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NI Rural Development Programme 2014 - 2020

Strategic Environmental Assessment

Non Technical Summary

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Contents

1	What is the Environmental Report and why has it been written?	1
2	What is the Northern Ireland Rural Development Programme?.....	1
3	What is the current state of the environment in Northern Ireland?	3
4	How has the Rural Development Programme been assessed?	7
5	How was the public consulted?.....	8
6	What are the alternatives to the proposed Programme?	8
7	What are the likely environmental impacts of the Programme and how can these be minimised?.....	8
8	What are the key recommendations for enhancing the beneficial effects of the Programme?.....	13
9	Which environmental mitigation and enhancement measures have been incorporated into the Programme?.....	17
10	What monitoring measures have been proposed through the SEA?	19
11	What will happen next?	21

1 What is the Environmental Report and why has it been written?

ADAS UK Ltd has been instructed by the Department of Agriculture and Rural Development (DARD) to carry out a Strategic Environmental Assessment (SEA) of the Northern Ireland Rural Development Programme (NIRDP) 2014 - 2020.

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 Northern Ireland through the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (SR 280/2004).

The Environmental Report describes the outcome of the SEA. This involves an evaluation of the likely environmental effects of implementation and non-implementation of the NIRDP, including an assessment of realistic strategic alternative approaches and options, as well as the suggestion of mitigation and enhancement measures to prevent, reduce and offset any significant adverse effects on the environment of implementing the Programme.

The Environmental Report has been written to accompany the NIRDP; following a statutory and public consultation period of twelve weeks, both documents were amended prior to submission to the European Commission in October 2014. Following receipt of an Observation letter from the European Commission in March 2015, further updates have been made to the NIRDP and the Environmental Report¹. This Non Technical Summary is a simplified version of the Environmental Report.

2 What is the Northern Ireland Rural Development Programme?

The European Union has set out six Priorities for Rural Development for the period 2014-2020. DARD has looked at the rationale for intervening in each of these areas and has identified those of most relevance to Northern Ireland. A number of measures, sub-measures and schemes have been set out by DARD and include the following.

Sub-Measures	Schemes
Measure 1: Knowledge Transfer and Information Actions	
1.1 Support for vocational training and skills acquisition actions 1.2 Support for demonstration projects/information actions 1.3 Support for short term farm and forest management exchange as well as farm and forest visits	<ul style="list-style-type: none">• Business Development through Knowledge Transfer (1.1a BDKT)• Farm Family Key Skills (1.1b FFKS)• General Training for Scheme Implementation (1.1c GT)• Innovation and Technology Evaluation Demonstration Scheme (1.2a ITED)• Environmental Advisory Support Scheme (1.2b EAS)

¹ Please note that the updates to the NIRDP following receipt of the Observation letter from the European Commission have not been re-assessed through the SEA process.

Sub-Measures	Schemes
	<ul style="list-style-type: none"> • Farm Exchange Visits (1.3 FEV)
Measure 4: Investments in Physical Assets	
<p>4.1 Support for investments in agricultural holdings</p> <p>4.2 Support for investments in processing/marketing and/or development of agricultural products</p> <p>4.3 Support for investments in infrastructure related to development, modernisation or adaptation of agriculture and forestry</p> <p>4.4 Support for non-productive investments linked to the achievement of agri-environment climate objectives</p>	<ul style="list-style-type: none"> • Business Investment Scheme (incl. METS and NES) (4.1 BIS) • Agri-food Processing Investment Scheme (4.2 AfPI) • Forestry Competitiveness Scheme (4.3 FComp) • Agri-environment Non-productive Investments (4.4 AeNpl)
Measure 6: Farm and Business Development	
<p>6.4 Support for investments in creation and development of non-agricultural activities</p>	<ul style="list-style-type: none"> • Rural Business Investment Scheme (6.4 RBI)
Measure 7: Basic Services and Village Renewal in Rural Areas	
<p>7.1 Support for drawing up and updating of plans for the development of municipalities and villages and N2000/HNV area management plans</p> <p>7.3 Support for investments in broadband infrastructure</p> <p>7.4 Support for investments in the setting-up, improvement or expansion of local basic services for the rural population</p> <p>7.5 Support for investments for public use in recreational infrastructure, tourist information and small scale tourism infrastructure</p>	<ul style="list-style-type: none"> • Village Renewal Scheme (7.1a VR) • Natura 2000 Management Plans (7.1b N2K) • Rural Broadband Scheme (7.3 RB) • Rural Basic Services Scheme (7.4 RBS) • Rural Tourism Scheme (7.5 RT)
Measure 8: Investments in Forest Area Development and Viability of Forests	
<p>8.1 Support for afforestation/ creation of woodland establishment cost and maintenance/ income foregone premium per ha</p> <p>8.3 Support for prevention and restoration of damage to forests from forest fires and natural disasters and catastrophic events</p> <p>8.5 Support for investments improving the resilience and environmental value as well as the mitigation potential of forest ecosystems</p>	<ul style="list-style-type: none"> • Woodland Expansion Scheme (8.1a WE) • Forest Expansion Scheme (8.1b FE) • Forest Protection Scheme (8.3 FP) • Woodland Investment Grant (8.5 WIG)
Measure 10: Agri-Environment Climate	
<p>10.1 Payment for agri-environment climate commitments</p>	<ul style="list-style-type: none"> • Environmental Farming Scheme (10.1a EF)

