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MOBILISING POLICY INSTRUMENTS FOR SUSTAINABLE DEVELOPMENT

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This briefing paper has been prepared to inform the proceedings of the Comhar SDC conference 'Making it happen – towards a sustainable Ireland' on 7th and 8th November 2007. Opinions expressed are not necessarily those of Comhar but are intended to encourage debate and greater understanding of sustainability issues.

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1 INTRODUCTION

This study by Byrne Ó Cléirigh has been undertaken to inform Comhar Sustainable Development Council (SDC) on the mobilisation of policy instruments for Sustainable Development and in particular Climate Change in Ireland. These include market based instruments, subsidies, regulation, voluntary approaches, direct State investment, information and education, and research and development.

This study will form part of the proceedings at the Comhar SDC annual conference to be held in Dublin in November 2007 and will be used to inform Comhar SDC in framing its recommendations to Government on the implementation of Ireland's revised National Sustainable Development Strategy and on the realisation of the new Programme for Government.

It should be noted that this is an initial study and therefore does not attempt to identify all policy instruments available in the area of Sustainable Development and Climate Change. This study has been developed as a discussion document to provide an initial starting point for further, more developed work on the policy options available to Ireland.

2 BACKGROUND TO THE STUDY

2.1 Sustainable Development

Sustainable Development can be defined by the Brundtland definition which states that Sustainable Development is:

> *'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'*

As described by the European Commission Sustainable Development website[1], Sustainable Development offers a vision of progress that integrates immediate and longer-term needs, local and global needs, and regards social, economic and environmental needs as inseparable and interdependent components of human progress. It also describes how Sustainable Development will not be brought about by changes in policies alone. It must be taken up by society at large as a guiding principle that enables people to consider the sustainability of the choices they make every day, as well as for the major political and economic decisions that have consequences for everybody. Realising this vision will require profound changes in thinking, in economic and social structures, and in consumption and production patterns.

Sustainable Development can be viewed within the three pillars of: environmental protection, social improvement and economic development. Graphically it can be seen to have the economy existing within society and society in turn existing within the environment. In this way, it is observed that the reliance of all systems in the economy and society ultimately rests in the environment. For this reason, the protection of important environmental systems must underlie all social and economic systems.

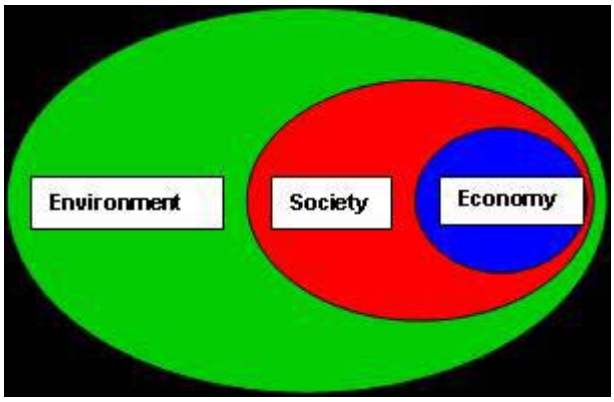


Figure 1: Pillars of Sustainable Development

[1] European Commission Sustainable Development website: http://ec.europa.eu/environment/eussd/ .

2.2 Sustainable Development and Climate Change

One of the greatest challenges to Sustainable Development in Ireland today is Climate Change. Climate Change is the gradual changing of the earth's climate and the corresponding changes in weather patterns and events due to global warming caused by the build up of greenhouse gases (GHGs) in the earth's atmosphere.

Climate Change will, in the medium to long term, have significant effects on all levels of society, the economy and the environment. The current scientific consensus is that the cause of Climate Change is emissions of GHGs from human activities such as fossil fuel use and changes in land use[2]. These increases in emissions are responsible for increasing global temperatures and are expected to continue raising temperatures globally over the coming decades by between +1.4°C to +5.8°C by the year 2100 (compared to 1990 temperatures) according to the latest reports from the UN Intergovernmental Panel on Climate Change (IPCC).

