry grassland, driven by scrub/woodland succession and conversion to more productive, less species-diverse agricultural grassland, continued a trend from 1998. Conversion of bent-fescue grassland and poor fen to agricultural grassland indicates that agriculture is a key driver of semi-natural habitat loss in the marginal uplands. In 2012 over 40% of agricultural land within NI was under agri-environment agreement. According to research by DARD, there is evidence that farmers are reluctant to join agri-environment schemes due to potential penalties incurred for non compliance.
- 3.2.13. NI has, at 8%, the lowest forest cover of any of the UK regions. Although there has been an overall decline in new planting, there has been a private sector forest expansion of 26% since 1995, largely as a consequence of the Woodland Grant and Farm Woodland Premium Schemes, and much of this has been in broadleaved tree species. In 2004-5, 93% of new plantings fitted this type. Woodland habitats and species are more vulnerable to climate change because of the highly fragmented nature of many semi-natural woodlands. NI has the highest density of hedgerows in the UK (though they are generally newer, having been planted between 1750 and 1850).
- 3.2.14. Nitrogen deposition (mainly a result of ammonia emissions from agriculture) is a significant issue for sensitive habitats in NI as

background levels are already higher than the critical loads for some habitats. More than 80% of ammonia emissions come from agricultural sources. The emissions from agriculture could increase further due to an increase in on-farm Anaerobic Digesters (AD) or other farm diversification schemes.

3.2.15. As revealed in the recent UK NEA, NI is notable within the UK for its large area of freshwater habitats, their flow dynamics, their nutrient characteristics and their biodiversity, including internationally important bird populations. Open waters and wetlands cover approximately 7% of NI; there are three large lakes of particular importance for recreation and tourism, but they are eutrophic. Lowland raised bogs and other wetland habitats have decreased over the past 10 years. Arterial drainage works carried out until the 1990s resulted in NI having the highest percentage of modified rivers in the UK, with accompanying impacts on biodiversity. More recently, priority has been given to restoring riverine habitats and recognising their role in flood prevention.

3.2.16. Defra's 2010 assessment of the UK's seas revealed that the following elements of NI's marine environment are experiencing many problems and/or a trend of deterioration: intertidal rock; intertidal, shallow subtidal and shelf subtidal sediments; commercial fish stocks; estuarine fish; and seabirds (Atlantic area only). A recent DOE study conducted in coastal waters at Rathlin, Skerries and Strangford Lough shows that rising sea temperatures are having a significant effect on bottom dwelling marine life, including contraction and disappearance of some species and expansion and arrival of others.

3.2.17. The NI Biodiversity Strategy published in 2002 identified 15 major issues affecting biodiversity in the country, relating to agriculture, coastal/ marine, freshwater, construction/ development, tourism/ recreation, peatland management and introduced species/ genetic material. A progress report published in 2009 revealed that, whilst some measures have been fairly successful (e.g. safeguarding and restoring priority habitats), other measures have been hampered by

problems including lack of resources, motivation, leadership and overcoming inertia, whilst there are also many areas where work has been minimal or not taken place at all. Furthermore, because it is over a decade old, the Strategy does not reflect the major concerns relating to climate change, rapid changes in the quality of the countryside, the increased awareness of the value of ecosystem services, nor the wide range of interdependencies within the environment. As a result, a new Biodiversity Strategy is currently being drafted as is due for publication in late 2013/ early 2014.

3.3. Socio-Economics

3.3.1. The population of NI was estimated to be just over 1.8 million in the 2011 Census. It has been steadily increasing to its present level. In the 2030's populations are expected to peak at 1.86 million before gradually falling. Rural areas, which make up the majority of NI, exhibit a strong sense of community and local identity with a strong and well developed community infrastructure. The rural economy is based primarily on the SME sector with a variety of strong indigenous businesses. Access to local rural transport services can be limited in terms of routes and frequency; rural transport provision is often uncoordinated.

3.3.2. In NI in 2010/2011 there were 355,000 people in relative poverty and 232,000 in absolute poverty, which equates to 20% and 13% of the population respectively. West Belfast has the second highest level of child poverty in the UK. Between 2009/10 and 2010/11 the proportion of working age adults in relative poverty decreased by one percentage point to 19%, equivalent to 199,000 people. Absolute poverty for working age adults increased by one percentage point to 13% over the same period, equivalent to 136,000 people. The largest composition of working age adult poverty is in workless households (47%), followed by households in which only one adult is working (36%). In households where all adults are working, poverty is at 16%.

3.3.3. NI remains one of the most deprived regions of the UK as a combined result of having a young population, low labour market participation rates, a high rate of economic inactivity, a larger share of employment in sectors of low productivity and below average wages. The Northern Ireland Multiple Deprivation Measure (NIMDM) of 2010 is made up from 52 indicators mostly relating to the period 2007-2009. The indicators are grouped into seven types or 'domains' of deprivation weighted as follows:

- Income Deprivation 25%;
- Employment Deprivation 25%;
- Health Deprivation and Disability 15%;
- Education, Skills and Training Deprivation 15%;
- Proximity to Services 10%;
- Living Environment 5%; and
- Crime and Disorder 5%.

3.3.4. Deprivation in NI varies geographically with a tendency for more deprived areas to the west, north and south and in Belfast. Areas around Belfast appear to experience lower levels of deprivation. The NIMDM is particularly revealing in that it shows the vast majority of the country (outside of urban areas such as Belfast) being extremely deprived in terms of proximity to services. A map showing overall deprivation across NI can be seen in Appendix B.

3.3.5. The employment rate in NI over the period July – September 2012 was at 67.4%, lower than the UK average of 70.6%. The service sectors are the main source of employment. A particular historic challenge facing the NI labour market is its high level of working age population classed as economically inactive. Over the past 20 years, the inactivity rate has varied between 27% and 33%. NI continues to have the highest inactivity rate of all UK regions and is above the UK average of 22.6%.

3.3.6. As a result of the worldwide economic downturn, unemployment has been increasing in NI. Over the period July-September 2012, the unemployment rate in NI stood at 7.6%. This was on a par with the UK

average. NI has a much larger share of persons in long term unemployment (44.3%) in comparison with the UK average (33.5%), though it is lower than in Ireland (59.4%).

3.3.7. Over the period February 2008 to August 2012, the number of unemployment benefit claimants in NI increased from 23,600 to 63,100 (equivalent to an increase of 167%). The current claimant count is approximately half that of the peak recorded in 1986, however. From January 2008 to August 2012, the number of persons in NI claiming Job Seekers Allowance for more than one year increased from 4,520 to 16,030 (255%). Of all claimants in August 2012, 25% were long term claimants. This is just below the UK average of 27%.

3.3.8. Education attainments in NI are rising. The number of people of working age with high level skills (degree level and HE) increased from 17% in 1996 to 29% in 2012. However, 18% of people of working age still have no formal level of education. This is twice that of the UK average and the highest of all UK regions. The number of school leavers with no qualifications fell from 3.6% in 2006/07 to 2.2% in 2010/11. The number of school leavers gaining at least five GCSEs at grades A* - C or equivalent including English and Mathematics has increased to 59.5% in 2010/22 from 56.3% in 2007/08.

3.3.9. According to Census 2011 results, 48.4% of the NI population is Protestant compared with 45.5% who are Catholic. Some districts are predominantly Catholic, such as Newry and Mourne (79.4%), Derry/Londonderry (74.8%) and Omagh (70.3%). Districts such Carrickfergus, Ards and North Down are predominantly Protestant. The remainder of NI has a far greater mix, with 8 of the 26 district councils having a Catholic affiliation of between 40 and 60%. Districts with the greatest community mix include Belfast, Armagh, Craigavon, Fermanagh and Antrim. However, the Programme area remains a largely segregated space based on religion/ belief.

3.4. Health and Quality of Life

- 3.4.1. The health of a population can have significant impacts upon the ability of that population to develop socially and economically. The health of different populations varies in response to policy decisions and life styles.
- 3.4.2. NI's health services compare favourably to other parts of the United Kingdom. For example in 2001 staffing levels for Hospital and Community Health Services direct care staff per head of population in NI was 13.14. This is below Scotland at 15.35 direct care staff per head of population, but higher than England (10.94) and Wales (12.42). In 2001-02 there were 8,419 hospital beds in NI, representing an average of 5 per thousand inhabitants; a ratio that has been relatively constant over the years.
- 3.4.3. In 2009, the total number of deaths in NI from all causes was 14,000. According to the recent UK Climate Change Risk Assessment, there could be a reduction in cold-related deaths per year of between 160 and 240 by the 2050s, rising to between 240 and 360 by the 2080s (based on current population figures). However there could also be an increase in heat-related deaths per year of around 30 by the 2050s, rising to around 60 by the 2080s.
- 3.4.4. Obesity continues to be one of the most important public health challenges facing NI. Until the Fit Futures campaign in 2006, the proportion of adults classed as overweight or obese had been rising steadily year-on-year, though this seems to have now levelled off, at 61% in 2012. Obese adults made up 24% of the NI population in 2010; though this is lower than the UK average, it is significantly higher than the average for Europe. Obesity in children has also remained constant in recent years, at 5% for 5 year olds in 2010; 16% are classed as overweight or obese. Epidemiological research has indicated that being obese can increase the risk of a range of health conditions from heart disease to depression, and can reduce life expectancy by up to nine years.

