

chapter 6



Environmental Sustainability

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Introduction

Investment under this Plan will make a major contribution to the enhancement and sustainability of our environment including significant measures to assist the limiting of Ireland's emission of greenhouse gases in line with international obligations. An overview of the most relevant direct investment under the Plan is set out below. Apart from this, however, environmental considerations will be central to the implementation of sectoral policy over the period of the Plan. In addition, the Plan's Regional Development Strategy, with its emphasis on implementation of the National Spatial Strategy and integrated land use and investment delivery, will also play a key role. In summary, the overall goal of economic sustainability in the Plan will be complemented by a strong commitment to environmental sustainability.

Investing in Environmental Sustainability

This NDP (2007-2013) includes a range of major investments, totalling over €25 billion, which will directly benefit environmental sustainability:

Public Transport Sub-Programme: The Plan will make an investment of some €13.0 billion in public transport, 4 times the level of investment under the previous plan, over the next seven years to promote and facilitate a switch in transport mode from private cars to public transport, thereby reducing fossil fuel consumption and greenhouse gas emissions in the key transport sector.

Water Services Sub-Programme: Some €4.7 billion of investment will upgrade and expand water treatment capacity, improving drinking water quality and supply, and improving, expanding and rehabilitating wastewater treatment and networks.

Waste Management Sub-Programme: Some €753 million of investment will address the problems associated with legacy landfills; support, through private investment, the development of thermal treatment plants to reduce landfill usage, and promote greater use of recycling and recovery.

Climate Change Sub-Programme: The Plan provides some €270 million to fund the purchase by the State of carbon allowances as one part of our strategy to meet our Kyoto targets.

Sustainable Energy Sub-Programme: Some €276 million will fund the largescale development of wind energy capacity and the development of alternative sources of energy such as bio-mass and bio-fuels, ocean energy and solar and geothermal technologies, this is a further key element to help reduce greenhouse gas emissions.

Agriculture and Food Sub-Programme: Over €6 billion will be expended on schemes with positive environmental impacts.

Natural Heritage Sub-Programme: Some €167 million will fund the purchase of Natura 2000 sites comprising Special Areas of Conservation for habitats and species and Special Protection Areas for birds, as well as the acquisition of habitat-rich sites and designated raised bogs.

Built Heritage Sub-Programme: Some €373 million will be invested to conserve and protect Ireland's architectural and archaeological heritage.

Coastal Protection Sub-Programme: Some €23 million will help protect the coastline from the impact of flooding and erosion.

Environmental Research: Some €93 million will be made available under this heading.

In short the major investment in financial resource terms will be underpinned by the integration of environmental considerations into the planning and execution of capital projects.

Background

Ireland's environment is a unique, finite and irreplaceable asset. It is valuable both in its own right and for the health, well being and enjoyment of our people. The importance of our environment is now widely accepted, and it is acknowledged as a vital part of our common heritage. For these reasons, we must act together to protect and enhance it for the benefit of the current and future generations.

The investment under the Plan will make a major contribution to the protection and enhancement of our environment, especially in the following areas:

- Public Transport;
- Environmental Services;
- Climate Change;
- Renewable Energy;
- Agriculture;
- Heritage; and
- Research.

A rapid and sustained increase in public transport expenditure — both in real terms, and as a proportion of overall transport investment, will facilitate a shift towards this transport mode with significant benefits in terms of reduced fossil fuel consumption and greenhouse gas emissions. The climate change challenge will also be addressed by a sharp increase in resources allocated to renewable energies, environmental research and development and other conservation measures. Continued investment in environmental services will see provision of additional water supply and wastewater treatment capacity, as well as additional recycling facilities and remediation of legacy landfills. Agricultural investment in afforestation, agri-environment, compensatory allowances and farm waste management will all have positive environmental effects. Heritage related expenditure on protection and restoration of habitats and on built heritage is also provided for. This investment will complement other key measures and instruments, both fiscal and non-fiscal, outside the scope of this Plan.