Sub-Measures	Schemes
10.2 Support for the conservation and sustainable use and development of genetic resources in agriculture	<ul style="list-style-type: none"> Land Management Programme (10.1b LMP) Support for indigenous Irish Moiled Cattle (10.2 IMC)
Measure 13: Payments to Areas Facing Natural or Other Specific Constraints	
13.2 Compensation payment for other areas affected by specific constraints	<ul style="list-style-type: none"> Less Favoured Areas (2015) and Areas of Natural Constraint (2016 and 2017) (13.2 LFA/ANC)
Measure 16: Cooperation	
16.1 (and 16.2) Support for establishment of operational groups of the EIP for agricultural productivity and sustainability 16.3 (and 16.4) Co-operation among small operators in organising joint work processes and sharing facilities and resources, and for developing/marketing tourism 16.5 Support for joint action undertaken with a view to mitigating or adapting to climate change / support for joint approaches to environmental projects and ongoing environmental practices 16.8 Support for drawing up of forest management plans or equivalent instruments 16.9 Others	<ul style="list-style-type: none"> Agri-food and Forestry Innovation Scheme (16.1 AfFI) Agri-food Cooperation Scheme (16.3 AfC) Agri-environment Climate Cooperation (16.5 AeCC) Forestry Cooperation Scheme (16.8 FCoop) General Cooperation (16.9 GC)
Measure 19: Support from CSF Funds for Local Development (CLLD)	
19.1 Preparatory support 19.2 Support for implementation of operations under the community-led local development strategy 19.3 Preparation and implementation of cooperation activities of the local action group 19.4 Support for running costs and animation	<ul style="list-style-type: none"> All Island Co-operation and LEADER Local Development (19 CLLD)

3 What is the current state of the environment in Northern Ireland?

Northern Ireland 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. The country has distinctive cultural heritage and retains strong rural dimensions through the importance of agriculture, tourism and their interactions with the landscape. Strengths, weaknesses, opportunities and threats have been identified for each of eleven sustainability topics (correct as at October 2014); these are summarised below.

Table 3.1: Northern Ireland's Environmental Baseline

Strengths and Opportunities	Weaknesses and Threats
Ecology and Nature Conservation	
<ul style="list-style-type: none"> • Large area of land of international and national nature conservation value • Good representation of peatland, grassland and hedgerows. • Much agricultural land is high nature value • Agri-environment schemes have helped increase populations of farmland birds and improve habitat condition 	<ul style="list-style-type: none"> • Continued loss and degradation of semi-natural habitat by agricultural conversion and building and intensification • Intermediate-value habitats less well protected and thus more vulnerable • Significant proportion of habitats and species in unfavourable condition • Significant decline in bee and wetland bird species • Lack of forward-thinking management for protected sites • Increasing trend of problematic pests, diseases and invasive species • Substantial degradation of peatland • Lowest forest cover in UK and Europe • Increasing risk of wildfires as climate warms • Nitrogen deposition caused by agricultural ammonia emissions are threatening sensitive habitats • Deterioration in marine environment affecting rock and sediments, fish stocks, seabirds and bottom dwelling marine life
Socio-Economics	
<ul style="list-style-type: none"> • Agri-food is a large, successful and growing industry • Strong businesses and communities in rural areas • Good provision of telecommunications but opportunity to improve broadband speed • Opportunity to boost the 'blue economy' through offshore renewable energy and maritime industries • Increased investment for economic development 	<ul style="list-style-type: none"> • Small wood industry poorly developed compared to UK as perceived as unviable • Loss of honey/bumblebees has implications for food production industry as reliant on pollination • One of UK's most economically deprived regions with high levels of poverty, economic inactivity and (long term) unemployment • Lack of access to and provision of services, facilities and public transport in rural areas affecting vulnerable groups such as elderly, young and low income • Lowest level of formal education of all UK regions and lack of environmental knowledge • Northern Ireland is still suffering from bombings, shootings, punishment attacks, sectarian incidents, terrorist attacks and the threat of dissidence
Health and Quality of Life	

Strengths and Opportunities	Weaknesses and Threats
<ul style="list-style-type: none"> • Good staffing levels for hospital and community health services • Surgeries better equipped in terms of IT than in rest of UK • Less difference in life expectancy between the most and least deprived areas of Northern Ireland compared to the rest of the UK 	<ul style="list-style-type: none"> • Higher infant mortality than UK and much of Europe • Higher rates of obesity than most of Europe, though lower than rest of UK • Low levels of physical activity (through better than UK average) and woodlands in particular under-used
Soil and Land Use	
<ul style="list-style-type: none"> • Significant natural resources including peaty soils, grassland and biomass • Good quality soil and less erosion compared to UK • Good proportion of land under agri-environment schemes • Very geologically diverse 	<ul style="list-style-type: none"> • Loss of soil organic matter and fertility due to intensification of agriculture • Woodlands typically unmanaged, inaccessible, small and fragmented with limited new planting • Land under agri-environment schemes is fragmented • Economic viability of many farms in Northern Ireland dependent on Less favoured Areas funding
Water	
<ul style="list-style-type: none"> • Chemical quality of rivers has improved in last decade • Good quality of marine, drinking and groundwater • Farm Waste Management Plans and Nitrates Action Programme improving quality of agricultural run-off • Intact peatlands have good water storage potential 	<ul style="list-style-type: none"> • Few rivers classed as good ecological quality with no improvement in recent years – unlikely to meet targets of EU Water Framework Directive • Historically poor manure management and fertiliser use has polluted many lakes and rivers, though improving due to Nitrates Action Programme • Some concerns regarding quality of bathing and shellfish growing waters in Irish Sea • Predicted reductions in summer rainfall may reduce river flows, affecting water supply and quality
Air Quality	
<ul style="list-style-type: none"> • Standards for sulphur dioxide, lead and particulate matter (dust) being met • Ammonia emissions reduced slightly in past decade 	<ul style="list-style-type: none"> • Ammonia emissions from agriculture affecting sensitive habitats (eutrophication) • Though better than rest of UK, nitrogen dioxide levels exceeded standards at three monitoring sites • Burning of coal due to poor availability of natural gas causing exceedance of hydrocarbon (PAH) standards • 12 Local Authorities have declared Air Quality Management Areas for nitrogen dioxide or