3.5. Soil and Land Use

- 3.5.1. Land is a limited resource with competition for use for agriculture, housing, forestry and other uses. The value and use of the land will generally depend on its quality. This section examines soil quality, the role of agri-environment schemes, forest and woodland plantings, and housing completions on greenfield and brownfield land.
- 3.5.2. The NI government, Crown Estate and charities own considerable areas of land, much of it managed for conservation purposes. Most land, however, is owned by private landowners, primarily farmers. Land management is strongly influenced by government and EU policies and financial measures to support these objectives (specifically CAP measures).
- 3.5.3. NI has significant natural resources such as carbon rich soils (including substantial peatland) and high quality grassland cover available to capture carbon. Furthermore, there is good availability of land bank for biomass feedstock for potential use in renewable energy technologies.
- 3.5.4. Soil is important in NI for the role it plays both in supporting agriculture and in forming important natural habitats. Degradation of the soil resource threatens both these interests. Soil quality in NI has improved slightly in recent years. In 2010/11, there were fewer soils that were either under or over-enriched with phosphorus compared to 2005/06.
- 3.5.5. Agricultural land quality is typically classified through a six grade system; the top three grades, Grade 1, 2 and 3a, are referred to as the 'best and most versatile' land. The Agri-Food and Biosciences Institute (AFBI) revealed NI in 2007 to be made up of 0% Grade 1, 7.1% Grade 2, 23.9% Grade 3a, 26.1% Grade 3b, 30.6% Grade 4, and 7.8% Grade 5 (which includes urban land); the remaining 4.6% of NI is water.
- 3.5.6. Peatland covers 12% of the land area of NI. It is an important environmental resource in terms of distinctive upland and lowland landscapes, conserving biodiversity, and affecting river catchment hydrology. There is limited information on the current status of peatland

in NI, however, particularly with regards to soil structure, pH and nutrient profiles.

3.5.7. Upland blanket bogs and lowland raised bogs are well represented in NI, however 90% of lowland raised bogs have been lost or altered due to peat extraction, forestry and drainage (which also affect upland bogs). Nutrient enrichment is also evident and the quality of habitats has been affected. Many are designated ASSI or given other protected status.

3.5.8. Agri-environment schemes encourage farmers and landowners to manage their land to benefit the environment (specifically to enhance biodiversity, improve water quality, enhance the landscape and heritage features, and help reduce the impact of climate change) by integrating sustainable environmental management into the everyday workings of the farm. In return for this, farmers and landowners receive a payment, based on the area of habitat and archaeological features present on the farm, and the area/length of habitat enhancement options carried out.

3.5.9. At the end of 2011, 444,000 hectares of land in NI were under agri-environment scheme agreement, managed through the Northern Ireland Countryside Management Scheme (NICMS), the Environmentally Sensitive Areas Scheme (ESAS) and the Organic Farming Scheme (OFS). This represents approximately 41% of the total farmed land, down from 43% in 2010. The quantity of land in agri-environment schemes has remained fairly constant since 2006, and has more than doubled since 2001 (attributable to the growth in NICMS applications).

3.5.10. Agri-Food is one of NI's largest and most successful industries, growing despite a difficult economic climate, with exports in particular increasing. The UK NEA revealed that gross output of NI's primary agriculture was estimated at £1.3 billion for 2009.

3.5.11. There is a lack of agricultural activity on land currently classified as less favoured which increases the risk of land abandonment as it is

not economically viable for landowners to farm these areas without substantial funding. There is also a noted absence of nutrient management plans on livestock farms which has likely contributed to the eutrophication of nearby watercourses. According to SWOT analysis by DARD, abandonment of upland farms due to an aging farming demographic is occurring, resulting in landscape dereliction and loss of habitat quality for those habitats that are dependent on farming.

3.5.12. Forests and woodlands provide important habitats, natural resources and diversity to landscapes. NI has the lowest level of tree cover (8%) of any UK regional territory or European member state. Over 70% of NI's woodlands and semi-natural forests are owned and managed by the Forest Service; the remainder is managed mostly by private landowners. Much of the woodland lacks active management, however, is fragmented and not easily accessible by the public due to distance from residential areas.

3.5.13. In 2011, there were 313 hectares of new plantings. Of these, 100% were planted by the private sector supported by grant aid from the Forest Service. However, there has been an overall decline in new woodland creation due to: a lack of tradition of integrating farming and forestry; forestry commits land for too long in farm planning; a lack of substantial financial returns for 20-40 years; many farms are too small to take land out of agriculture; wood markets are not well developed for small producers; and forestry offers lower levels of subsidy compared with other grant schemes. The current low levels of afforestation present a limited opportunity for carbon offsetting.

3.5.14. NI is, for its size, one of the most geologically diverse regions in the world. Geological sites have historical, educational, recreational and landscape value. Notable sites in NI include caves at Marble Arch, white cliffs at Antrim, Giant's Causeway, Slieve Gullion and the mountains of Mourne. Rocks and landforms have a major influence in determining the biodiversity of regions and more directly the physical character of the landscape. Potential threats to geological sites include

landfill, coastal defence work and changes to natural systems (including human-induced changes).

3.5.15. Housing completions and the land available for housing in settlements across NI are monitored with regard to the provisions of prevailing development plans. The number of housing completions decreased by 53% between 2009/10 and 2010/11, from 5,095 to 2,374, which reflects the current economic climate and downturn in the construction industry.

3.5.16. The brownfield–greenfield split shows that the highest levels of brownfield development are found within Belfast and adjoining local authorities. In addition, other local authorities, outside of the Belfast Metropolitan Area, namely Craigavon, Derry and Strabane (in the north-west), the Antrim-Ballymena local authorities and Newry (in the south), have significant levels of brownfield development. This distribution is in line with expectations, namely high levels of brownfield development in the major urban areas of NI associated with local regeneration initiatives. Elsewhere, in the more rural parts of the province, the pattern is reversed, with greenfield development prevailing.

3.5.17. NI, like other parts of the UK, has a legacy of land affected by contamination, often arising from its past industrial use (e.g. shipbuilding, textiles, petrol stations, etc.) but also from natural or diffuse sources. It is not known how much land is contaminated, although DOE records estimate that there are over 11,000 sites across NI that have had some form of previous industrial use.

3.6. Water

3.6.1. Water, including rivers, lakes, estuaries, seas and groundwater is an essential natural resource and plays a vital role in maintaining biodiversity, human health and wellbeing, as well as economic development. This section reports on the quality of inland waters in NI, as well as the state of the marine environment.

3.6.2. River monitoring in NI is carried out routinely by NIEA against Water Framework Directive (WFD) standards. Overall classification utilises a combination of biological, chemical and hydromorphological quality elements including macroinvertebrates, pH (measure of acidity or alkalinity of a solution) and ammonia to assign status of river quality in one of five classes; high, good, moderate, poor or bad.

3.6.3. The default objective for all waters under the WFD should be good status by 2015; however, this depends upon the starting point:

- Where a waterbody is at moderate status in 2008 the objective for 2015 is good status.
- Where a waterbody is at poor status in 2008 the objective for 2015 is moderate status and the objective for 2021 is good status.
- Where a water body is at bad status in 2008, the objective for 2015 is moderate status, the objective for 2021 is moderate or good status and the objective for 2027 is good status.

3.6.4. A map showing the water quality of rivers across NI can be seen in Appendix B. In 2011, just 23% of river waterbodies were classified as 'high' or 'good', down from 25% in 2009. To meet the WFD requirement, 72.3% of NI's river waterbodies will need to have reached at least good status by 2015. Of the three main river basins in NI – Neagh Bann, North West and North East – water quality is noticeably better in the North West. This can be seen in the Table below (2008 data).