More generally, the principle of sustainability has been recognised nationally and at European and international levels. The European Council has adopted a renewed EU Sustainable Development Strategy (June 2006), following which Member States have been asked to review and update their national sustainable development strategies. This work has commenced in Ireland, and will build upon *Sustainable Development — A Strategy for Ireland (1997)* as updated by *Making Ireland's Development Sustainable — Review Assessment and Future Action (2002)*, which was our input to the Johannesburg Summit on Sustainable Development. Ireland's updated National Sustainable Development Strategy will be completed in 2007 and will further inform the implementation of the investment strategy under the Plan.

The Impact of Economic Growth

Sustainable development rests on three integrated major pillars — economic, social and environmental — and this Chapter of the NDP is concerned principally with the latter pillar. Ireland has benefited greatly from a period — now well over a decade — of sustained and rapid economic growth. The benefits to our society are evident, not just from economic indicators, but from the prosperity of people as reflected in their income and lifestyles. Economic development delivers choice to society and to its policy makers; it enables, for example, advances to be made in social progress so that the less fortunate in society can share in the benefits of prosperity.

Increased prosperity and growth clearly presents challenges. Economic growth — through increased consumption levels, energy demands and waste flows — can add significantly to the pressures on the environment. But it also allows us to respond to these challenges by, for example, providing more and better environmental infrastructure. It is misguided to assume that economic success will inevitably damage our environment. International experience does not support this, and it is evident that less developed countries often face the most acute and intractable environmental pressures. Economic growth — if we act responsibly in tandem with it — allows us to achieve high environmental standards rather than the reverse. Combating environmental pressures, while building upon the synergies between environmental protection and the economic and social aspects of sustainable growth, requires a broad and coherent policy approach across all programmes encompassed by the Plan, although some are more relevant to the environment than others.

The State of our Environment

The most recent comprehensive assessment of our environment was undertaken by the Environmental Protection Agency (EPA) in the context of its State of the Environment Report *Ireland's Environment 2004*. This has been supplemented by *Environment in Focus 2006 — Environmental Indicators for Ireland*, and the data in this report broadly supports the conclusions in the 2004 State of the Environment Report. The Agency concluded in its State of the Environment Report that the quality of our environment remains generally good but that challenges still exist and that awareness and vigilance are required if our environment is to be protected and enhanced for the future.

The EPA identified three specific challenges, namely:

- Meeting international commitments on air emissions, especially greenhouse gases and acidifying gases;
- Combating eutrophication of surface waters; and
- Managing waste flows effectively.

In addition to the above three specific challenges, the 2004 report identified two further, but more general, challenges:

- Better integration of environmental and natural resource considerations into sectoral policies, plans and programmes; and
- Better enforcement of environmental legislation.

A brief assessment of these issues — including the extent of the challenges we face and the action being taken to address them — is set out below. The Government accepts the above analysis, and commits itself to dealing with the challenges involved. This commitment is reflected in the actions being taken in this Plan.

It is worth noting that not all relevant Government expenditures and policies are set out in the NDP. To take one example, the resources (increased significantly in recent years) available to public bodies to enforce environmental legislation are not included in this NDP, nor were they included in the NDP 2000-2006. The

environmental content of the Plan should be assessed in conjunction with other environmental policies to get a full picture of the Government's overall approach to the environment.

The Principal Environmental Challenges

Climate Change

Climate change is, by a considerable margin, the most pressing international environmental issue that we face. It is fundamental equally to our global environment, to social stability within and between nations, and to sustainable developments more generally. There is no unilateral solution to the challenges it presents. All countries must play their part in stabilising and reducing greenhouse gas emissions to the point where climate change no longer threatens us. And, within countries, all sectors in society must share the burden of the necessary corrective measures. The Government is acutely conscious that, domestically and as part of the European Union, we must play our full part in addressing this vital issue.