According to the EU strategy on Climate Change[3], the current target is the prevention of dangerous anthropogenic (man-made) Climate Change. This target is set at limiting the global temperature increase to 2°C above preindustrial levels. Recent research from the EU Climate Change strategy indicates that a level of 550 parts per million CO_2(ppm) offers, at most, a one in six chance of meeting the 2°C target, while if the concentration were to rise to 650 ppm, there is a one in sixteen chance of meeting the target. Consequently, limiting the temperature rise to 2ºC will very likely require GHG emissions to be stabilised at much lower levels.

From atmospheric data available from the Global Monitoring Division of the United States based National Oceanic & Atmospheric Administration (NOAA), in 2003, the CO_2 level in the atmosphere was below 374 ppm. As of August 2007, the level had reached above 382 ppm. This indicates that since 2003 the level of CO_2 in the atmosphere has increased by more than 8ppm or by over 2%.

This demonstrates that locally and globally Climate Change must be addressed as an over-arching theme of any Sustainable Development strategy. Within this paper, we focus on the issues surrounding Sustainable Development and Climate Change and we identify a basket of instruments available to policy makers for dealing with them.

2.3 Background to Comhar SDC Conference 2007

The 2007 annual Comhar SDC Conference 'Making it Happen – towards a sustainable Ireland' will be held on the 7th and 8th November 2007. The focus of the conference will be on the implementation of the Sustainable Development agenda in Ireland in line with the soon-to-be-published revised National Sustainable Development Strategy (NSDS).

[2] Intergovernmental Panel on Climate Change 4th assessment report, UNEP, 2007.
[3] Winning the Battle Against Global Climate Change, Official Journal C 125 of 21, EU, 2005.

The conference will focus on how well Ireland is performing in relation to sustainability and critically examine the policy drivers for the delivery of Sustainable Development across all levels of national, regional and local Government. In June 2007, the new Programme for Government, which included a range of initiatives related to Sustainable Development, was agreed. It included ambitious new targets to be met using a range of new and established Government policies. These are shown in Table 1.

Table 1: Some Key Targets of New Programme for Government*

A reduction of 3% per year on average in Ireland's greenhouse gas emissions.
A Carbon Levy will be phased in on a revenue-neutral basis over the lifetime of this Government.
Introduce revised National Building Standards in 2007 to ensure that new housing has 40% lower heat energy demand than existing Building Standards and revise again in 2010 to achieve a 60% target in further years.
Review the Forestry Premium levels and ensure by 2012 that a minimum of 30% broadleaf will be planted annually.
An outline Carbon Report (Carbon Budget) in conjunction with the annual financial Budget.
To weight Vehicle Registration Tax (VRT) and motor tax in favour of vehicles with lower emissions.
A multi-criteria analysis of all transport projects to take into account environmental factors on a whole project basis.
Set targets to convert a minimum 5% of acreage to organic farmland by 2012.

* *Subject to the controlling economic and fiscal framework*

2.4 Background to Irish National Sustainable Development Strategy

The first Irish Sustainable Development Strategy 'Sustainable Development: A strategy for Ireland' was published in 1997. This was related to the European Union (EU) Amsterdam Treaty, which made Sustainable Development a core principle within the EU. In 2002, Ireland published its revised Sustainable Development strategy 'Making Ireland's Development Sustainable' and by the end of 2007 the revised National Sustainable Development Strategy will be published[4]. This will be in line with the latest renewed EU Sustainable Development strategy published in 2006.

[4] For further information on Comhar's inputs to this strategy, please see Comhar SDC position paper – 'Recommendations on the Review of the National Sustainable Development Strategy' available for download from the Comhar SDC website www.comharsdc.ie .