Table 3.1: River waterbody status in NI (Source: NIEA)

River Basin District	High	Good	Moderate	Poor	Bad
North West	1.0%	47.4%	34.9%	11.5%	2.1%
Neagh Bann	0.0%	24.5%	46.2%	16.5%	5.2%
North East	0.0%	9.0%	46.8%	22.5%	7.2%
Overall Status for NI	0.4%	29.3%	42.6%	15.8%	4.5%

- 3.6.5. In terms of chemical water quality, the Freshwater Fish Directive requires the designation of waters needing protection or improvement in order to support fish life. They are divided into two categories: 4,154km of NI's rivers are suitable for salmonids (salmon & trout) and 126km are suitable for cyprinids (coarse fish). The level of compliance for rivers designated under the Directive has remained fairly constant between 2004 and 2011 for salmonid rivers (at around 90%), but has deteriorated for cyprinid rivers. The standards set by the Directive were not met by 36.7% of cyprinid river length in 2011 compared to the 15.1% of river length failure recorded in 2004.
- 3.6.6. Lakes are a significant source of drinking water supplies. Lough Neagh and Upper and Lower Lough Erne make up over 90% of the total area of lakes greater than 50 hectares in NI. There are 21 lakes currently monitored in NI, of which only 5 achieved a 'good' standard in 2011.
- 3.6.7. Groundwater is currently of a high quality, with 65 of NI's 67 groundwater bodies at good status following WFD quantitative and qualitative classification. The Groundwater Daughter Directive sets the groundwater quality standard for nitrate at 50 mg NO₃/l. Of all groundwater sites that were monitored for nitrate in 2011, 96% had an annual mean concentration of less than 40 mg NO₃/l, up from 91% in 2006.
- 3.6.8. Bathing water quality is measured against mandatory and guideline standards. In 2012, 22 of the 23 beaches monitored in NI met the EC Bathing Water Directive mandatory standards. Overall status of marine water bodies is also measured, and this accounts for both the ecological and chemical status of each water body. Almost 90% of marine water bodies around NI's shores are classified as high or good, with the remaining waterbody areas being classified as moderate. Monitoring of shellfish waters also occurs, with all ten designated shellfish waters meeting the mandatory standards. There were no exceedences of the dangerous substances standards in shellfish waters in 2011.

- 3.6.9. Under the Nitrates Directive, NIEA must monitor surface waters for nitrate pollution against a mandatory standard of 50 mg NO₃/l. In addition a guide standard for surface waters is operational where 90% of samples should be less than 25 mg NO₃/l. For rivers, 99.7% in 2011 had annual mean concentrations of less than 25 mg NO₃/l.
- 3.6.10. Effluent discharges to the water environment can affect its quality and come from many different sources such as commercial and industrial premises, wastewater and water treatment works and private dwellings. These discharges are controlled by the DOE through the granting of consents and permits under the Water (NI) Order 1999 and the Pollution Prevention and Control Regulations (NI) 2003. Industrial discharge quality has improved in recent years with compliance rates in 2011 of 78% and 91% for private sewage and trade effluent respectively. Compliance of Waste Water Treatment Works against the numeric conditions of their Water Order consent is a key performance indicator for the water utility sector and has continued to improve since 2007 having reached 93% in 2011. Drinking water quality remains at the highest level of compliance since 2004, at 99.8%.
- 3.6.11. Water pollution incidents are investigated by NIEA. In 2011, 2,123 incidents were reported to NIEA, of which 1,303 were substantiated as having an impact on the water quality of the receiving waterway. Of these 19% were considered to be of high or medium severity. There is an interrelated impact between water quality and ecology, particularly where pollution incidents cause eutrophication, which then impacts on aquatic and riparian habitats and species.
- 3.6.12. In terms of water resources, the recent UK Climate Change Risk Assessment has predicted that there will be a decrease in the volume of water available for public supply in NI over the medium term. From the present day baseline of 758Ml/day, public water supplies are expected to decrease around 10% by the 2050s.
- 3.6.13. Key legislation around water in NI that the SPPS will need to take into account is:

- The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003 (SR 2003/544) as amended;
- Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006 (SR 2006/482) as amended;
- Groundwater Regulations (Northern Ireland) (SR 2009/254) as amended; and
- The Water (Northern Ireland) Order 1999 (SI 1999/662) as amended.

3.7. Air Quality

3.7.1. Air quality monitoring in NI shows that standards for key pollutants, carbon monoxide (CO), benzene, sulphur dioxide (SO₂), metallic pollutants (lead, arsenic, cadmium and nickel), ozone, and particulate matter (PM₁₀ and PM_{2.5}), were met at the key automatic monitoring sites in 2011. Three sites failed to meet standards for nitrogen dioxide (NO₂) for the annual mean, however, and one site breached the permitted number of exceedances of the 24 hour mean standard for PM₁₀. In addition, at the three monitoring sites where polycyclic aromatic hydrocarbons (PAH) were monitored, objectives were not met. These elevated PAH levels were predominantly due to the domestic burning of bituminous (smoky) coal, where natural gas is unavailable.

3.7.2. All 26 districts in NI have completed overall assessments of air quality to identify areas that are likely to exceed Air Quality Objectives. Twelve districts have declared Air Quality Management Areas (AQMAs), with a total of 24 AQMAs between them. Of these, one has declared PM₁₀ alone, nine have declared for NO₂ only, one has declared separate AQMAs for both NO₂ and PM₁₀, and one has AQMAs for NO₂ and PM₁₀ together. The pollutant source in all but three of the AQMAs (Strabane District Council) is road traffic, with the remaining source being domestic emissions. The two AQMAs in Ballymena designated for PM₁₀ are also attributed to domestic emissions.

- 3.7.3. Access to public transport services in rural areas is poor, leading to a high dependency on cars.
- 3.7.4. Ammonia emissions from agriculture have reduced slightly (by 6%) between 2001 and 2011. Air pollution emissions from agricultural activities (in particular, ammonia from manure handling/storage and spreading) represent a significant pressure on sensitive habitats/ASSIs/SACs in NI due to eutrophication effects.
- 3.7.5. NI's air quality has seen a marked improvement in recent decades. Sulphur dioxide has decreased substantially due to the wider availability of natural gas which has led a reduction of coal and oil used for domestic heating. Concentrations of PM10 have generally decreased over the period 1993 to 2011. A peak is seen in both urban and background concentrations likely due to the periods of cold weather in 2010. There is a lack of a downward trend in the most widely exceeded pollutant, NO₂, which has remained generally level since the late nineties. This has been attributed to the increase in proportion of diesel cars in the market and retrofitting of pollution control devices to vehicles, as well as an increase in hemispheric background concentrations of ozone. In general, ozone has no clear upward or downward trend over the last 15 years. Ozone is formed from other pollutants by chemical reactions in the presence of sunlight and is therefore dependent on meteorological conditions.

3.8. Climate Change

- 3.8.1. NI's current climate is characterised by relatively mild winters, cool summers and periods of more extreme weather. During the 21st Century NI is projected to experience increasing average temperatures throughout the year, an increase in average rainfall in winter, a decrease in average rainfall in summer and rising sea levels (UK Climate Projections 2009, UKCP09).
- 3.8.2. Mean annual maximum and minimum temperatures have been rising since the end of the 19th Century. Mean minimum temperatures in particular reaching their highest recorded levels in the 1990s. The

number of hot days (mean daily temperature above 18°C) has been at high levels from 1980-2002. Such changes in temperature extremes have implications for agriculture and health. Rainfall is also important for agriculture. There is some evidence of an upward trend in mean annual rainfall, with less rain falling in summer months. The 1970s had lower levels of rainfall but there is no strong trend in recent years. Growing seasons fluctuate and since the 1980s, there has been a tendency for a longer growing season.

3.8.3. NI is already seeing a number of changes as a result of climate change, including changes in the growing, breeding and migration seasons, shifts in species abundance and diversity and changing weather patterns with the potential for more floods and droughts. Continued reliance on fossil fuels and growing demand for energy, for transport and for housing will escalate emissions of carbon dioxide to increasingly dangerous and potentially irreversible levels.

3.8.4. The UK Climate Change Risk Assessment was published in 2012. The key findings for NI were:

- Grass and wheat yields and forestry productivity are projected to increase significantly as a result of increased temperatures, creating potentially valuable opportunities for agriculture and forestry (assuming water or nutrient availability do not act as limiting factors).
- Milder winters are projected to lead to fewer deaths and hospital admissions due to cold weather, as well as a reduction in winter energy demand.
- Hotter summers, however, may lead to a rise in heat-related deaths and hospital admissions and increased demand for air conditioning.
- Hotter summers may boost tourist numbers, while warmer temperatures in general may extend the tourist season.
- Less summer rainfall may lead to a reduction in river flows, affecting public water supplies and increasing the risk of pollution,

and a reduction in soil moisture, potentially damaging natural ecosystems and increasing the need for irrigation of some crops.

- Flooding may pose an increasing threat to people, property, critical infrastructure and important natural habitats.
- Some native animal and plant species may decline in the face of threats presented by pests, diseases and non-native invasive species.

3.8.5. Despite climate change being a devolved issue in NI, how it is tackled is influenced by EU and UK policies and legislation. The Climate Change Act 2008 is UK legislation that extends to NI. It sets a long-term framework for the UK to reduce its greenhouse gas (GHG) emissions. The Act set a statutory target to reduce emissions of GHGs in the UK by 80% against the 1990 baseline by 2050 with a minimum 34% reduction in carbon dioxide emissions to be achieved by 2020.