The National Climate Change Strategy, published in 2000, provides the basis for Government policy and action for reducing greenhouse gas emissions in the most efficient and equitable manner, and for ensuring that Ireland meets its commitments under the Kyoto Protocol to the United Nations Framework Convention on Climate Change. The Strategy identifies a range of policies and measures to reduce the level of greenhouse gas emissions across various sectors. Since its publication, the Strategy has been subject to ongoing review to take account of developments at national, European and international levels, with new measures being adopted and existing measures tailored to suit changing policy contexts. A comprehensive review paper, *Ireland's Pathway to Kyoto Compliance*, published in July 2006, assessed progress in implementing the Strategy, the emissions trends across each sector, and proposed additional measures for Ireland to meet its target for the purposes of the Kyoto Protocol in the most cost effective way.

The Government will shortly publish an updated version of the National Climate Change Strategy following the public consultation process on the July 2006 review paper.

In preparing a new strategy, the Government will emphasise the need to address Ireland's greenhouse gas emissions in a holistic way, to acknowledge the important role of the private sector and of individuals in reducing greenhouse gas emissions and to take account of our Kyoto Protocol obligations when setting policies across all relevant sectors of Ireland's economy.

While Ireland will meet its Kyoto Protocol target, the new strategy will also pay due regard to likely future commitments under a successor agreement to the Kyoto Protocol. In this regard, the EU and its Member States have been to the forefront in proposing ambitious targets for a new international agreement and have called on developed countries to consider reductions in their emissions of the order of 15%- 30% by 2020 compared to 1990 levels. While this is likely to entail some costs, the Government must take account of the findings of recent studies (such as the Stern Report on the economics of climate change) as noted in the conclusion of the European Council in December 2006, that the costs of inaction for the global economy will significantly outweigh the costs of action.

The Plan has been drafted taking account of Ireland's commitment to limit emissions of greenhouse gases under the Kyoto Protocol. This is evident in, for example, the investment programmes for the transport and energy sectors. A significant increase in investment in public transport both in absolute terms and as a proportion of overall transport expenditure is foreseen for the 2007-2013 period. In the energy sector, this Plan builds on recent initiatives to increase support for, and awareness of, sustainable energy through provision for continuing investment in renewable energy and energy efficiency measures. Measures in these sectors and elsewhere will contribute to the continuing reduction in emissions intensity of Ireland's economy and the longer-term reduction in absolute emissions. Provision is also made in the Environmental Services Programme in Chapter 7 for the purchase of carbon credits as is permitted under the Kyoto Protocol.

The Plan also builds upon existing initiatives by providing for enhanced investment in research, in line with the Strategy for Science, Technology and Innovation, in areas of direct relevance to the sustainability of Ireland's greenhouse gas emissions profile. In particular, programmes of research in the environment, energy and agri-food sectors will inform future policy options for greenhouse gas mitigation. There is an international consensus that some degree of climate change is inevitable due mainly to current and historic levels of greenhouse gas emissions. Even if significant progress can be made in reducing global greenhouse gas emissions in the short to medium term, current and historic emissions will continue to cause changes in the climate system for the foreseeable future. Some degree of adaptation in natural and human systems in response to actual or expected climate changes will therefore be required.

The climate change impact scenarios for Ireland prepared under the 2000-2006 Environmental Research Technological Development & Innovation (ERTDI) research programme underlines the importance of addressing climate impacts in policy making. The Government recognises this need and proposes to develop an appropriate policy framework for addressing the potential impacts of climate change in Ireland. A key objective will be to guide future integration of climate change considerations in future investment priorities in key sectors.

Eutrophication of Surface Waters

While Ireland's water quality overall remains of a high standard, the eutrophication of freshwaters and estuaries is a significant problem. Eutrophication arises from excess inputs of nutrients (mainly nitrogen and phosphorus) to waters leading to excessive plant growth, depletion of oxygen and habitat degradation. The major sources of nutrient loss to waters are agriculture and municipal sewage discharges, with other sources also making a contribution.