Since the first strategy in 1997, a number of policy instruments have been implemented, with varying levels of success. Environmental taxes/levies, such as the plastic bag levy and other initiatives such as the Producers Recycling Fund (under the Waste Electrical and Electronic Equipment Directive) have all had various levels of success in reducing waste and consumption hence supporting Sustainable Development. The plastic bag levy had the effect of reducing the number of plastic bags used in Ireland by over 90%. However, other potential policy instruments have been under utilised or not yet introduced and require further investigation as to their usefulness in meeting Ireland's Sustainable Development objectives.

For policy makers, some of the primary concerns with the use of these policy instruments are:

- the knock-on effects of these policies on other areas; for example, reduced competitiveness or inflationary implications;
- the overall success in achieving the desired objective.

The plastic bag levy is an example that illustrates this point. The overall objective was to reduce the number of plastic bags used and hence reduce the amount of plastic bags littering the countryside. This instrument was successful in reducing the consumption of plastic bags by over 90% and reducing the plastic bag litter by over 95%. The knock-on effects included less plastic bags entering landfills, a reduction on the consumption of oil based plastics and an increase in the use of paper shopping bags.

To assess whether a policy is succeeding or failing, it is important that some measurement is made of the policy instrument's success. One way to measure the success of Sustainable Development policy is to use a set of monitoring metrics such as Sustainable Development indicators. The report *Counting What Counts – A Review of Sustainable Development indictors in Ireland*[5], sets out a list of examples of these indicators.

2.5 Aim of this Research Paper

This paper has been produced by Byrne Ó Cléirigh to provide a list of innovative policy options that may be used singly or in combination to aid the delivery of Sustainable Development and, in particular, reduce the risks of Climate Change. As agreed with Comhar SDC at the start, we have focused primarily on the issue of Climate Change and have provided an overview of the current policy instruments in use and their performance characteristics, where available, in Ireland.

[5] Counting What Counts – A Review of Sustainable Development indictors in Ireland, C Maguire and R Curry, Comhar, 2007.

In addition to this review of Irish policy instruments, we have assessed a range of best practice and alternative policy instruments from around Europe and using this information have compiled a range of options for Ireland to consider introducing either singly or in combination. This paper has been written within the context of the ambitions of the current Programme for Government to reduce GHG emissions and to achieve compliance with Ireland's obligations under the Kyoto Protocol[6] in the period 2008 to 2012. This paper, and its accompanying presentation, will provoke discussion and assist policy makers in finding sustainable solutions to the challenge of Climate Change in both the immediate term and in the post Kyoto period.

[6] See Annex B for a description of the Kyoto Protocol

3 CURRENT POLICY INSTRUMENTS IN IRELAND

In this section, we assess some of the primary policy tools in use by the Irish Government to encourage Sustainable Development. In particular, we focus on the issue of Climate Change and the potential threat it poses to sustainability globally and, in particular, in Ireland.

3.1 Market Based Instruments

3.1.1 Environmental Tax/Levy

An environmental tax can be defined as a tax levied on, or related to, an area or tax-base which has a relationship with the environment. This definition has been agreed by international experts and adopted by the Statistical Office of the European Communities (Eurostat) and Organisation for Economic Co-operation and Development (OECD). It allows analysis to be based on the effects of taxes rather than the primary intention behind their introduction; for example, the aim of a tax for raising government revenue rather than reducing environmental pollution does not exclude it from being defined as an environmental tax.

There are a number of these taxes currently in use in Ireland with a direct and indirect influence on Sustainable Development and GHG emissions. These include the plastic bag levy, landfill levy, excise duty on mineral oils and vehicle registration tax (VRT).

As discussed above, while some of these taxes are devised primarily for raising revenue they are still considered to be environmental taxes due to the effect they have on improving the environment and in changing consumer behaviour. An environmental tax can also be described as a means for policy makers to help the consumer become aware of the effects on the external environment from the use or consumption of particular goods/services. Environmental resources such as air quality or a stable climate should not be seen as 'free goods' and activities impacting on these resources should reflect the true cost of the goods or service. By increasing the price of unsustainable goods and services, the demand from consumers is reduced and producers are encouraged to find cleaner and more efficient ways of producing their good and/or services.