3.8.6. Despite there being no specific target or carbon budget for NI in the Climate Change Act 2008, it is implicit that NI contributes to the UK effort. The Programme for Government sets a target of a reduction of 35% in greenhouse gas source emissions by 2025 from the base year.

3.8.7. In May 2010 the Northern Ireland Executive approved a proposal by the Minister for the Environment to establish what was then known as the Cross-Departmental Working Group on Greenhouse Gas Emissions. This group, chaired by the Minister and made up of senior officials of all Departments, was tasked with developing a Greenhouse Gas Emissions Reduction Action Plan. The plan was published in February 2011 and a commitment was given to provide the Northern Ireland Executive at the Stormont Assembly with an annual report on progress towards the NI target of a reduction in GHG emissions of at least 35% by 2025 based on 1990 levels. The first annual progress report projected emissions reductions of only 30.2% by 2025, whilst the second annual progress report has reduced this figure again to 28.3%.

Table 3.2: Targets for reducing GHG emissions (Source: DOE)

	Target on 1990 levels	2011 Performance
NI	-35% by 2025	-17.5%
UK	- 34% by 2020 - 80% by 2050	-29%
EU27	- 20% by 2020	-17.6%

3.8.8. Comparing the source of GHG emissions in 2011 across the UK, NI has a much larger proportion of its total emissions from agriculture (28%). This is because there is less industry and energy related emission sources in NI than elsewhere in the UK, and hence agriculture emissions are comparatively more important. Table 3.3 shows how GHG emissions vary between sectors across the UK.

Table 3.3: Comparison of source of UK GHG emissions (2011)

	England	Scotland	Wales	NI
Agriculture	7.6%	16.3%	12.9%	28.0%
Energy Supply	33.0%	34.7%	35.9%	18.8%
Residential	13.2%	13.5%	8.8%	15.7%
Business	16.2%	18.0%	21.3%	11.5%
Transport	23.1%	21.5%	13.3%	21.0%

Source: Greenhouse Gas Inventories

3.8.9. Table 3.4 shows a time series of NI GHG emissions by sector for the period 1990 – 2011. Despite a small increase (3.6%) in GHG emissions during 2009-2010 due to consecutive cold winters and an increase in use of fossil fuels as a consequence, NI's total GHG emissions have reduced by 17.5% since 1990 whilst carbon dioxide emissions (which accounted for 72.1% of all GHG emissions in NI in 2011) have reduced by 17.3%. The largest contributors to GHG emissions in NI in 2011 were the agriculture (28%), transport (21%), energy supply (19%) and residential (16%) sectors.

Table 3.4: 1990-2011 NI GHG Emission Inventory (ktCO₂e)

	1990	1995	2000	2005	2008	2009	2010	2011	% of 2011
Agriculture	5848	6032	5780	5750	5323	5291	5264	5550	28.0
Business	2708	2485	2299	2447	2323	2144	2300	2283	11.5
Energy Supply	5315	6541	6341	5356	4844	3691	3950	3731	18.8
Industrial Process	761	779	682	419	400	181	173	162	0.8
Land Use Change	55	-48	-116	5	96	137	105	180	0.9
Public	461	290	151	170	213	212	213	192	1.0
Residential	4361	3609	3820	3534	3460	3404	3820	3118	15.7
Transport	3331	3565	3997	4379	4374	4241	4199	4158	21.0
Waste Management	1098	979	740	484	458	448	436	454	2.3
Total	23937	24230	23693	22544	21492	19749	20460	19827	100

Source: Greenhouse Gas Inventories

3.8.10. In 2011, the Industrial Process sector contributed 0.8% to total GHG emissions in NI. The Industrial Process sector includes cement production (86% of sector GHG emissions) and glass production (14% of sector GHG emissions). All emissions in 2011 from this sector were carbon dioxide emissions. In 2011 the sector's emissions were 79% lower than in 1990. This was partly due to the 2008-2009 downturn in cement production in NI which decreased by 58% over this period. It is also due to the closure of a nitric acid plant in 2001 and the consequent reduction in nitrous oxide emissions from the chemical industry sector.

2011 GHG emissions from cement production and glass production in NI are both lower than those reported in 2010, which is a reverse of the overall UK trend of increasing emissions from mineral processes.

3.8.11. Emissions from the transport sector tend to be large as a result of increasing population and increasing demand for transportation despite improvements in energy efficiency of vehicles. Across the UK, emissions from the transport sector have shown a small increase since 1990, however in NI the increase is notably larger - partly reflecting the growth in the NI economy during the 2000s. Total GHG emissions from the transport sector in NI have increased by 25% between the Base Year and 2011 despite improvements in efficiency of transport vehicles. This is as a result of strong growth in transport demand and increased affordability of cars. Due to the rural nature of NI and poor accessibility and frequency of public transport, there is an over reliance on cars as the most common means of transport, with associated impacts on climate.

3.8.12. NI represents a higher than average share of UK domestic emissions considering its share of UK population. The reason for this is the very limited availability of natural gas resulting in the high consumption of coal, burning oil and gas oil in the residential sector. However natural gas is becoming more widely available, including plans to extend the network to towns in the West and to East Down. NI has seen reduced emissions from the residential sector due to this substitution away from oil and towards gas. Total GHG emissions from the residential sector in NI accounted for 15.7% of NI's total GHG emissions in 2011, a decrease of 25% from the base year. 96% of all residential GHG emissions are from the release of carbon dioxide from the direct combustion of fossil fuels.

3.8.13. The high energy users / emitters of carbon and large firms in NI already have a high level of awareness of the carbon agenda. However smaller firms and those in less energy-intensive sectors (notably the service sector) are less aware of the need and/or are prepared to address emission reduction targets. UK and international

policy tends to have been targeted on larger firms. A survey undertaken by DETI found that one in ten firms overall in NI have received public sector financial support for reducing energy emissions but the equivalent figure for small businesses is just 2%. Small firms may find it more difficult to pass on cost increases, especially in the current economic climate. The payback on capital investment would have to be relatively quick for business to consider investing in low carbon solutions, particularly in SMEs and/or sectors where international competition is strong and margins are low.

- 3.8.14. Research undertaken by DETI identified that NI has a number of relatively strong growth sectors which offer significant possibilities with regard to developing low carbon technologies. Examples include: aerospace engineering; biotechnology; Information and Communication Technologies (ICT); renewable energy technologies (including tidal and wave energy); energy consultancy; waste management; recovery and recycling; clean technologies; and waste water management. Natural resources are available for renewable energy generation e.g. wind, hydro, marine, biomass and solar. There is good availability of land bank for biomass feedstock for potential use in renewable energy technologies. Climatic conditions are good for biomass production.
- 3.8.15. Peatland acts as a massive carbon store when managed to protect carbon content, whilst there is also a very high percentage of grassland cover available in NI to capture carbon. The current low levels of afforestation present a limited opportunity for carbon offsetting, however.
- 3.8.16. The climate, facilities and processing capabilities in NI are more favourable than other regions (for food production). There is a well connected research development and extension programme in renewable energies, low carbon farming and high level stakeholder engagement. There is some resistance to change - more knowledge is needed to instil confidence to invest in Renewable Energy (RE).

3.8.17. A report from DOE in 2012 highlighted the changing attitudes towards climate change and its causes in NI. In 2012, 61% of respondents believed that the main cause of climate change was a combination of human activity and natural processes; 15% felt that natural processes alone were the main cause. Only three per cent of respondents did not believe in climate change. The main concerns for people about climate change include; increased energy costs, an increase in the number of severe weather events, increased flooding, damage to natural environment and wildlife, a more polluted atmosphere, and increased food costs.

3.8.18. There is also a lack of understanding of the impacts of climate change issues at grass roots level. Some farmers have implemented resource efficiency measures and there is evidence of greater profitability, but there is a noticeable resistance to change. More knowledge is needed to instil confidence to invest in renewable energy and slurry management, particularly as the capital cost of such equipment and facilities is high.

3.9. Material Assets

3.9.1. NI has significant natural resources such as water, carbon rich soils and high quality grassland, whilst natural resources are also available for renewable energy generation e.g. wind, hydro, marine, biomass and solar. Ninety percent of raw materials are sourced from local industry, and some farmers have implemented resource efficiency measures with evidence of greater profitability.

3.9.1. NI is underlain by extensive deposits of economically valuable minerals. There are nearly 600 occurrences of economic minerals and approximately 1800 abandoned mine workings, mostly dating from the last century. The bulk of mineral commodities, which are largely natural sand, gravel and crushed rock aggregate plus rock for cement manufacture, are mostly obtained through quarrying. A regeneration plan for the closed Magheramorne Quarry in County Antrim, where limestone was extracted in the 19th and 20th centuries, is expected to

transform the site into a major recreational and leisure attraction, including 450 sustainable homes.