Strengths and Opportunities	Weaknesses and Threats
	<ul style="list-style-type: none"> particulate matter, mainly due to road transport emissions • High dependency on cars in rural areas
Climate Change	
<ul style="list-style-type: none"> • Carbon dioxide and total greenhouse gas emissions have fallen by 16% and 17.5% respectively since 1990 • Good opportunities to develop low carbon technology • Good natural resource availability for renewable energy production • 14.3% of electricity produced from renewable energy • Peatland and grassland act as substantial carbon stores • Grass, wheat and forestry productivity expected to rise as climate warms 	<ul style="list-style-type: none"> • Greenhouse gas emissions falling more slowly than rest of UK (29% reduction since 1990) • Greenhouse gas emissions have increased much more than in rest of UK from transport (25%) and land use change (83%) since 1990 • Agriculture and infrastructure (e.g. transport, water, waste and energy) prone to disruption from increasing intensity/frequency of floods, drought and snow • Lack of understanding of climate change issues at grass roots levels • Seas around Northern Ireland are warming more quickly than around the rest of the UK • Intensively farmed landscapes restrict the ability of people and wildlife to adapt to climate change
Material Assets	
<ul style="list-style-type: none"> • Significant natural resources including water, carbon rich soils, high quality grassland, and renewable energy • Substantial mineral resources • Levels of waste produced and sent to landfill are falling • Recycling targets being met 	<ul style="list-style-type: none"> • Recycling rates lower than in rest of UK, particularly for electronics, textiles, plastics and food
Cultural Heritage	
<ul style="list-style-type: none"> • Evidence of human activity for 9,000 years and rich heritage of archaeological sites, monuments and buildings • 1,400 farms protecting ancient monuments through sensitive farming • Heritage assets comparatively well preserved compared to more developed/urban nations 	<ul style="list-style-type: none"> • Lack of coordination across rural tourism sector, with opportunities for sharing and promoting cultural heritage being missed • Cultural heritage may be at risk from coastal flooding and erosion related to climate change • Other pressures include development, changing land use, agricultural practices, vandalism/theft, renewable energy, funding and resources, visitors, skills and awareness, materials and maintenance
Landscape and Seascape	

Strengths and Opportunities	Weaknesses and Threats
<ul style="list-style-type: none"> • Giant’s Causeway is a World Heritage Site with ‘outstanding universal value’ • Substantial land area designated as Areas of Outstanding Natural Beauty (AONB) • Major rural tourism attractions include the Giant’s Causeway, the Mourne Mountains, the Glens of Antrim, and the Antrim (Causeway) coast 	<ul style="list-style-type: none"> • NI’s World Heritage Site receives no legal protection (though is protected through regional policy) and may be at risk of inappropriate development • AONBs have very low levels of financial support available for management; no statutory management plans; and fail to qualify as Protected Areas under IUCN definitions – however they are protected by planning policy • Landscapes have been degraded by rural development (housing and infrastructure) and agricultural intensification • Lack of coordination across rural tourism sector, with opportunities for sharing and promoting landscape assets being missed
Green Infrastructure and Ecosystem Services	
<ul style="list-style-type: none"> • Substantial coastline provides critical natural defences against storms, floods and erosion as well as productive and biologically diverse ecosystems • Substantial grassland and peatland are excellent carbon stores • Extensive hedgerow networks provide connectivity across the landscape whilst helping to minimise soil erosion • Social use of woodland is increasing • Ecological, carbon and greenhouse gas footprints are lower than the UK 	<ul style="list-style-type: none"> • No mechanism for co-operation of landowners or advice on where to direct funding regarding the creation of multi-functional networks of green infrastructure • Lack of environmental knowledge transfer and integration of environmental skills amongst agriculture and forestry sectors and rural communities • Environmental management can sometimes be considered a separate rather than integral part of production systems, whilst integration of environmental issues into all sectors and cross-sector support are lacking • Ecosystem services are not fully recognised or understood by Northern Ireland’s politicians or communities • The economic importance of Northern Ireland’s tourism sector is the lowest of all the UK regions

4 How has the Rural Development Programme been assessed?

The NIRDP has been assessed against a number of SEA objectives designed to cover the broad range of environmental issues facing the region. These objectives are used within high level and detailed assessment matrices to ascertain the magnitude of likely effects, the sensitivity or value of the receiving environment (including people and wildlife) and thus significance of impacts of the Programme measures and schemes.

Assessments of alternatives to the NIRDP schemes, and cumulative effects of schemes within the Programme and with other plans and programmes have also been undertaken, whilst opportunities for improvement and measures to address possible impacts have been identified.

5 How was the public consulted?

The Consultation Draft of the NIRDP was made available for public consultation for a 12 week period, between 16th July and 21st October 2013. The SEA Environmental Report was made available alongside the draft NIRDP 2014-2020 and Equality Impact Assessment documents so that interested parties, particularly the statutory authorities, could comment on the likely effect of the NIRDP on the environment.

Consultation responses relating to the SEA and/or environmental aspects of the NIRDP were received only from the Northern Ireland Environment Agency. These have been addressed where appropriate in the final Environmental Report and the final NIRDP.

6 What are the alternatives to the proposed Programme?

Five strategic alternatives have been assessed against the SEA objectives. These include:

- Alternative 1: Do nothing or 'zero' option whereby funding for rural development is withdrawn;
- Alternative 2: Continue with current NIRDP 2007-2013 axes and measures;
- Alternative 3: Proceed with the proposed support measures as drafted by DARD for discussion with stakeholders in November 2012;
- Alternative 4: Proceed with proposed schemes and actions as published for public consultation by DARD on 1st July 2013; and
- Alternative 5: Proceed with proposed schemes drafted by DARD in October 2014.

It was considered that each alternative had environmental strengths and weaknesses, with Alternative 1 faring the worst, and Alternative 2 not feasible due to changes to EU funding priorities and appropriateness of certain schemes going forward. Of the three remaining options, Alternative 5 was considered to have the greatest potential to provide both environmental and socio-economic support, providing it is implemented through an appropriately positive planning framework.

7 What are the likely environmental impacts of the Programme and how can these be minimised?

The NIRDP is expected to have beneficial effects as a result of the proposed schemes for business support and investment, advances in sustainable technology, knowledge sharing and training, energy efficiency, manure and nutrient management, agri-environment, woodland creation, and promotion of natural and cultural based tourism.