The key environmental taxes in use in Ireland today are:

- *Excise duties on mineral oils*[7]
  This tax on petrol, diesel, LPG, heavy fuel oil, coal and kerosene is a significant source of Government revenue. It is a usage based tax and reduces consumption by increasing the cost to the consumer. It has been found that due to fluctuating prices, primarily due to market oil prices, there is a large inelasticity with these prices. An increase of a few percent in the cost of the fuel does not lead to a corresponding

[7] Coal and other solid fuels are included for consistency with Council Directive 2003/96/EC (the "Energy Tax Directive").

decrease in usage. This is due in part to the essential use of fuels by people for transport and heating;

- *Vehicle registration tax (VRT)*
  VRT is ring fenced within the Local Government Fund and allocated to Local Authorities (LA) as part of their funding mechanism. It is a significant source of revenue and if reduced would have a large impact on LA's budgets. The current VRT system is due to be changed, as per the National Climate Change Strategy 2007 – 2012, in 2008 to be more closely aligned with CO_2 emissions. This has already been carried out in many European countries including Portugal where the 2008 budget is to rebalance the car purchase tax. The current car purchase tax is 30% based on CO_2 emissions with the rest based on engine size and other factors but as of 2008, 60% of the tax will be based on CO_2 emissions;

- *Landfill levy*
  This levy is charged to the landfill operator at a rate of €15 per tonne of waste placed in a landfill. The purpose of the levy is to encourage the diversion of waste away from landfill towards more sustainable waste management options such as recycling and biological treatment. The levy has not increased since it was first introduced in 2002 due to concerns of its effect on business competitiveness. In the UK, the landfill levy (currently £24/tonne) is, from 1 April 2008, to be increased in the standard rate of the landfill tax by £8 a tonne per year, until at least 2010-11 and an increase in the lower rate (inert) of the landfill tax from £2 per tonne to £2.50 per tonne from 1 April 2008. To date, the UK landfill tax has successfully reduced the quantity of waste being sent to landfill by about 25% between 1997 and 2006;

- *Plastic bag levy*
  The plastic bag levy was raised in July 2007 from €0.15 to €0.22. Initial indications show that the use of plastic bags in Ireland has dropped by over 90% according to the Department of the Environment, Heritage and Local Government (DEHLG) since the introduction of the first levy in 2002. This is an example of an innovative policy first introduced by Ireland and now being examined by many European countries as part of their environmental policies.

3.1.2 Tax Incentives

Incentives to encourage the reduction in the release of GHGs are primarily focused on tax reductions for more efficient processes and changes in behaviour. They work by reducing the amount of tax paid and hence the price the consumer pays for the goods or service. Examples of current tax incentives in Ireland are included in Table 2. In this table, each incentive is introduced, briefly described and, where available, an assessment of its performance is included.

Table 2: Irish Tax Incentives

Name	Description	Effect	Performance *(Note 1)*
Biofuels tax exemption	Producers of bioethanol, biodiesel and pure plant oil that have been selected, after a public tendering process, are exempt from paying excise duty on fuel.	It is estimated that a reduction of 1.2 million tonnes CO_2 will occur over the period 2006-2010.	16 companies are participating in this scheme to provide 665m litres of biofuel by 2010 (in 2006).
Tax saver commuter ticket	Employees can save up to 47% on their commuter travel costs by purchasing a monthly or annual travel card through their employer.	Employees are encouraged to use public transport and at the same time save on the costs of travel.	~40,000 tickets purchased (in 2005).
Capital allowances for corporate investment in Renewable Energy Generation	Allows corporate equity investments in certain renewable energy projects to avail of tax relief. Section 486 Corporate Tax Relief came into effect in 1999 and runs until 2011.	Relief is capped at 50% of all capital investments (excluding land), net of grants, on a single project.	——
Vehicle Registration Tax (VRT) reduction on flexible fuel and hybrid electric vehicles	Finance Act 2005 allows for a 50% VRT reduction on flexible fuel vehicles which can achieve blends of bioethanol with petrol of up to 85% and on hybrid electric vehicles.	Reduces the price of hybrid electric and flexi fuel vehicles. These vehicles have significantly lower fossil based CO_2 emissions than a standard vehicle.	——
Business Expansion Tax Relief	Business Expansion Tax Relief was introduced as an incentive to private investors to invest long-term equity capital. Investments in renewable energy qualify for Business Expansion Scheme (BES) relief.	Individual investors holding a BES equity investment for a minimum period of five years can benefit from tax relief, at their marginal rate, in respect of investments of up to € 31,750 per year.	——