- 3.9.2. A variety of industrial minerals are present in NI; 500,000t of salt is produced and processed in NI before being sold to the winter road maintenance markets in the UK, Ireland and the USA. Bauxite is present in County Antrim of a composition up to 62%. Perlite (volcanic glass) used in construction materials, filtration systems and agriculture is found near Sandy Braes, Co Antrim. Significant quantities of gypsum and anhydrite are found in the Lower Carboniferous of Co Fermanagh. In 2004 there were 137 active aggregate quarries and pits extracting 25.7Mt of material such as sand and gravel, basalt and sandstone. NI also has deposits of coal, peat and lignite. The latter has the greatest potential for future production and power generation estimated at over 1 billion tonnes. Platinum group metals (used in technology) have been identified in Counties Antrim, Tyrone and Fermanagh. The shortage of base metals such as copper, lead and zinc is also increasing the prospectivity of NI for base metals.
- 3.9.3. The production and disposal of waste is becoming an increasingly important issue. Waste is produced by households, by industrial processes, by the construction and demolition industry, through commercial activities and agricultural practices and by public services and utilities. Waste can affect the environment through its visual impact or by emissions to the air, groundwater and surface water as well as the contamination of land.
- 3.9.4. In NI, the total amount of local authority collected (LAC) municipal waste arising has declined by just under 10% between 2004/05 and 2011/12. In recent years the amount of waste produced per household has been approximately 1.20 tonnes per year, which equates to around 23 kg per week. The majority of waste is sent to landfill, with just over 58% of municipal waste in 2011/12 landfilled, however the quantity of waste sent to landfill has declined each year since 2004/05. Landfilled biodegradable waste emits methane and carbon dioxide into the

atmosphere as it decomposes and leachate is produced when water becomes contaminated as it filters down through a landfill.

3.9.5. Recycling of waste is becoming much more common in NI. The Northern Ireland Waste Management Strategy (2006) set a target that 40% of household waste should be recycled or composted by 2015. In 2011/12, almost 40% of household waste was sent for recycling (including composting) and over 38% of LAC municipal waste was sent for recycling (including composting). Compostable materials were the most common LAC municipal waste material type collected for recycling or composting (43%).

3.10. Cultural Heritage

3.10.1. The built heritage of NI includes archaeological sites and monuments, historic buildings, industrial and military remains, gardens, historic landscapes, shipwrecks and other underwater features. The built environment is of considerable importance in these areas. As well as listed buildings there are also a significant number of buildings of historical and archaeological importance that do not meet the listed building criteria and are classed as 'record only'. A map showing key cultural heritage designations across NI can be seen in Appendix B.

3.10.2. The rural, largely undeveloped nature of NI has helped preserve its archaeological sites and built heritage better than in other countries. NI's centralised heritage recording system has created a unified, standardised and advanced baseline data set, in particular for industrial heritage, post-medieval/modern defence heritage, Listed Buildings and non-listed buildings of historical interest (e.g. compared to the RoI).

3.10.3. NI has a rich cultural heritage of archaeological sites, monuments and buildings (totalling more than 35,000) providing evidence of settlement, agricultural, industrial and ritual activity from 9,000 years ago to the recent past. These are either protected by law (statutory) or through the planning system (non-statutory). NI has a total of 190 single, groups or complexes of sites and monuments in

state care; representing some of the premier examples of monument types in NI, these are subject to an ongoing conservation programme.

3.10.4. In March 2012, there were a total of 1,900 scheduled monuments (a 26% increase since 2001/02), including settlements, defences, workplaces, routeways and sites for ritual and burial. Scheduled sites are managed by their owners under NIEA's Built Heritage guidance. The condition of scheduled monuments is assessed regularly, and results of a random sample inspection survey of 1,500 sites from the Sites and Monuments Record were published in 2009 by NIEA in the Condition and Management Survey of the Archaeological Resource (CAMSAR) for Northern Ireland.

3.10.5. Listed buildings are those of special architectural or historic interest, and provide an indication of the extent of this historical architectural resource. Since 2003 there has been a modest increase in the number of listed buildings with a total of 8,497 buildings recorded by the NIEA in 2011/12. However it should be noted that a significant number of buildings have also been found which no longer meet the legislative test and have therefore been removed. Listed buildings are graded as A, B+, B, B1 or B2 depending on their level of special architectural or historic interest; approximately two-thirds of listed buildings are in the lower two categories.

3.10.6. A listed building or structure is at risk when its condition and management is deemed to be poor and unsustainable, placing the building or structure under threat of deterioration and/or demolition. Those that are classified as 'at risk' in NI are recorded on the online Built Heritage at Risk in Northern Ireland (BHARNI) database. In 2011/12, there were 509 listed buildings and structures on this database, and twelve buildings had been removed.

3.10.7. Whilst there is no statutory requirement for owners of listed buildings to maintain their properties in a good condition, owners can be prosecuted for deliberately damaging or destroying listed buildings. In addition, the owners of listed buildings in a state of disrepair can be

issued with an urgent works notice which outlines the action which the DOE will take to carry out emergency works if the owner does not initiate these within seven days. In order to encourage building conservation activities, NIEA offers repair grant aid to owners of listed buildings. During 2011/12, over £4 million in funding was spent on 141 grants; 60% of this spent on the two most important grades, A and B+.

3.10.8. In terms of archaeology, the Sites and Monuments Record (NISMR) holds information on over 16,000 archaeological sites and historic monuments. These range from Mesolithic campsites, Bronze Age landscapes and Early Christian monasteries through to the defended houses of the Plantation settlers. Peatland (which covers 12% of the land area in NI) is valuable as an archival record of climatic and vegetation history and archaeological remains. There are also more than 16,000 features listed in the Industrial Heritage Record (MBR), including mills, mines, canals and railways.

3.10.9. The Northern Ireland Heritage Gardens Archive contains a comprehensive record of over 700 historic parks, gardens and demesnes (manorial estates). There are also a significant number of Conservation Areas and Areas of Townscape/Village Character identified throughout NI. Conservation areas are places of special architectural or historic interest where it is desirable to preserve and enhance the character and appearance of such areas.

3.10.10. Cultural heritage may be at risk from coastal flooding and erosion related to a changing climate. Other pressures include development, changing land use, agricultural practices, vandalism/theft, renewable energy, funding, visitors, skills, materials and maintenance. In addition, enforcement of heritage legislation and planning policy in NI is under resourced and not always carried out, whilst there is a lack of awareness and inherent difficulties in identifying some forms of cultural heritage.

3.11. Landscape

3.11.1. NI has attractive, largely unspoilt and high quality rural landscapes, numerous protected area designations and major rural tourism attractions. A map showing landscape designations across NI can be seen in Appendix B.

3.11.2. The Giant's Causeway, located on NI's Antrim coast and renowned for its polygonal columns of layered basalt resulting from a volcanic eruption 60 million years ago, is a UNESCO World Heritage Site (natural landscape designation). Major rural tourism attractions in NI include the Giant's Causeway, the Mourne Mountains and the Glens of Antrim, whilst the Antrim coast is considered to be of very high seascape value, particularly along the Causeway Coast (the NI chapter of the UK NEA stated that in 2007, 26% of total tourist spend in NI was from trips to The Causeway Coast and Glens).

3.11.3. There are eight areas designated as Areas of Outstanding Natural Beauty (AONB) in NI, making up 22% of its total land area. These include the Antrim Coast and Glens; the Causeway Coast; Lagan Valley; the Mourne, Binevenagh; Ring of Gullion; Sperrin and Strangford Lough. The protection of cultural values, the promotion of public enjoyment and the fostering of the social and economic well-being of local communities sit alongside nature conservation at these sites.

3.11.4. While the AONB designation policy is one of protection and enhancement, with regards to planning applications in these areas, account has been taken of the needs of local communities and the need to sustain the economic and social wellbeing of those living in the AONBs. The provisions of PPS 21 (Sustainable Development in the Countryside) apply to all areas of NI's countryside, including AONBs, however PPS 2 (Natural Heritage) requires development proposals in AONBs to be sensitive to the distinctive special character of the area and the quality of their landscape, heritage and wildlife.

- 3.11.5. There are no national parks in NI, however, in March 2011 the DOE published a White Paper as a first step towards bringing forward enabling legislation to allow for the creation of national parks. Discussion is ongoing about the possibility of creating a national park in much of County Antrim, though there has been much opposition to the proposals.
- 3.11.6. A Landscape Character Assessment was carried out across NI in 2000 which describes the regional character areas. Landscape character areas (of which there are 130 across NI) are defined as areas with a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape. It reflects on the particular combination of geology, landform soils, vegetation, land use and human settlement.
- 3.11.7. In 2007, NI had 30 green belt areas, accounting for approximately 226,600 hectares, about 16% of its total area. However, the policies and provisions contained within PPS 21 (Sustainable Development in the Countryside), published in 2010, take precedence over the policy provisions for all Green Belts in previous statutory and published draft Plans (with a limited number of exceptions). Effectively this has resulted in the withdrawing of the Green Belt designation in NI.
- 3.11.8. Enclosed farmland is the most common broad habitat in NI, covering an estimated 44% of the total land area, with the majority consisting of improved grassland (40% of NI). Enclosed farmland gives the countryside its characteristic appearance. Since the 1950s many field boundaries have been removed, but this trend is declining.
- 3.11.9. Semi-natural grasslands cover an estimated 18% of NI's land area, but have declined significantly over the last 60 years due to fragmentation and agricultural intensification. Mountains, moorlands and heaths contain the largest tracts of semi-natural habitats and cover an estimated 13% of NI, however, forest cover is low compared to the rest of the UK and Europe, at just 8%. NI is notable within the UK for its large area of freshwater habitats; rivers, lakes and wetlands cover an

estimated 7% of total land area. Urban areas cover approximately 7.5% of NI and increased by approximately 30% between 1998 and 2007.