The main instruments for tackling eutrophication caused by agricultural sources are the National Nitrates Action Programme, the related regulations and the many measures which have been put in place to support the implementation of the Programme. The European Communities (Good Agricultural Practise for the Protection of Waters) Regulations generally came into effect from 1 February 2006 with specific provisions to be phased in over a 4-year period. The primary emphasis of the Regulations is on the management of livestock manures and other fertilisers. They give further effect to the Nitrates Directive and other EU Directives on waste management and water protection and, in particular, support the implementation of Ireland's Nitrates Action Programme. Implementation of the Programme is also supported by other measures such as cross-compliance inspections by the Department of Agriculture and Food (DAF), a significantly improved Farm Waste Management Scheme operated by DAF, information and advisory services to farmers etc.

The National Nitrates Action Programme will be implemented on a phased basis and will operate for a period of 4 years. The implementation of this first action programme will be monitored on a continuing basis by reference to water quality and to agricultural practices. The support for farm waste management set out in Chapter 8 of the Plan will assist in meeting our obligations under the Nitrates Directive.

The impact of wastewater discharges on water quality is being reduced significantly by the continuing high level of investment under the Water Services Investment Programme and the provision and upgrading of waste water treatment facilities. Very significant progress in meeting the requirements of the Urban Waste Water Treatment Directive was made over the period of the last Plan, such that compliance has risen from 25% in 2000 to 90% in 2006. As a result, pollutant loads to our waters have been reduced by 45,000 tonnes per annum. Further details of projected investment in water and waste water services are set out in Chapter 7 of this Plan.

Other key pressures which potentially contribute to the eutrophication of waters include: forestry; on-site wastewater treatment systems (e.g. septic tanks); industrial discharges; and urban land-use. Legislative proposals are being developed to provide for strengthened protection of water quality in many of these situations. High priority continues to be given to the implementation of the Water Framework Directive 2000

which provides a systematic basis for tackling all sources of water pollution. To date, Ireland has met on time all implementation deadlines under the Directive. A series of studies has been initiated under the direction of a Water Framework Directive National Technical Coordination Group to investigate further the key risk factors associated with these pressures and to develop recommendations for further measures to reduce their impact. Some of these recommendations will help guide future investment in wastewater infrastructure under the Water Services Programme in the Economic Infrastructure Priority of the Plan.

It is evident, therefore, that the challenges arising from the eutrophication of surface waters are being addressed across a wide front, and it is expected that ongoing improvements in water quality will be recorded in future reports by the EPA.

Waste Management

Waste poses a serious economic and environmental challenge for Ireland. Across the EU, waste generation has continued to grow at a pace that equals and sometimes surpasses economic growth. A sustainable approach to dealing with this requires the integration of a number of elements — reducing the extent of waste generation through waste prevention strategies, maximising the recycling and recovery of waste and minimising the environmental impacts of the final disposal of waste, particularly through reducing the reliance on landfill. Ireland has made considerable progress since the late 1990s in implementing such an integrated approach.

Ireland has greatly improved its recycling performance and is moving quickly towards becoming a recycling society. In 1998 Ireland's recycling rate was 9%; in 2004 this has risen to 35%. Packaging waste recycling in the same period rose from 14.8% to 60%, while the implementation in 2005 of the EU Directive on Waste Electrical and Electronic equipment has led to a 400% increase in the recycling rate for that waste stream. The number of local authority recycling centres rose from 30 to 73, while bring back facilities have more than doubled over the period. Over the period of the Plan, further improvements to national recycling rates will be achieved. The network of recycling centres will be improved; further producer responsibility initiatives will be implemented for significant waste streams such as end-of-life vehicles, newsprint and tyres; a National Market Development Programme will increase the outlets for recycled products; and the National Strategy on Biodegradable Waste will achieve progress towards meeting its targets for diversion from landfill.