Note 1: If blank, no reports on the performance to date were identified in the course of this study.

3.1.3 Environmental Charges

In the past, Ireland has not had a large range of environmental charges. The recent environmental charges that have been implemented directly affect Sustainable Development in Ireland. These include the charging for waste collection, recycling and/or disposal, the provision of potable water and the treating of wastewater.

Waste charges have now been introduced nationwide to curb the growth of waste being disposed of in Ireland and also to provide funding for the facilities needed to treat the waste in an economic and environmentally sustainable way. As highlighted in the Forfás report 'Waste Management in Ireland: Benchmarking Analysis and Policy Requirements', Ireland has a relatively high (717 Kg/capita) level of municipal waste generation when compared to a list of comparable international regions, coming

fourth highest out of the ten regions assessed in 2005. However, more positively Ireland has recently (2005) surpassed its EU target for recycling 35% of its municipal waste by 2013.

In 2005, 65% of municipal waste disposed of in Ireland was still sent to landfill but under the EU Landfill Directive, Ireland will be limited to sending 75% (of the baseline year, 1995) of the municipal biodegradable waste by weight to landfill. In effect, Ireland must reduce its 2004 biodegradable waste level by up to 340,000 tonnes and this, in turn, will lead to a reduction in the levels of GHGs emitted by landfills accepting these waste streams.

One of the key policies for effecting this change is the commitment to the waste hierarchy shown in Figure 2.