However, the SEA also identified adverse effects related to the construction and operation of new buildings and infrastructure, increasing forestry plantations, agricultural intensification, and the expansion of the tourism industry. These impacts are summarised by sustainability topic below, alongside measures that should be carried out through the planning system (or by Government departments) to mitigate them. (Corresponding NIRDP schemes are shown in brackets).

Table 7.1: Identified Adverse Effects and Proposed Mitigation Measures

Likely Adverse Impacts	Mitigation Measures
Ecology and Nature Conservation	
<ul style="list-style-type: none"> • Construction works and possible land use change may affect habitats and species (especially pollinators and farmland birds) through habitat loss and fragmentation, disturbance, killing of individuals and spread of pests/invasive species (4.1 BIS, 6.4 RBI, 7.3 RB, 7.4 RBS, 7.5 RT). • An increase in land spreading or livestock may affect sensitive species through emissions of nitrogen/ammonia (4.1 BIS). • Drainage schemes may change water quality and quantity dynamics in wetland habitats (4.1 BIS). • Regenerating derelict buildings and brownfield sites could adversely impact on protected species such as bats (7.1a VR, 7.4 RBS) • Increased tourist numbers in natural areas may affect habitats and species through disturbance, trampling, litter, fires, NOX emissions and spread of pests/invasive species (7.5 RT). • Afforestation, forest roads and forestry operations could adversely affect peatland, wetland, open areas and neighbouring watercourses, along with associated species 	<ul style="list-style-type: none"> • Standard mitigation in line with existing planning, EIA and HRA requirements (if applicable), including desk-based studies and if necessary site surveys prior to construction works to determine the likelihood of species, habitats or protected sites being affected by the works. The development location or design may need altered to avoid significantly impacting on species and habitats. Best practice measures and guidance should be adhered to during construction, e.g. avoiding sensitive areas, seasons and times if possible. Measures should also be taken to avoid the spread of pests/ invasive species during construction and operation (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.1a VR, 7.3 RB, 7.4 RBS, 7.5 RT). • Activities resulting in the loss of pollinator habitat should be avoided or mitigated through wide, flower-rich buffer strips (4.1 BIS, 4.3 FComp, 6.4 RBI, 8.1a WE, 8.1b FE). • Any activity increasing ammonia emissions within 500m of designated sites and priority/sensitive habitats should not be avoided or mitigated through improved ventilation, Manure Efficiency Technology and/or vegetative buffers. In addition, drainage schemes should be avoided where possible in the vicinity of wetland habitats (4.1 BIS). • Avoid facilitating access to forestry land located in peatland areas, or alternatively, ensure that infrastructure is carefully removed after forestry operations have ceased (4.3 FC). • Afforestation on important open, peatland, wetland and priority habitats should be avoided, including coniferous afforestation near acid-sensitive watercourses (8.1a WE, 8.1b FE).

Likely Adverse Impacts	Mitigation Measures
(4.3 FComp, 8.1a WE, 8.1b FE, 8.3 FP).	
Soil and Land Use	
<ul style="list-style-type: none"> • Construction works may adversely impact on soils through erosion, compaction or pollution from spillages (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.3 RB, 7.5 RT). • Farm diversification to non-agricultural activities could reduce the available land for grazing cattle and sheep and to a lesser extent crop production (6.4 RBI). • Soil erosion, disturbance and sedimentation could occur during afforestation and forest operations, as well as modifications to the structure and composition of soils (particularly coniferous plantations) (8.1b FE, 8.3 FP). 	<ul style="list-style-type: none"> • Adherence to standard best practice measures and guidance during construction and afforestation to avoid soil compaction, erosion or pollution (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.3 RB, 7.5 RT, 8.1b FE, 8.3 FP). • If no existing buildings are available, only less productive land should be taken out of agricultural uses (6.4 RBI). • Visitors/tourists should be encouraged to keep to paths to avoid erosion/trampling of soil and vegetation (7.5 RT). • Afforestation in acid-sensitive areas should be avoided (8.1b FE).
Water	
<ul style="list-style-type: none"> • Construction and operation of new buildings and infrastructure may impact on water quality (e.g. from chemical and fuel spillages, dust etc) and flood risk (e.g. additional storm flows and run-off resulting from an increase in impermeable surfaces) (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.3 RB, 7.5 RT). • Drainage schemes may change water quality and quantity dynamics in wetland habitats (4.1 BIS). • Tourist numbers to Northern Ireland's coast are likely to increase with possible associated impacts on water quality and marine life (e.g. due to litter, motorised water sports etc) (7.5 RT). 	<ul style="list-style-type: none"> • New development should be avoided in flood risk zones and coastal areas (4.1 BIS, 6.4 RBI, 7.3 RB, 7.5 RT). • Best practice measures and guidance should be adhered to during construction to avoid water pollution from sedimentation, dust or spillages (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.3 RB, 7.5 RT, 8.1b FE, 8.3 FP). • Sustainable drainage systems should be employed if necessary to reduce the chance of flash floods and water pollution during operation (4.1 BIS, 6.4 RBI, 7.5 RT). • Drainage schemes should be avoided where possible in the vicinity of wetland habitats (4.1 BIS). • Buffer zones should be set for spraying of pesticides to avoid impacts on watercourses (8.3 FP).