While headline recycling rates are improving spectacularly, this translates into only a small reduction in the amount of municipal landfilling. In effect, the link between economic growth and waste generation has been weakened but it has yet to be severed fully. There will be an emphasis on improving national performance on waste prevention and minimisation under the auspices of the National Waste Prevention Programme which was launched by the Government in 2004.

Considerable progress has been made in modernising our landfill infrastructure, but the legacy issues of older, poorly managed landfills have also to be dealt with and a comprehensive programme is being put in place to address this. All landfills currently operating, and those to be developed, will be engineered facilities licenced by the EPA to the highest standards. Local authorities and other landfill operators will be required to make proper provision for future remediation and aftercare costs, as mandated by the Environmental Liability Directive.

In line with national policy on the integrated approach to waste management, thermal treatment with energy recovery will be the preferred option for dealing with residual waste after achieving ambitious targets in respect of waste prevention, recycling and recovery. This is reflected in the regional waste management plans for which the local authorities have statutory responsibility. These waste-to-energy plants will be provided as entirely private sector developments or by way of public private partnership. Two plants which are to be privately developed have received regulatory approval but are subject to legal challenge. In the case of the Dublin region the relevant authorities are proceeding by way of a public private partnership for which the necessary regulatory approvals are being sought. Other regions are at earlier stages in the process.

Finally, it will be important to maintain the momentum of the successful enforcement initiatives that have been put in place over the last two years to help create a culture of compliance with waste legislation.

Integration of Environmental Considerations into Sectoral Programmes

Action on integrating environmental and natural resource considerations into sectoral programmes is continuing at European and national levels. The Treaty establishing the European Union states that “Environmental protection requirements must be integrated into the definition and implementation of Community policies and directives”, and the individual sectoral formations of the European Council are taking this work forward in the context of the Cardiff process. The renewed EU Sustainable Development Strategy (2006) has as one of its policy guiding principles to “Promote integration of economic, social and environmental considerations so that they are coherent and mutually reinforce each other by making full use of instruments for better regulation, such as balanced impact assessment and stakeholder consultations”.

Ireland’s *Sustainable Development — A Strategy for Ireland* was adopted in 1997 and was one of the earliest in the EU. Its overall objective can be summarised as integrating environmental considerations into strategic policy sectors (agriculture, forestry, marine resources, energy, industry, transport, tourism). Comhar — the Sustainable Development Council — was established as a supporting structure, and is representative of all sectoral interests.

Subsequently, in 2002, *Making Ireland’s Development Sustainable — Review Assessment and Future Action* was published as our national input to the UN World Summit on Sustainable Development in Johannesburg. This sought to place the National Sustainable Development Strategy more fully in the context of the environmental challenges associated with the stage of economic development which Ireland had now reached.

Ireland will complete a renewed National Sustainable Development Strategy in 2007, consistent with the principles set out in the 2006 EU document and building on the approaches that have already been implemented here on foot of the previous work.

National Spatial Strategy

The implementation, through the Plan’s Regional Development Strategy, of the National Spatial Strategy (NSS) will also have a number of key environmental benefits and will assist in integrating environmental considerations into Plan investment. This is dealt with in more detail in Chapter 3 but by establishing a strategic spatial framework, within which future development pressures and needs can be managed and channeled, the NSS is assisting environmental sustainability by:

- Supporting more balanced regional development through encouraging future development and growth to take place within a settlement structure of Gateways as regional cities, Hubs as regional towns, other large and medium sized towns and suitable locations within rural areas;
- Ensuring that through a structured and planned approach in meeting Ireland’s development needs into the future, key environmental services such as water services and waste management can be provided in a proper and sustainable manner;
- Focusing large scale urban growth at a number of strategic locations, thereby facilitating compact and sustainable urban development that will create the conditions supportive of enhanced delivery and usage of public transport and minimisation of energy requirements; and
- Facilitating the conservation of environmental qualities and development of environmental capabilities of rural areas by establishing a spatial context for parallel but complementary policies on protecting air and water quality, conserving our natural and cultural heritage and maximising the contribution of renewable energy.