3.11.10. Particular issues affecting the landscape in NI are agriculture and tourism. In keeping with much of the UK and Europe, agriculture in NI is changing, with subsidies shifting more towards landscape and nature conservation objectives rather than solely focusing on production.

3.12. Green Infrastructure and Ecosystem Services

3.12.1. This section looks at the inter-relationship between the preceding sustainability topics, as well as green infrastructure (GI) and ecosystem services (ES) which are cross-cutting topics of increasing importance. It also includes information on other cross-cutting themes such as tourism and environmental knowledge and understanding. The purpose of this section is to link environmental, social and economic issues in a more integrated way, and emphasize that a good quality environment is essential to continuing social and economic prosperity.

3.12.2. ES can be defined as the benefits that people obtain from ecosystems, or the environment. These include provisioning services such as food, water and raw materials; regulating services such as flood and disease control; cultural services such as health, spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth. ES make economic sense as they provide direct or strategic support of all human activities.

3.12.3. The UK NEA revealed values that have been placed on some of the ES that NI currently provides. Provisioning services include livestock, dairy and poultry products (which together accounted for £1.14 billion of output in 2008); arable products (£126 million); marine fisheries (£25 million); aquaculture (£11 million); forest products (£7 million); and drinking water (£186 million). Cultural services include tourism (£1.5 billion); and coarse, game and sea/shore angling (£43.5 million). Valued regulating services include apple pollination (£7

million), whilst the supporting service of water quality was valued at £8 million. The report further revealed that a 2006 study estimated that the natural environment contributed £573 million to the NI economy.

3.12.4. Whilst ES are defined as the benefits, or services that people receive from the environment, GI addresses the spatial structure of environmental assets and resources from which ES are obtained. The underlying principles of GI are that the same area of land can frequently offer multiple benefits if its ecosystems are in a healthy state (known as multi-functionality), and it should be a strategically planned and delivered network (i.e. delivering connectivity for people and wildlife across and between urban/rural areas and local authority/national boundaries). GI assets include parks, woodland, grassland, wetland, rivers, hedgerows, cycle paths, playing fields, village greens, allotments, private gardens, green roofs and street trees, amongst others. There is a need for a coordinated planned approach regarding green infrastructure to direct funding to areas of most benefit.

3.12.5. The EC has described the Atlantic area as Europe's largest and most important ecosystem. The NI coast in particular (which borders the Atlantic Ocean to the north and the Irish Sea to the east) has highly productive and biologically diverse ecosystems. The majority of NI's 650 km of coastline is protected for its nature conservation interest, but more importantly it includes productive and biologically diverse ecosystems, with features which serve as critical natural defences against storms, floods and erosion.

3.12.6. NI's other habitats, particularly grassland and peatland are excellent carbon stores if managed appropriately, whilst the extensive hedgerow networks across NI provide connectivity through the landscape whilst helping to minimise soil erosion. Biodiversity also plays a role in providing ecological networks and stepping stone habitats. This connectivity is important and can be affected both positively and negatively through rural development.

- 3.12.7. The importance of open space and outdoor recreation to people's physical and mental health and quality of life is recognised in the Regional Development Strategy for Northern Ireland 2035. NI has developed Planning Policy Statement (PPS 8) - Open Space, Sport and Outdoor Recreation. This policy aims to safeguard existing open space, ensure that open space is considered in new developments and to ensure equal access by all to open space.
- 3.12.8. There is a disparity to public access to woodland in NI, with most being located far from where people live. For example, whilst 72% of NI's woodland is publicly accessible, only 7% of the population has access to a 2ha+ woodland site within 500m of their home (rising to 50% for a 20ha+ site within 4km of home). The social use of both state and non-state woodland in NI is increasing, however, whilst the public was granted access to Forestry Service grant-aided woodland in March 2013. This accessible woodland is mapped in Appendix B, along with national walking and cycling routes and historic parks and gardens. The latter are not necessarily open to the public, however still represent an important component of NI's green infrastructure network.
- 3.12.9. Rural areas exhibit a strong sense of community and local identity with a strong and well developed community infrastructure, whilst NI has strong urban-rural linkages. There is a lack of connectivity, however, particularly regarding wildlife corridors, woodlands and areas under agri-environment schemes. An increase in GI assets can address the lack of connectivity in NI.
- 3.12.10. As noted in the climate change section, there is generally poor understanding of the impacts of climate change issues amongst farming and other communities. There is particular resistance to change where capital costs are high, for example regarding renewable energy installations; however there has been a recent surge in planning applications for on-farm wind turbines. There is also a lack of environmental knowledge transfer and innovation, with environmental management often being end-of-pipe, and rarely encouraging multi-functionality (e.g. agri-environment schemes typically encourage single

functions for land). There is also a lack of integration of environmental skills to ensure that farmers and agri-food businesses can comply with legislation.

3.12.11. Tourism in NI supports around 40,000 jobs or 5.6% of the total NI workforce. The Tourism Ratio for NI was estimated to be 2.4%, with the contribution to the NI economy estimated to be £0.7bn. However, this was the lowest of the twelve UK regions and well below areas such as Cornwall (11.0%). The depth and wealth of food and drink produced in NI, along with high quality natural and cultural landscapes and authentic surroundings demonstrates the potential to increase the contribution tourism makes to the NI economy.

3.13. Key Environmental and Sustainability Issues

3.13.1. According to an annual survey carried out by NISRA, in 2011/12, 39% of responding households thought the most important environmental problem facing NI is household waste disposal, with 31% each for pollution in rivers, climate change and traffic congestion (multiple responses were permitted). The figures for each of the 16 categories have remained fairly consistent since 2003/04, with notable exceptions being declining concern regarding air pollution, and a sharp rise followed by a steady fall for climate change. A similar survey carried out by NISRA focusing on the attitudes of young people in NI found (in 2010) that the greatest environmental concern was the loss of plants, animals and habitats (76% of respondents).

3.13.2. From analysis of the baseline data, the key sustainability issues facing NI are thought to be:

Ecology and Nature Conservation

- The Northern Ireland Countryside Survey (NICS) carried out in 2007 revealed continued loss of semi-natural habitat by agricultural conversion and building. This is a particular concern in lowland landscapes, where semi-natural habitats are already small and fragmented.

- The focus of government conservation policy is on protecting and managing high-value habitats. Intermediate-value habitats, which contain much of the species diversity in the countryside and provide ecosystem services including food, materials, water, flood control and carbon storage are unprotected and thus vulnerable to land use change, disturbance and pollution.
- A significant proportion of NI's habitats and species are in unfavourable condition. The Natura 2000 Prioritised Action Framework revealed that 31% of ASSI habitat features and 22% of species features are classed as unfavourable, with only an additional 3% of habitat features classed as unfavourable recovering.
- Few protected nature conservation sites have management plans, suggesting a lack of co-ordinated / forward-thinking management across the Natura 2000 network.
- There is limited information on the current status of peatland, whilst 90% of lowland raised bogs have been lost or altered due to peat extraction, forestry and drainage.
- With increasing demand for food and declining quantities of productive farmland, a move towards intensive agriculture in NI is threatening biodiversity.
- Increased movement of biological materials around the world for trade is leading to introduction of new pests and diseases, whilst invasive species are affecting rural land across NI.

Health and Quality of Life

- One of the Multiple Deprivation Measures (NIMDM) used by the NI Government to help target those in need looks at 'proximity to services'. This indicator identifies particular problems of fair and equitable access to services and public transport frequency and connectivity for rural dwellers throughout NI, which has subsequent impacts on vulnerable groups such as low income

households, the elderly, children and young people, and those with disabilities.

- Obesity rates for adults in NI, at 24%, are extremely high compared to elsewhere in Europe, though lower than the UK average. Physical activity is also poor; the proportion of people meeting the government's recommended 30 minutes a day is less than one in two for men and just one in three for women, though these are higher than the UK average.
- Access to woodland for exercise, mental health and educational purposes is poor in NI.