Likely Adverse Impacts	Mitigation Measures
<ul style="list-style-type: none"> Afforestation can decrease water availability and non-native coniferous plantations acidify soils and neighbouring watercourses. Sedimentation and fertiliser/pesticide contamination of local water courses can also occur from forestry activities (8.1b FE, 8.3 FP). 	
Air Quality	
<ul style="list-style-type: none"> Any increase in livestock or land spreading could have implications for local species/habitats sensitive to ammonia emissions (4.1 BIS). An increase in employment, tourists and visitors to rural areas may increase transport emissions, affecting species sensitive to particulate matter and nitrous oxides (6.4 RBI, 7.5 RT). Temporary emissions may occur during construction works, with possible dust, ozone, particulate matter (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.1a VR, 7.3 RB, 7.4 RBS, 7.5 RT). 	<ul style="list-style-type: none"> Any activity increasing ammonia emissions in areas where the critical loads for nitrogen deposition for sensitive habitats is already being exceeded should be avoided or mitigated through improved ventilation, Manure Efficiency Technology and/or vegetative buffers (4.1 BIS). If travel to particular farms and business sites substantially increases (e.g. for some farm diversification schemes) adversely affecting nearby roads, then alternative access routes or site locations may need to be considered (4.1 BIS, 6.4 RBI, 7.5 RT).
Climate Change	
<ul style="list-style-type: none"> Increased income, employment, mobility and new businesses could result in a small increase in demand for goods, travel and energy (4.1 BIS, 6.4 RBI, 7.3 RB). An expanding tourism industry is likely to result in an increase in greenhouse gas (carbon) emissions as more people drive through the countryside (and possibly fly to Northern Ireland) (7.5 RT). Adaptation to the predicted effects of climate change, such as drought, flooding, higher 	<ul style="list-style-type: none"> Resilience measures for proposed new and existing farms, rural businesses, tourist facilities and infrastructure should include: not building in areas at risk of flooding; increasing the permeability of hard standing where appropriate; using building materials that can cope with higher temperatures; incorporating water storage/wetland areas, grassland buffer strips and climate-resilient trees to improve drainage and shading; adoption of drought prevention measures to protect soils etc (4.1 BIS, 4.3 FComp, 6.4, RBI, 7.5 RT).

Likely Adverse Impacts	Mitigation Measures
<p>temperatures, storms and impacts on wildlife has not been addressed, putting proposed new and existing buildings, infrastructure and businesses at risk (4.1 BIS, 6.4 RBI, 7.1a VR, 7.3 RB, 7.4 RBS, 7.5 RT).</p>	
Cultural Heritage	
<ul style="list-style-type: none"> • Construction works have the potential for adverse effects on archaeological remains and nearby cultural heritage assets (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.1a VR, 7.3 RB, 7.4 RBS, 7.5 RT). • Possible intensification of agricultural activities causing damage e.g. deep ploughing and drainage schemes (4.1 BIS). • Increased recreational pressure (7.5 RT). • Creation of forestry plantations and some woodland management may adversely affect cultural and forest heritage and archaeological remains (8.1a WE, 8.1b FE, 8.3 FP). 	<ul style="list-style-type: none"> • Standard mitigation in line with existing planning (and EIA) requirements (including for permitted development), including desk-based studies and if necessary site surveys prior to construction works to determine the likelihood of cultural heritage assets being affected by the works. Developments may need to be altered, or screening provided to reduce impacts on setting of the assets (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.3 RB, 7.4 RBS, 7.5 RT). • Sensitive conservation and restoration of (derelict) historic buildings and brownfield sites should be carried out in preference to new development, in line with planning policy (4.1 BIS, 6.4 RBI, 7.1a VR, 7.4 RBS, 7.5 RT). • All planting and forestry operations should be compliant with the 2011 UK Forestry Standard which is more stringent than the 2006 Northern Ireland Forestry Strategy (4.3 FComp, 8.1a WE, 8.1b FE, 8.3 FP).
Landscape	
<ul style="list-style-type: none"> • Construction of new buildings and infrastructure may impact on landscape character, protected landscapes and visual amenity (including light spill). (4.1 BIS, 6.4 RBI, 7.1a VR, 7.3 RB, 7.4 RBS, 7.5 RT). • Woodland has potential for adverse impacts on landscape character and visual amenity, depending on where it is located and how it is designed in relation to the landform or the enclosure pattern (8.1a WE, 8.1b FE). 	<ul style="list-style-type: none"> • Standard mitigation in line with existing planning (and EIA) requirements, including desk-based studies and if necessary site surveys prior to construction works to determine the likelihood of landscape or visual impacts. In line with PPS21, developments may need to be altered, or screening provided to reduce impacts on character and views, whilst minimising light spill (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.3 RB, 7.4 RBS, 7.5 RT). • Forests should be designed and managed to take account of the landscape context to ensure visual aspects are appropriately addressed (8.1a WE, 8.1b FE)
Green Infrastructure and Ecosystem Services	

Likely Adverse Impacts	Mitigation Measures
<ul style="list-style-type: none"> Construction activities and land use change could marginally reduce ability of existing land to provide ES, for example food production, habitat provision, aesthetic/landscape value (4.1 BIS, 6.4 RBI, 7.5 RT, 8.1b FE). 	<ul style="list-style-type: none"> New development and technology to improve farm efficiency and productivity must not undermine the farm's ability to provide ecosystem services (4.1 BIS, 6.4 RBI).

The assessment of cumulative effects revealed that (prior to mitigation) there could be a significant adverse cumulative effect in relation to Northern Ireland's habitats and species, water management and quality, resilience and adaptation to climate change, and cultural heritage and archaeology assets, particularly from schemes 4.1 (BIS), 6.4 (RBI) and 8.1b (FE). These schemes could also have in-combination effects with other plans and programmes that propose new developments or a change or intensification in land use (specifically the Northern Ireland Economic Strategy and the Irish Rural Development Programme) or a boost to tourism and associated travel (specifically the Northern Ireland Economic Strategy, the Northern Ireland Tourism Strategy and Tourism Ireland's Corporate Plan).

Applications for funding or grants through the NIRDP will be screened for compliance with the EU Habitats Directive and an appropriate HRA will be carried out where they may be likely to impact on Natura 2000 sites. The conservation objectives of individual Natura sites will need to be considered; adverse effects on the integrity of a site or the ability to meet these conservation objectives may require the application to be refused, or an alternative project location, size or design proposed. The types of development or other rural activity that may give rise to adverse ecological impacts, for example Schemes 4.1 (BIS), 4.3 (FComp), 6.4 (RBI), 7.3 (RB), 7.5 (RT) and 8.1b (FE) ought to be avoided within (or in close proximity to) Natura 2000 sites where impacts are considered likely.