Working within the national policy framework established through the NSS, Regional Planning Guidelines (RPGs) have been adopted by all eight Regional Authorities and provide a statutory framework within which the development plans of City and County Councils are being integrated. The strategic policy dimension of spatial planning is strengthened by such integration of plans at national, regional and local levels. This will also assist in promoting sustainable development through urban areas that are more compact, high quality and better served by public transport.

For example, taking the high level aim of the NSS for the consolidation of the physical development of Dublin City, the RPGs for the Greater Dublin Area are encouraging a greater yield of housing within the city focused on strategic, public transport served sites. Through corresponding local planning initiatives, development of a number of large residential development areas including at least 3 Strategic Development Zones, all of which are located on the city's improving rail network, have contributed significantly to a doubling of housing output in the city over the past 5 years.

At the level of individual projects, the requirements of the Environmental Impact Assessment Directive will continue to be applied to all projects coming within its scope.

Better Environmental Enforcement

Clearly, enforcement of environmental legislation is important in securing good levels of compliance with this legislation. In recent years the problems associated with illegal dumping of solid waste, in particular, have highlighted this, although robust enforcement will generate returns in respect of compliance with all environmental legislation.

There is now a very significant corpus of legislation on the environment in force in this country. Some of this legislation has originated at European level and some is primary or secondary national legislation. This overall regulatory framework has been of real benefit to the condition of all our environmental media, especially water quality, air quality, wastewater treatment and waste management.

The Office of Environmental Enforcement in the EPA has made good progress in co-ordinating better enforcement cooperation between the different agencies involved in environmental enforcement, and this progress will be built upon for the future.

Natural Heritage and Biodiversity

Ireland's biodiversity, which includes our ecosystems, provides environmental services vital to human welfare. These environmental services include the provision of food, fresh water, clean air and nutrient recycling, all of which are essential to human life. Furthermore, our natural environment is valuable and worthy of protection in its own right.

Ireland is committed to meeting the EU target to halt the loss of biodiversity by 2010. In particular, Ireland has a responsibility under two EU directives — the Habitats Directive and the Birds Directive — to protect the integrity of habitats and species of European importance, known as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The SACs and SPAs are part of a European network of Protected Areas known as Natura 2000. In Ireland, this process has seen the designation of 870,000 hectares of land and a further 430,000 hectares of our marine territory. The Plan provides for a programme of capital works to protect and restore the integrity of the habitats under the Natural Heritage Sub-Programme of the Social Infrastructure priority. The purchase and restoration of areas of raised bog will be a particular focus of this Programme due to the importance of this habitat in Ireland. These raised bogs act as effective carbon sinks and provide an important environmental service in meeting our efforts to combat climate change.

The National Parks are flagships for the conservation of our natural heritage and biodiversity. Under the Plan, investment will be made in management plans and visitor facilities in both the National Parks and Nature Reserves.

The Impact of the Plan on the Environment

The National Development Plan impacts on many aspects of our environment but some investment programmes are more important than others in this respect. It is not possible within this Chapter to deal with the environmental dimension of all the programmes and measures included in the Plan. This section is confined to those programmes of most direct relevance to the environment.

Transport

There have been major economic, social and demographic changes in Ireland over the past decade, and these have given rise to greatly increased demands on our transport systems. Among the resulting changes are longer commuting times, increasing car numbers and usage, and serious congestion difficulties with attendant impacts on competitiveness, quality of life and the environment. The environmental impacts include increased greenhouse gas emissions, increased levels of acidifying gases and particulate matter, noise and other impacts on the natural and built environment.