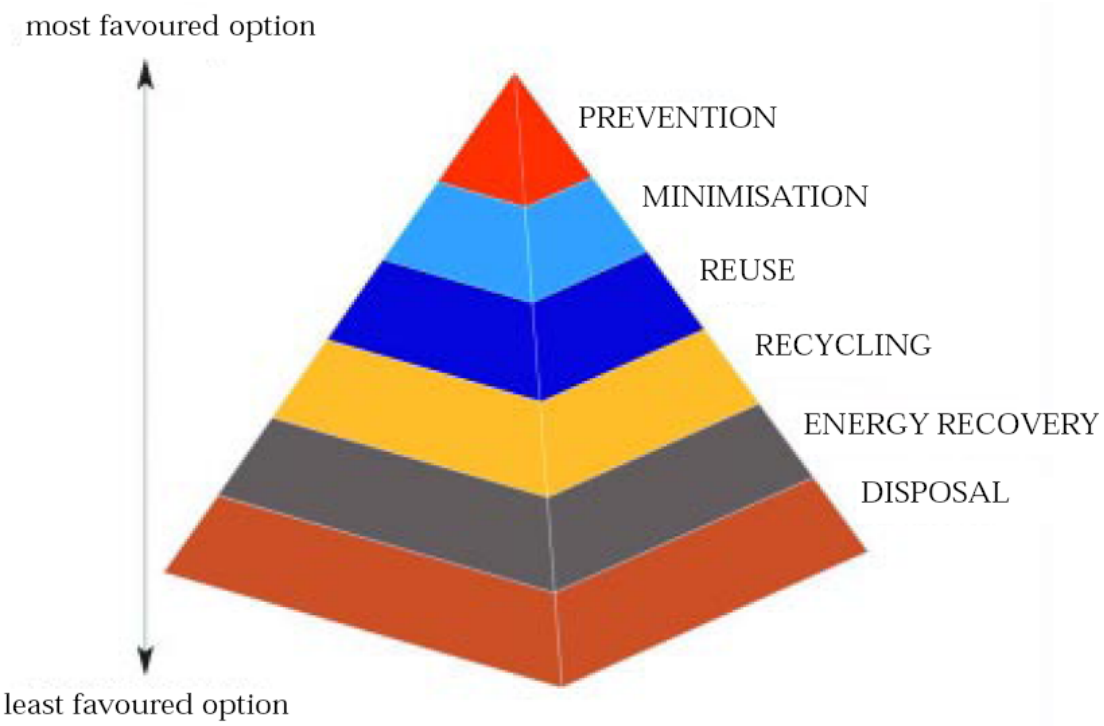


Figure 2: International Waste Hierarchy[8]

In order to implement the prevention and minimisation level of the hierarchy, waste charges for waste collection are now in place across most of Ireland. Charges vary from region to region and between public and private operators but the majority are on a pay-by-use system whereby the more waste you dispose of the more expensive the cost of disposing of it. This is in line with the polluter pays principle.

Bin charges are currently collected by private operators and some local authorities (e.g. Dublin City Council) who provide waste disposal services. As part of the waste collection service, recyclable waste that has been segregated is usually collected for free/low cost and hence encourages less waste being sent to landfill. It also leads to less use of virgin natural resources by closing the lifecycle loop by recycling the materials used back into their manufacture, see Figure 3. One outstanding issue

[8] Waste Management – Taking Stock and Moving Forward, DEHLG, 2004.

which requires further investigation is the final destination of many of the recyclables exported from Ireland and the GHG emissions associated with this transport.

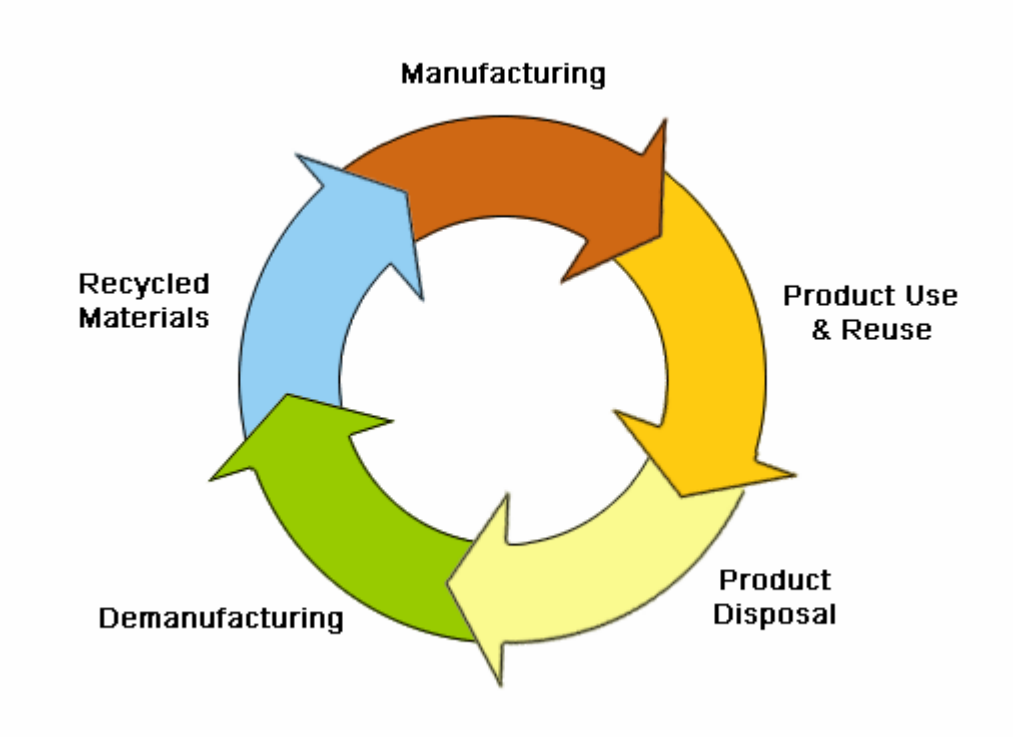
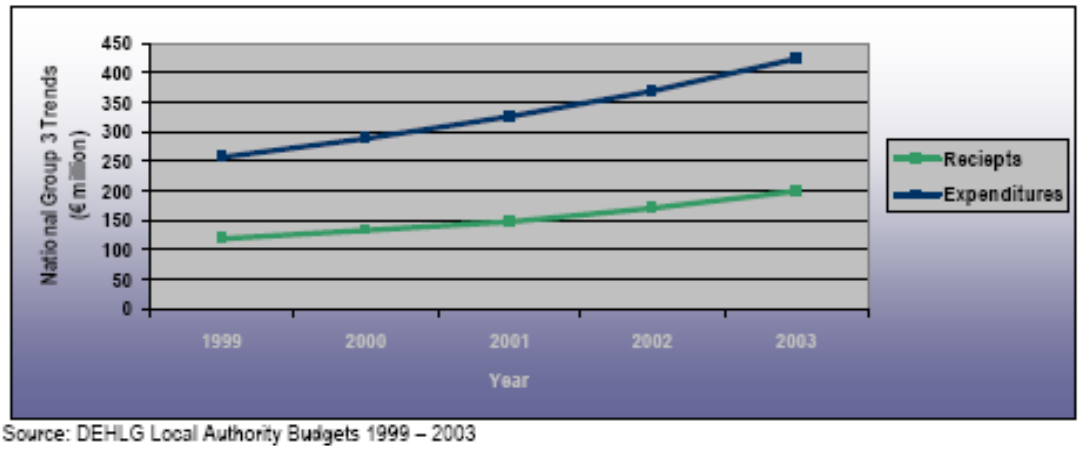