8 What are the key recommendations for enhancing the beneficial effects of the Programme?

The NIRDP's proposed focus on resource and energy efficiency, environmental training and enhancing natural and built environments will add to the benefits delivered through the current Programme. However, if funding allows, even more could be done to maximise the environmental benefits. Enhancement measures are suggested below, by sustainability topic. (Corresponding NIRDP schemes are shown in brackets if relevant).

Table 8.1: Recommendations for Enhancing the NIRDP

Sustainability Topics	Possible Enhancement Measures
Ecology and Nature Conservation	<ul style="list-style-type: none"> Farmers operating in areas where ammonia and nitrogen deposition are causing a deterioration in sensitive habitats could be targeted through the Manure Efficiency Technology Scheme. (4.1 BIS)

Sustainability Topics	Possible Enhancement Measures
	<ul style="list-style-type: none"> • Advice provided to rural businesses could specifically include how to reduce the impacts of ammonia emissions, and also about reviewing and taking into account the status of important ecological sites affected by nitrogen deposition. (6.4 RBI) • Advice provided to businesses could specifically refer to the part they can play in improving on- and off-site biodiversity, particularly for pollinators. (1.2b EAS, 6.4 RBI) • Visitors/tourists could be encouraged to use sustainable transport if possible and keep to paths to avoid trampling and disturbance of sensitive species and habitats. Visitors/tourists could also be encouraged to keep domestic pets on leads. (7.5 RT) • Visitor centres could promote understanding of Northern Ireland's habitats and species and the threats to native biodiversity. (7.5 RT) • Advice to farmers could include recommendations to diversify land use to boost farmland biodiversity and provide a greater array of ecosystem services. (1.1c GT, 6.4 RBI, 10.1a) • Encourage farms that fall below the greening thresholds agreed in the June 2013 CAP deal (10ha for crop diversification and 15ha for ecological focus areas) to nonetheless undertake these actions as best practice. (1.2b EAS, 10.1a EF) • Improve management, protection and connectivity of upland and marine habitats and species, particularly important in a changing climate. (10.1a EF, 13.2 LFA/ANC) • Adhere to the EC's 2013 guidance on Farming for Natura 2000 which sets out recommendations for suitable agricultural practices that can contribute to the conservation of Natura 2000 habitats and species. (1.2b EAS, 7.1b N2K)
Socio-Economics, Health and Quality of Life	<ul style="list-style-type: none"> • Consider re-training opportunities for manual farm workers whose skills may no longer be required with a move towards greater efficiency through technology/mechanisation. (4.1 BIS and Measure 1) • Any regeneration that involves either construction works or community cohesion measures ought to incorporate new greenspace wherever possible to help improve quality of life (7.1a VR, 7.4 RBS). • Visitor centres could emphasise/advertise the importance of outdoor physical activity for physical and mental health and wellbeing; they could also be encouraged in woodland environments with a focus on cycling, tree top assault courses, bushcraft, woodland education etc. (7.5 RT)
Soil and Land Use	<ul style="list-style-type: none"> • Visitor centres could encourage people to grow their own food and to buy locally produced food (7.5 RT, 16.3 AfT). • Consider blocking drains to restore the hydrology of degraded peatland, perhaps in association with the Northern Ireland Environment Agency. In addition, consider restoration or re-creation of peatland habitat (e.g. on

Sustainability Topics	Possible Enhancement Measures
	<p>ex-forestry sites) where there is a peat layer of at least 0.5m and maintaining/creating a high water level is feasible. (Measure 10)</p>
Water	<ul style="list-style-type: none"> • Advice provided to businesses could specifically refer to the part they can play in improving the water environment, such as enhancing water efficiency and installing water storage/wetland features on farms. (1.2b EAS, 6.4 RBI) • Visitor centres could emphasise/advertise the importance of sustainable water use for preserving habitats and landscapes, along with promoting environmentally responsible behaviour in marine environments. (7.5 RT) • Consider blocking drains to restore the hydrology of degraded peatland (in association with the Northern Ireland Environment Agency) thus improving the quality of surface water and ground water, the resilience of the water environment to climate change impacts; and minimisation of and adaption to flood risk. (Measure 10) • Farms located in areas with poor river quality (e.g. central and south-eastern parts of the country) could be specifically targeted to join AES and/or select options relevant to the water environment. (10.1a EF) • It ought to be a requirement that all new rural developments incorporate (or at least consider the respective costs and benefits of) sustainable drainage schemes. (4.1 BIS, 4.3 FComp, 6.4 RBI, 7.4 RBS, 7.5 RT)
Air Quality and Climate Change	<ul style="list-style-type: none"> • Farmers operating in areas where ammonia and nitrogen deposition are causing a deterioration in sensitive habitats could be targeted through the Manure Efficiency Technology Scheme. (4.1 BIS) • Advice provided to rural businesses could specifically include how to reduce the impacts of ammonia emissions, and also about reviewing and taking into account the status of important ecological sites affected by nitrogen deposition. (6.4 RBI) • Advice provided to businesses could specifically refer to the part they can play in adapting to climate change, for example through increasing cooling greenspace and sustainable drainage. (4.1 BIS, 6.4 RBI) • Village renewal and other new developments should incorporate new greenspace wherever possible (4.1 BIS, 6.4 RBI, 7.1a VR, 7.4 RBS, 7.5 RT). • Encourage home-working for those with access to broadband and encourage re-use of ICT equipment to reduce the need for additional production. (7.3 RB) • Visitors/tourists could be encouraged to use non-motorised or public transport. Though outside of DARD's control, environmentally friendly transport services (e.g. coaches, buses and cycle hire) could operate between tourist sites and train stations/airports. (7.5 RT) • Visitor centres could emphasise/advertise the importance of climate change mitigation and adaptation for preserving habitats, whilst