The development of *Transport 21* as a key objective under the NDP will focus on the delivery of a modern state-of-the-art transport system that will, inter-alia, promote sustainable transport solutions, including clean urban public transport, clean vehicle technologies and fuels, more fuel efficient driving techniques and zero-emission travel modes such as walking and cycling. Crucially, investment in public transport will facilitate a modal shift from private to public transport and sustainable criteria will be mainstreamed into all transport investment policy development.

Investment in road improvement and new roads can also assist in reducing the environmental impact of road transport. Traffic that flows more freely cuts down the level of pollution generated by stop-start driving and congestion generally. By-passed towns and villages will benefit from reduced congestion in many ways including reduced air emissions and noise. Road projects will be designed to minimise adverse impacts and to maximise positive ones. To this end, Environmental Impact Assessments (EIAs) will continue to be carried out as appropriate.

Investment in public transport is exceptionally beneficial to the environment. It will facilitate a very significant modal shift away from private to public transport with all the consequent benefits this will have for consumption of fossil fuels and reduction of CO₂ emissions. In addition, the NDP provides for an initial allocation of some €5 million for a range of pilot sustainable transport initiatives. These initiatives will facilitate the mainstreaming of sustainability criteria into transport investment decision making and to make cleaner more environmentally-friendly vehicles available, embracing the haulage industry, taxis and, of course, public transport operations. Government investment and support will be provided for increased use of alternative fuels and technologies and eco-driving initiatives to facilitate more fuel efficient and cost saving driving styles.

Investment in airport infrastructure facilitates benefits, inter alia, the aviation industry. Aviation gives rise to some adverse environmental impacts, especially CO₂ emissions. The EU has taken the first steps to bring the aviation industry within the EU Emissions Trading Scheme in future years.

Energy

Environmental protection is one of the key pillars underpinning sustainable energy policy along with creating competitive markets and security of supply. Reducing our dependence on fossil fuels is directly relevant to driving down CO₂ emissions. This Plan sets out objectives in Chapter 7 to:

- Stimulate energy efficiency;
- Stimulate renewable energy production;
- Promote clean urban transport; and
- Ensure integration and innovation.

Ireland has significant renewable energy resources available but their large-scale exploitation continues to require support and intervention by policy makers because of the investment costs and risks entailed. This intervention is required across the three principal energy sectors: electricity, heat and transport and in the industrial, public, commercial and domestic sectors.

The proposed investments will considerably enhance environmental sustainability. Increased market penetration of renewable energy technologies in the electricity, heat and transport sectors will displace fossil fuels such as coal, oil, gas and peat. In the case of electricity, the 2010 target for renewable energy consumption has been increased to 15%. In the case of biofuels, 5.75% of the transport fuel market will consist of low emission renewable fuels. In the heat market, wood, solar, geothermal and other technologies will replace traditional oil, gas and electric heating systems. Direct financial assistance to grow the markets for established technologies will have immediate results in terms of increasing the share of clean renewable energy generation. Research, development and demonstration programmes will advance the deployment of newer technologies and practices with a view to increasing the range of technologies available, thereby offering wider consumer choice suited to the individual needs of domestic, commercial, public and industrial users, and leading to more widespread market penetration.

The energy efficiency measure will contribute to security of supply and sustainability by promoting and incentivising a reduced overall demand for energy, either through the application of new technologies and practices (for example, enhanced building standards and practices) or through a sustained awareness raising of the benefits and means of reducing energy demand.

Building

Building activity has environmental impacts and policies are in place to mitigate and alleviate these including the building regulations and guidelines on residential density. More broadly, housing interventions are aimed at improving living environments particularly through social inclusion, regeneration and estate management issues.

The energy efficiency of building will be promoted through implementation of the EU Energy Performance of Buildings Directive (EPBD) for existing and new housing and all other habitable buildings. Compliance with the enhanced performance standards over time of the building regulations and other regulations covering energy-using installations and equipment will lead to improved energy efficiency of additions to the building stock and major renovations.