Figure 3: Closed Loop Lifecycle[9]

Water is a precious natural resource and should be charged for accordingly. Water charges are a set of environmental charges that the majority of residents in Ireland still do not pay for directly but are funded indirectly through the exchequer. The majority of large water users outside of the residential sector are now metered and charged for their water use/disposal and this in turn should encourage them to reduce their consumption and improve the efficiency with which they use water. The rates charged for water use are intended to pay for the cost of treating, pumping and distributing the water supplied and for treating the waste-water sent to sewer to ensure it is cleaned to a sufficient level so as to not pose any threat to the environment.

The policy of not charging residents on a pay-by-use system has contributed to a growing divergence between the cost of supplying and treating water and the revenues received by the local authorities. This can be seen in Figure 4 from the DEHLG report, Economic Analysis of Water Use in Ireland.

[9] From Retronics website www.ctlcorp.com/retronics .



Source: DEHLG Local Authority Budgets 1999 – 2003

Figure 4: Gap between Water Receipts and Expenditure for LAs[10]

The Greater Dublin Water Supply Strategic Study – Year 2000 Review, being carried out on behalf of Dublin City Council, has identified two main sources for supplying the Dublin region with water into the future. These are:

- The River Shannon
- Desalination of water from the Irish Sea

At present, it is predicted Dublin will exceed its current water supply by 2016. Both of the above options will be large energy users with associated environmental problems and these are currently being assessed by Dublin City Council as part of the project.

IPPC licence charges are placed on all operations that require a licence under the EU Directive 96/61/EC IPCC. This charge is paid to the Environmental Protection Agency (EPA) to cover some of the costs of administrating the license, including site inspections, audits and the review of annual environmental reports to ensure the site is in compliance with its licence conditions. The total revenue from this tool is minor compared to waste and water charges.