Sustainability Topics	Possible Enhancement Measures
	<p>highlighting the adverse impacts that air pollution caused by vehicles can have on vegetation. (7.5 RT)</p> <ul style="list-style-type: none"> Support for measures to avoid climate change impacts and increase resilience to these could be more clearly identified. Species selection and target annual or programme-wide spatial area needs to be identified to be able to assess the significance of the carbon sequestration and other benefits. (8.1b FE)
Material Assets	<ul style="list-style-type: none"> Local, sustainable and recycled materials ought to be encouraged for all construction works (ensuring that procurement requirements are met), whilst materials from any demolished structures should also be re-used or recycled where possible. (4.1 BIS, 6.4 RBI, 7.1a VR, 7.4 RBS, 7.5 RT) Advice provided to businesses could specifically refer to the importance of waste minimisation and recycling. (1.1a BDKT, 1.2a ITED, 4.1 BIS, 4.2 AfPI, 6.4 RBI, 7.4 RBS) Visitor centres could emphasise/advertise the importance of sustainable resource use, waste minimisation and recycling. (7.5 RT)
Cultural Heritage	<ul style="list-style-type: none"> Incorporate sensitively restored historic buildings into heritage trails with appropriate signage and tourist information boards as part of village renewal schemes. (7.1a VR) Provide advice to business and farmers about the adverse impacts of agricultural and forestry activities and developments on archaeological and built heritage assets and highlight the advantages of protecting and managing these assets as part of the rural economy. (1.2b EAS, 6.4 RBI). Consider including an option under the agri-environment Scheme 10.1a (EF) to complete historic monument management plans to restore and enhance historic monuments. Though not necessarily in the remit of the NIRDP, consider developing a mechanism which would allow information on archaeological and built heritage assets on both sides of the national border to be made available through the relevant government websites. Also consider developing a Northern Ireland 'portable antiquities scheme' which will be a mechanism to incorporate stray finds made through legal metal detecting into the archaeological record.
Green Infrastructure and Ecosystem Services	<ul style="list-style-type: none"> Advice provided to businesses could specifically refer to environmental and sustainability improvement measures, as well as the part they can play in facilitating ecosystem services. (1.2b EAS, 6.4 RBI) New development and technology to improve farm efficiency and productivity must not undermine the farm's ability to provide ecosystem services. Advice should be provided to businesses and local authorities to plan diversification to be consistent with the ecosystem services needs of the local area. (1.1a BDKT, 4.1 BIS, 6.4 RBI) Tourist facilities could emphasise/advertise the importance of green infrastructure and the ecosystem services provided by terrestrial,

Sustainability Topics	Possible Enhancement Measures
	<p>aquatic and marine ecosystems to increase public awareness and understanding. (7.5 RE)</p> <ul style="list-style-type: none"> • Consider a site selection mapping tool to maximise the environmental benefits predicted through woodland expansion, i.e. to ensure the right tree is indeed planted in the right place. (8.1a WE, 8.1b FE) • Specific options for providing ecosystem services, particularly in areas facing natural constraints (i.e. management and protection of habitats, landscapes and water resources) could be provided through agri-environment schemes. (10.1a EF) • Consider blocking drains to restore the hydrology of degraded peatland (in association with the Northern Ireland Environment Agency) and enhance ability to provide ecosystem services. (Measure 10) • Work with the Department of Environment to identify the most important areas for support for improved connectivity of green infrastructure and ecosystem services which would ensure greatest impact with limited funds. (Measures 10 and 8) • Adoption of ecosystem services based approach to farming as set out in the Northern Ireland chapter of the UK National Ecosystem Assessment.

9 Which environmental mitigation and enhancement measures have been incorporated into the Programme?

Following submission of the NIRDP to the European Commission by DARD in October 2014, an Observation letter was issued by the European Commission in March 2015. This set out a number of comments that were necessary for DARD to address before the NIRDP can be adopted. Many of these comments relate to the environment, and as such the finalised NIRDP has had a number of environmental improvements. In particular, these improvements involve inclusion in the NIRDP of a number of the above mentioned environmental mitigation and enhancement measures.

The following mitigation measures will be applied to capital investment:

Where needed the requirements of Environmental Impact Assessments and energy efficiency obligations will be respected. This will include criterion in the selection of eligible items for funding and the assessment of individual projects. This will be in accordance with Article 45 of Regulation (EU) No 1305/2013 which requires an assessment of the expected environmental impact where the investment is likely to have a negative effect on the environment. The following actions will be undertaken:

- An Environmental Impact Assessment (EIA) will be carried out on all investments where this is legally required.

- Capital investment projects will be assessed for possible impacts on Natura 2000 sites and where required a Habitats Regulation Assessment will be carried out by the Competent Authority.
- Investments will be subject to the necessary planning and other permissions.
- All projects will be subject to a Development Path Analysis (DPA) which assesses both the direct and indirect environmental impacts that are likely to result from the proposed activity. The DPA scoring is considered during project selection. Environmental sustainability as a horizontal principle is included in all selection panels.
- Any investments negatively impacting on e.g. climate change, biodiversity, Water Framework Directive (WFD), Floods Directive or air quality objectives such as an increase in livestock or in manure and slurry spreading on land (or other ammonia producing developments) will only be supported if there are appropriate mitigation actions which will be evaluated during project selection and on a catchment basis.
- Only investments that go beyond the requirement of the Nitrates Action Programme will be funded.

In addition the following mitigation measures will be applied to drainage:

Financial support for drainage channels will be provided only if compliance with the WFD, in particular Article 4(7), (8) and (9) is demonstrated taking duly into account cumulative impacts, and the appropriate mitigation measures at river basin management level are foreseen.

In addition to this Northern Ireland will also be making available advice to farmers and land managers, at an early stage and prior to consideration of grant assistance, which will address emissions, manure, pesticide and fertiliser use and other steps they can take to mitigate any harmful impacts on soil, water, air quality and biodiversity.

In respect of the installation of drainage systems to improve land management the following will be required:

- i. A farm level Nutrient and Pesticide Management Plan
- ii. An appropriate environmental assessment of the proposed drainage works.
- iii. Drainage that would have an adverse impact on the Water Framework Directive status of water bodies, flooding under The Floods Directive or the status Natura 2000 sites is not eligible.
- iv. New drainage on high carbon peat soils is not eligible.