Environmental Services

Waste water infrastructure projects generally have an immediate and positive impact on environmental standards and quality of life. Considerable progress has been made in advancing municipal waste-water treatment including phosphorous removal, and the NDP provides for further investment into the future so that, inter alia, nutrients are removed from waste waters. This is important in the context of combating eutrophication of surface waters, although the relative proportion of eutrophication caused by agricultural sources is higher than that from urban waste water discharges.

Good quality water supplies are fundamental to public health. Measures to reduce unaccounted for water in public water supplies also reduce abstraction requirements at source and related pressures on the environment.

Waste Management

The integrated approach to waste management was discussed earlier. The period of the Plan will see very substantial investment to complete the provision of a comprehensive modern waste infrastructure and to deal with the legacy issues of old landfills.

Agriculture

The programme encompasses the agricultural measures included in Ireland's 2007-2013 Rural Development Strategy and Programme. In line with the relevant EU regulatory framework, a central theme of that strategy/programme is the environment. The focus is on enhancing natural resources and landscapes. Various measures including afforestation, agri-environment, compensatory allowances and farm waste management-related capital investment address this priority. The forestry measure will mitigate climate change. The agri-environment measure will protect biodiversity and traditional agricultural landscapes and will build on the now well-established success of the Rural Environment Protection Scheme (REPS). The farm waste management support will guard against water pollution. The support for less favoured areas through compensatory allowances will promote the continued use of agricultural land, thus maintaining the countryside and improving sustainability.

The education/training and advisory service sub-programmes will also support the environmental priority. Training and advice will promote compliance with environmental requirements and positive environmental practices generally.

Tourism

The Tourism Development Programme will be based on well-established principles of sustainable development, with an emphasis on measures to promote regional and seasonal spread. Product development supports will be designed in accordance with best environmental practices and principles, which will be supported by a new Environmental Unit which has been established in Fáilte Ireland.

Coastal Protection

The environmental impacts of projects undertaken under the Coastal Protection Sub-Programme are largely positive. The Irish coastline contains a wealth of resources, of economic, social, cultural, environmental and nature conservation value. In recent years it has been accepted that the coastline is a valuable natural resource which needs careful and sensitive management. Project design and planning takes full account of environmental, ecological and heritage issues. Environmental Impact Assessments are undertaken for schemes which are likely to have a significant impact in environmental terms. All necessary statutory consents are obtained prior to works commencing.

The Plan will finance structural works involving the construction of Flood Relief Schemes. All these schemes will be implemented in an environmentally friendly fashion, as far as possible, taking account, in particular, of the principles of the Government's National Biodiversity Plan. In addition investment under the Built and Natural Heritage Sub-Programmes will make important contributions to environmental sustainability.

Environmental Research and Development

Increasingly, research and development is seen as vital to meeting our aspirations for protecting and enhancing our environment. We depend on cleaner technologies to minimise our environmental footprint and these technologies can often redress the legacy of past environmental damage. Furthermore, eco-industries — which are heavily dependent on environmental research and development — are big business. For example, they employ over two million people in the EU and the sector is recognised as one of the fastest growing in the Union. The EU's Environmental Technologies Action Plan (ETAP) recognises that the development of eco-technologies is a "win-win" solution that promotes environmental protection and the Lisbon Goals of more rapid growth and jobs at the same time.

Consistent with the principle that the environment should be integrated into all sectors, environmental research will be undertaken as part of many NDP measures and programmes that have a significant environmental impact. This will include the energy, transport, agriculture and marine sectors, and naturally, environmental infrastructure in its own right.

In addition to the above, the Enterprise, Science and Innovation Priority includes provision for the EPA to continue to fund a dedicated R&D programme for environmental protection. This programme will facilitate realisation of ETAP objectives in Ireland through continued advice to inform environmental policy development and implementation and through research into clean technologies.