Soil and Land Use

- The Northern Ireland Countryside Survey (NICS) carried out in 2007 revealed a large increase in the area of agricultural grassland lost to rural building (almost twice that reported by NICS in 1998).
- Woodland is not seen as an economically viable use of land by NI's farmers, and thus the small wood industry (e.g. charcoal, timber and woodfuel) is far less developed than in the rest of the UK. NI woodlands are typically unmanaged, inaccessible, small and fragmented, whilst woodland creation rates are declining.
- Agricultural land under environmental stewardship is fragmented and expected to decline in future due to anticipated budget cuts for agri-environment schemes.
- Almost 70% of farms in NI are located on land designated as Less Favoured Areas (LFA); due to the limitations and/or additional costs of farming in such areas, the economic viability of these farms is dependent on funding schemes.

Water

- Though the chemical quality of NI's rivers has improved over the last decade, biological quality has not. In 2011, only 23% of waterbodies in NI were classed as having good overall ecological

quality – this needs to increase to 72% by 2015 if NI is to meet the requirement of the Water Framework Directive.

- A lack of nutrient management plans on livestock farms and unsustainable use of fertilisers has resulted in nitrate, ammonia and phosphorous pollution of many of NI's lakes and rivers, with knock-on effects on ASSIs and Natura 2000 sites with aquatic features.

Air Quality, Climate Change and Material Assets

- Access to local rural transport services is generally limited in terms of routes and frequency and rural transport provision is often uncoordinated. This results in the majority of the rural population being reliant on cars, adding to emissions that affect both climate change and air quality.
- Agriculture is highly susceptible to disruption due to climate change and extreme weather events such as prolonged periods of rainfall, drought and snow.

Historic Environment and Landscape

- There is a lack of coordination across the rural tourism sector, with many opportunities for sharing and promoting NI's exceptional landscapes and cultural heritage being missed.
- Landscapes in NI have been affected by rural development, including housing and infrastructure, as well as agricultural intensification.

Green Infrastructure and Ecosystem Services

- Diverse objectives and aspects of GI (particularly regarding the creation of multifunctional networks) require agreement or cooperation of varied stakeholders such as Local Authorities and landowners, in a participatory planning process. No mechanism for such co-operation currently exists in NI (a good model is the Central Scotland Green Network, a National Project in both the existing and proposed National Planning Frameworks).

- There is a lack of understanding amongst farming and other communities about how and why they should be acting to protect the environment and adapt to climate change. More knowledge is needed to instil confidence in rural landowners to invest in renewable energy schemes and slurry management, and in both urban and rural landowners regarding the development of multifunctional GI networks.
- Environmental management is considered a separate rather than integral part of production systems, whilst agri-environment schemes tend to focus on single issues rather than connectivity and multi-functionality. There is also a lack of integration of environmental issues into all sectors, and a lack of cross-sector support, whilst ecosystem services are not fully recognised or understood in politics in NI.
- NI is also susceptible to transboundary effects with the Republic of Ireland, particularly in relation to water bodies, biodiversity, landscape and climate, and for activities taking place in Border and coastal and marine areas. Conversely, NI may cause similar transboundary effects in Ireland.

3.13.3. In light of the above point on transboundary effects, the key environmental issues in Ireland may also be of relevance. An assessment carried out in 2012 by the Environment Protection Agency identified the following challenges:

- Protecting soil and biodiversity;
- Protecting water resources;
- Improving air quality;
- Limiting and adapting to climate change;
- Building a low carbon economy;
- Using resources sustainably and efficiently;
- Implementing and enforcing environmental legislation; and
- Putting the environment at the centre of decision making.

4. SEA FRAMEWORK

4.1. SEA Objectives

4.1.1. The purpose of the SEA Objectives is to ensure that the assessment process is transparent and robust and that the SPPS considers and addresses potential environmental effects. SEA Objectives (including more detailed sub-objectives) have been set for each of the ten sustainability topics outlined in Section 2.3.

4.1.2. The SEA Objectives are deemed to be appropriate based on the other relevant plans and programmes, baseline conditions and potential impacts identified in NI (as described in the preceding chapters), but may change as the assessment process develops. In order to address recently highlighted concerns on the effects that human activities have had on the world's ecosystems, and on the public benefits that ecosystems provide, we have included an additional SEA Objective on Green Infrastructure and Ecosystem Services as part of our ecosystems approach to this SEA. The proposed SEA Objectives are detailed in Table 4.1 below.

Table 4.1: SEA Objectives

SEA Objective	Sub-objective (Will the SPPS...?)
1. Ecology and Nature Conservation – Protect, enhance and manage biodiversity assets and ecosystems	<ul style="list-style-type: none"> a. Maintain and enhance internationally and nationally designated sites b. Maintain and enhance locally designated sites c. Maintain and enhance the amount, variety and quality of ecosystems d. Maintain and enhance priority habitats and species e. Benefit protected species f. Protect the marine and coastal environment
2. Socio-Economics – Reduce deprivation and improve social cohesion of the community	<ul style="list-style-type: none"> a. Improve accessibility to education, employment, housing and community facilities/services b. Reduce deprivation, inequality and social exclusion c. Improve crime rates and road safety d. Help achieve a balanced population in terms of size, density and structure
3. Health and Quality of Life – Improve health and quality of life	<ul style="list-style-type: none"> a. Improve long-term health and wellbeing b. Encourage walking, cycling and other physical activity c. Reduce health deprivation d. Minimise the number of people and species exposed to and levels of

SEA Objective	Sub-objective (Will the SPPS...?)
	noise and vibration pollution e. Improve the quality of living, working and recreational environments
4. Soil and Land Use – Protect and enhance soil quality	a. Safeguard and improve the highest quality soil and agricultural land b. Reduce soil pollution and degradation c. Protect soil, especially coastal areas, from erosion d. Encourage local production of food and fuel e. Encourage use of previously developed land f. Remediate contaminated land
5. Water – Protect, enhance and manage water resources and flood risk	a. Protect water resources from over-abstraction b. Protect water resources from pollution c. Improve the quality of surface water, groundwater and the sea d. Protect and enhance the status of aquatic and wetland ecosystems e. Minimise exposure to flood risk and droughts
6. Air Quality – Reduce air pollution and ensure continued improvements to air quality	a. Improve air quality b. Minimise nitrogen deposition on designated sites and priority habitats c. Reduce the need to travel d. Encourage use of sustainable transport
7. Climate Change – Minimise contribution to climate change and adapt to its predicted effects	a. Improve energy conservation and efficiency b. Encourage use of renewable energy c. Minimise emissions from transport, industry and agriculture d. Encourage land management that protects and captures carbon e. Improve resilience of habitats and the water environment to climate change impacts e. Minimise and adapt to flood risk, storms, changing rainfall patterns and varying / more extreme temperatures f. Minimise and adapt to other extreme events, ICT disruption, expansion of tourist destinations, impacts on infrastructure etc.
8. Material Assets – Conserve natural resources and reduce waste production	a. Safeguard natural resources (including minerals) and minimise unsustainable use b. Increase recycling rates and re-use of materials c. Minimise production of waste and quantity sent to landfill d. Improve waste management in terms of its financial costs and environmental and health impacts e. Maximise use of the existing built environment
9. Cultural Heritage – Protect, enhance and manage archaeological and cultural heritage	a. Preserve and enhance designated and non-designated sites and areas b. Preserve and enhance archaeological sites c. Preserve and enhance the setting of historical and architectural assets d. Encourage urban renewal and improve the quality and character of the townscape

SEA Objective	Sub-objective (Will the SPPS...?)
10. Landscape – Protect, enhance and manage the character and quality of the landscape	<ul style="list-style-type: none"> a. Maintain and enhance the quality and character of landscape, seascape and coastal areas b. Maintain and enhance designated sites c. Create, maintain and enhance public open space and green infrastructure assets d. Improve visual aesthetics e. Minimise light pollution and light spill
11. Green Infrastructure and Ecosystem Services	<ul style="list-style-type: none"> a. Preserve and enhance the ability of an area to provide ecosystem services b. Encourage multifunctionality of greenspace to provide numerous ecosystem services simultaneously c. Encourage biophysical changes such as restoration of degraded land and enhanced connectivity of habitats and greenspace d. Strengthen positive natural connections and interactions between different areas and regions e. Encourage cultural and outdoor recreational tourism that is landscape and nature based f. Improve knowledge and understanding of the environment

5. ALTERNATIVES AND SCOPE OF THE SEA

5.1. Consideration of Alternatives

5.1.1. Consideration of alternatives is a key feature of the SEA process as defined by the SEA Directive and the NI SEA Regulations. In practical terms, it refers to possible alternative mechanisms for delivering the SPPS, and the assessment of the impacts of each of these options against the SEA objectives.

5.1.2. The ODPM (now DCLG) guidance on SEA recognises that it is not for the SEA to decide on the options to be considered. Instead the SEA should focus on the alternative delivery options actually considered in the preparation of the policy document. These should be identified by DOE as the body responsible for writing the plan. The SEA will then assess which of the identified options, or combination of options performs the best environmentally.