The following mitigation measures will be implemented for forestry

- Afforestation of important open, peatland and wetland habitats or near acid-sensitive water courses will be avoided.
- For afforestation and other woodland operations, an appropriate area of open space around features of historical significance will be planned.
- Where evidence suggests that significant historical remains may be present, these will be identified in forest management plans, and ground disturbance will be minimised.

- For new woods in areas where the landscape history is important, restoring tree cover on previously wooded sites will be supported.
- Forests will be designed and managed to take account of the landscape context to ensure visual aspects are appropriately addressed.

10 What monitoring measures have been proposed through the SEA?

Article 10 of the SEA Directive requires DARD, as the Managing Authority, to monitor significant environmental effects of implementing the NIRDP. This must be done in such a way as to also identify unforeseen adverse effects and to take appropriate remedial action. Monitoring should commence as soon as the programme is adopted, with annual reporting carried out for the life of the programme.

Within the NIRDP 2007-2013, Development Path Analysis (DPA) has been used to monitor the environmental impact of projects under certain measures. The DPA recognises six development paths from Path A (activity that simply meets minimum environmental regulations) to Path F (activity that pursues environmental protection), with the objective of the tool being to help shift activity away from Path A towards Path F. This method of analysing projects will be continued under the NIRDP 2014-2020.

ADAS proposed possible monitoring measures based on common context indicators (developed by the European Commission to define the programme strategy) and the results of the SEA as a means of monitoring the identified adverse effects. These suggested measures (which may be undertaken by relevant Government Departments, land owners or organisations) are presented in the table below.

Table 10.1: Suggested Monitoring Measures

SEA Objectives	Possible monitoring measures for undertaking by relevant Government Departments, land owners or organisations
Ecology & Nature Conservation	<ul style="list-style-type: none"> • Record presence of bird and other animal species on farms undergoing intensification, habitat loss or land use change. • Record ecological quality of rivers on, adjacent to or downstream of farmland. • Record the proportion of funding applications for physical construction works where ecological surveys were undertaken. • Where mitigation measures are requested at project level, identify proportion of projects (mid or end of 2014-2020 period) where mitigation was actually undertaken. • Monitor land use of designated sites to ensure that conversion to woodland is not adversely impacting other important habitats on a landscape scale.
Socio-Economics, Health and	<ul style="list-style-type: none"> • Record number of new jobs created and traditional jobs lost. • Record visitor numbers to promoted sites.

SEA Objectives	Possible monitoring measures for undertaking by relevant Government Departments, land owners or organisations
Quality of Life	<ul style="list-style-type: none"> • Monitor air quality in locations where traffic increases due to diversified land use / tourism. • Monitor odour in vicinity of farms for those with METS, those increasing animal numbers, and those diversifying to odour industrial activities. • Record number of diversification/tourism projects that provide/encourage physical activities.
Soil and Land Use	<ul style="list-style-type: none"> • Record amount and grade of land taken out of agricultural production. • Record land area of new impermeable surfaces (e.g. buildings) • Record land area of new woodland and also area of habitats it has replaced. • Survey soil quality, pH, chemical and nutrient content. • Monitor the level of the water table.
Water	<ul style="list-style-type: none"> • Record volume of fertilisers, pesticides and other chemicals used by farmers and land managers. • Record quality of rivers on, adjacent to or downstream of farmland. • Record extent of riparian buffers funded. • Monitor the level of the water table. • Record number of projects responsible for adverse and positive changes in water quality.
Air Quality	<ul style="list-style-type: none"> • Monitor gases/PM during construction / afforestation operations and along tourist routes to ensure emissions are within acceptable thresholds as appropriate to the environmental vicinity (at project level). • Record number of complaints to environmental health department re odour from farms. • Monitor habitats affected by ammonia and nitrogen deposition.
Climate Change	<ul style="list-style-type: none"> • Record the number of business that actually employ energy efficiency measures. • Record proportion of new and renovated buildings incorporating climate adaptation measures, e.g. sustainable drainage systems. • Measure CO2 levels in traffic hotspots. • Measure increase in CO2 sequestered due to afforestation.
Material Assets	<ul style="list-style-type: none"> • Record the number of business that actually employ resource efficiency measures. • Record re-use and recycling rates. • Record proportion of developments constructed on greenfield vs brownfield land and the number that renovate/use existing buildings vs new build. • Record proportion of waste that goes to landfill from construction processes.

SEA Objectives	Possible monitoring measures for undertaking by relevant Government Departments, land owners or organisations
Cultural Heritage	<ul style="list-style-type: none"> Record number of projects that seek to protect or enhance cultural heritage features. Record number of projects that have an adverse effect on cultural heritage features. Record proportion of developments that renovate/use existing buildings vs new build. Record the number of forest management plans that refer to cultural/archaeological heritage.
Landscape	<ul style="list-style-type: none"> Record number of applications for physical/capital construction works where landscape impacts was a consideration. Monitor extent of afforestation by type in areas of open habitat and previous woodland use.
Green Infrastructure and Ecosystem Services	<ul style="list-style-type: none"> Record the proportion of new development that incorporates green space, vegetative planting or sustainable drainage systems. Record the uptake of training in relation to environmental advice. Survey visitor knowledge of 'nature's benefits'.

The European Commission set out in their Observation letter on the NIRDP that:

“monitoring environmental sustainability is an essential element to ensure that the benefits of funding provided can be described in terms of RDP indicators, such as financial outlay and hectares covered, but also in terms of environmental policy targets and outcomes. It is necessary to ensure that it is clear what this monitoring will encompass, and how, and that it is closely related to RDP and environmental policy targets and outcomes.”

The updated NIRDP therefore sets out details on the monitoring system which will be established in conjunction with all the ESI funds to assess environmental sustainability. When scoring project proposals using the DPA analysis, both the direct and indirect environmental impacts that are likely to result from the activity will be considered. In addition, DARD will develop specific indicators to monitor the environmental impact of the programme. These will be included in the working evaluation plan.

11 What will happen next?

Once the NIRDP 2014-2020 has been adopted, an SEA 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 NIRDP.

The environmental impact of the NIRDP will be monitored during the years 2015-2023 by both DARD and the Rural Development Programme Monitoring Committee.