5.1.3. The alternatives to be considered in the preparation of the SPPS are currently being discussed between DOE, stakeholders and the SEA team. It is considered that there may be different types of alternatives for the SPPS, and key questions to inform those alternatives include:

- **What policies are regionally important?** Changes in the context to policy may mean some policies are no longer as significant, or appropriate for the reformed two-tier planning system. This will have a bearing on the level of policy prescription to be applied.
- **Which policy approach?** In most cases, it is expected that the existing Policy position will remain unchanged, and that reasonable alternatives will be limited. In others, a consideration of a further policy options may be helpful.
- **What structure is appropriate for the document?** There may be alternative ways in which connections can be drawn between the policy topics, for example by grouping topics to form the structure of the document.

- **Which words express the intentions of the policy most clearly?** The way the document is scrutinised means that the nuances of words are important to the policy being applied as intended.

5.1.4. The SEA will focus only on the reasonable alternatives that emerge during the drafting of the SPPS, and will explain why other alternatives are not considered to be ‘reasonable’ and will not, therefore, be subjected to assessment and consultation.

5.2. Likely Significant Effects of the SPPS

5.2.1. As revealed in Section 1.3, subject policies within the SPPS are likely to include:

- Natural Heritage;
- Access, Movement and Parking;
- Planning and Economic Development;
- Town Centres and Retailing (NEW);
- Planning, Archaeology and Built Heritage;
- Quality Residential Environments;
- Open Space, Sport and Outdoor Recreation;
- Telecommunications;
- Planning and Waste Management;
- Housing in Settlements;
- Transportation and Landuse;
- Planning and Flood Risk;
- Tourism;
- Control of Outdoor Advertisements;
- Renewable Energy;
- Sustainable Development in the Countryside;
- Enabling Development; and
- Other (e.g. Industry and Commerce/Coast / Minerals / Public Services and Utilities).

5.2.2. The SPPS has the potential for significant adverse impacts on the environment because of its role and function as a strategic planning policy document and its influence on local development plans and individual development proposals. However, the actual impact will depend upon the nature and location of the development. By covering such topics as housing, retail, transport infrastructure, tourism and renewable energy, the SPPS is likely to have adverse impacts, for example on landscape, ecology and air and water quality.

5.2.3. However, beneficial effects are also likely to occur as a result of the strong focus on sustainability. The SPPS is expected to cover such topics as natural and built heritage, flood risk and open space, which may have beneficial effects on cross-cutting issues such as ecosystem services, quality of life and climate change.

5.3. Scope of the SEA

5.3.1. The scoping process has revealed that due to the likelihood of the SPPS having uncertain or adverse effects on the environment, and/or because key environmental and sustainability issues have been identified in NI, the following sustainability topics should be carried forward to Stage B of the SEA process:

- Ecology and Nature Conservation;
- Socio-Economics;
- Health and Quality of Life;
- Soil and Land Use;
- Water;
- Air Quality;
- Climate Change;
- Material Assets;
- Cultural Heritage;
- Landscape; and
- Green Infrastructure and Ecosystem Services.

6. NEXT STEPS

6.1. Consulting on the Scope of SEA

6.1.1. As stated in section 2.2 of this report, the SEA Guide produced jointly by the four UK governments in 2005, in common with other SEA guidance documents, sets out a five stage process (A to E) for carrying out SEA. As was revealed in Table 2.1, consulting on the scope of SEA is sub-stage A5.

6.1.2. The SEA Directive requires authorities with “environmental responsibilities” (hereafter referred to as the Consultation Bodies) to be consulted on the scope and level of detail of the information which must be included in the Environmental Report (Article 5(4)). The Directive does not require full consultation with the public or bodies other than Consultation Bodies until the Environmental Report on the draft plan or programme is finalised

6.1.3. This Scoping Report has been issued to the relevant Consultation Body for NI, the NIEA on behalf of the DOE. Due to the possibility of transboundary effects, this Scoping Report has also been issued to the following Consultation Bodies in the Republic of Ireland: the Environmental Protection Agency, the Department of the Environment, Heritage and Local Government, and the Department for Communications, Energy and Natural Resources.

6.1.4. Consultation Bodies must provide a view, once consulted, within five weeks and copy their responses to the other Consultation Bodies. This Scoping Report has also been published on the DOE website (for information only).

6.2. Stage B: Developing and Refining Alternatives and Assessing Effects

6.2.1. This stage of the SEA process, the second of five main stages, involves the identification and evaluation of the likely significant effects on the environment of implementing the SPPS and its reasonable alternatives. This will be carried out in three stages:

- a) Prediction of the adverse, beneficial, neutral and uncertain effects of the SPPS on the environment (i.e. biodiversity, flora and fauna (including Natura 2000 sites); population and human health; water; air; climate factors; material assets; cultural heritage; landscape; and the inter-relationship between these), in light of the baseline conditions identified in the Scoping Report. This will be carried out by way of a matrix assessment (SPPS policies measured against SEA Objectives).
 - b) Prediction of the adverse, beneficial, neutral and uncertain effects of the alternatives, the 'zero option' (the likely evolution of the environment without implementation of the SPPS), and any in-combination effects with other relevant plans or programmes.
 - c) Evaluation of the likely adverse or uncertain effects identified in the above assessments to determine their significance, and assist in the refinement of the SPPS. This will be done using a more detailed and descriptive matrix assessment, and will include consideration of short, medium or long-term effects, permanent or temporary effects, secondary, cumulative or synergistic effects, and transboundary effects.
- 6.2.2. The SEA Directive requires that reasonable alternatives be considered in the development and environmental assessment of plans and programmes. The development and refining of realistic strategic alternative approaches will be carried out in consultation with DOE throughout the development of the SPPS. The reasons for selecting the alternatives dealt with, including the chosen option, will be outlined in the Environmental Report, with reference to their likely environmental impacts.

6.3. Stage C: Preparing the Draft Environmental Report

- 6.3.1. Stage B of the SEA process will culminate in the production of the Draft Environmental Report (Stage C). The Draft Environmental Report will be structured similarly to this Scoping Report, and will be as required by the SEA Directive and the relevant SEA Regulations. The proposed structure of the Draft Environmental Report is as follows:

- Outline of contents, comments received on the Scoping Report, SEA objectives and relationship with other plans and programmes;
- Environmental protection objectives that are relevant to the SPPS, and a description of how these have been accounted for in the preparation of the document;
- Description of the current state of the environment, likely future trends in the absence of the SPPS, and key environmental and sustainability issues facing NI;
- Consideration of Alternatives;
- Matrix assessment of the SPPS policies against the SEA objectives and determination of likely significant effects;
- Schedule of mitigation measures aimed at avoiding, reducing or offsetting any potentially significant environmental effects;
- Acknowledgement of data gaps or technical deficiencies;
- Suggestions of measures to monitor the environmental effects of implementation of the SPPS, including success or otherwise of mitigation measures; and
- Non-technical summary.

6.4. Stage D: Consultation and Decision Making

6.4.1. The Draft Environmental Report (including NTS) will be presented for public and statutory consultation during the same 12 week period as the draft SPPS. The statutory Consultation Body for NI is NIEA (on behalf of DOE). If transboundary effects are thought likely, the Draft Environmental Report will also be issued to the relevant Consultation Bodies in the Republic of Ireland. Members of the public likely to participate in SEA consultation are those affected or likely to be affected by, or having an interest in the decision-making, including relevant non-governmental organisations, such as those promoting environmental protection.

6.4.2. The purpose of this stage is to give the public and the Consultation Bodies an opportunity to express their opinions on the findings of the Draft Environmental Report, and to use it as a reference point in commenting on the SPPS. In line with the NI SEA Regulations, DOE must take account of the Draft Environmental Report and of any opinions which are expressed upon it as it prepares the SPPS for adoption. Therefore, comments received from NIEA, members of the public and other stakeholders during the consultation process will be reviewed to determine their relevance. These will be addressed in the final Environmental Report where necessary by means of an annex containing consultation responses and details of how they have been accounted for. The final Environmental Report must be taken into account in the final published SPPS.

6.4.3. Once the SPPS has been adopted, an SEA Post-Adoption Statement will be produced to provide information on how the Environmental Report and consultees' opinions were taken into account in deciding the final form of the SPPS.

6.5. Stage E: Monitoring Implementation of the Programme

6.5.1. The SEA Directive requires DOE, as the Managing Authority, to monitor significant environmental effects of implementing the SPPS. This must be done in such a way as to also identify unforeseen adverse effects and to take appropriate remedial action.

6.5.2. If significant effects are identified, a monitoring programme will be proposed in the form of a Monitoring Framework Document (and summarised in the accompanying SEA Post-Adoption Statement) so that the actual impacts of the SPPS can be evaluated. Monitoring should commence as soon as the SPPS is adopted, with annual reporting carried out for the life of the SPPS. It may be necessary to revise the monitoring programme periodically so that it takes account of new methods and increased understanding of the baseline environment.

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