3.1.4 Emission Trading

The European Union GHG Emission Trading Scheme (EU ETS) was set up as a core component of Europe's Climate Change strategy. It is focused on power generation stations and large industrial emitters, which produce almost half of the EU's CO_2 emissions. In January 2005, the EU ETS commenced operation on a pilot basis (2005 – 2007) as the largest multi-country, multi-sector, GHG cap-and-trade emission scheme in the world. Under this pilot phase, Irish companies in the scheme were allocated credits based on their historic emissions. The scheme has encountered difficulties because of an over allocation of allowances by some member states. This led to the collapse of the price of CO_2 to near zero in the second half of 2007 but valuable lessons were learned and the cap was tightened for the 2008 – 2012 period.

[10] Economic Analysis of Water Use in Ireland, Camp Dresser & McKee (Ireland) Ltd, DEHLG, 2004.

Consequentially, prices remain steady at approximately €20 per tonne for December 2008.

In phase 2 of the scheme, which will commence in January 2008 coinciding with the first Kyoto Protocol period 2008 – 2012, live trading of credits will be integrated with Certified Emission Reductions (CERs) from global projects outside tier I countries, thus encouraging global GHG emission reductions.[11]

3.2 Subsidies and Grants

There are a number of subsidies and grants available in Ireland from the Government via organisations such as Sustainable Energy Ireland (SEI) and the Environmental Protection Agency (EPA) to encourage lower GHG emissions. These are described in Table 3. There are also a number of subsidies with a negative side-effect of increasing the release of GHG shown in Table 4.

As described in the Comhar report 'Subsidies and Emissions of Greenhouse Gases from Fossil Fuels'[12] these types of subsidies can be divided into three categories:

- Direct subsidies, where the state gives a direct subsidy by paying money (grant) or by exempting an activity from some or all of a charge such as VAT;
- Indirect subsidies, where the state can allow an activity to take a subsidy from the environment or wider community without paying for the cost such as cars emitting fumes that damage building facades and peoples health.
- Passive subsidies, where the state imposes taxes on low-emission activities that in turn lower the relative cost of higher emission activities.

As in Table 2 each incentive is introduced, briefly described and, where available, an assessment of its performance is included.

[11] EU Action Against Climate Change – EU Emission Trading, European Commission, 2005.
[12] Subsidies and emissions of greenhouse gases from fossil fuels, Comhar paper by R Douthwaite and D Healy, 2005.

Table 3: Positive Subsidies for Reducing GHG Emissions.

Name	Description	Effect	Performance *(Note 1)*
Pure Plant Oil grant	A pilot programme offering 75% grant aid for hauliers converting their vehicles to run on pure plant oil.	Reduce CO_2 emissions from commercial vehicles.	41 vehicles have been supported under this scheme.
Renewable Heat Deployment Programme	Bioheat Boiler Deployment Programme runs from 2006 to 2010 and includes solar thermal heat systems and ground heat pumps.	€26m for projects to include these features in their facilities.	——
Bio-Energy Establishment Scheme	Establishment grants to farmers who plant willow and miscanthus for bioenergy (heat and electricity) purposes.	Improves the availability of energy crops for biomass boilers etc.	——
Greener Homes Scheme	The scheme provides grant assistance to homeowners who purchase a new renewable energy heating system for either new or existing homes.	This scheme increases the use of renewable and sustainable energy systems in houses.	High demand for the scheme and additional funding allocated.
Combined Heat and Power Scheme	CHP Deployment Programme provides grant support to assist the deployment of small-scale (<1MWe) fossil fired CHP and biomass (anaerobic digestion and wood residue) CHP systems.	An increase in the use of CHP and promote the use of feasibility studies into more efficient onsite generation of electricity.	——
Forestry Grants	The new forestry programme (2007 – 2013) funded under the NDP provides measures to sustain and promote forestry in the agriculture sector.	Under this scheme farmers are encouraged to plant forestry on their land. This is a form of carbon sequestration, removing CO_2 from the atmosphere.	——
Cleaner Greener Production programme	The programme began in 2001and provides grant aid to organisations to assist them in preventing and minimising their environmental impact.	Cleaner greener production aims to reduce consumption of resources and avoid the generation of pollution in the first place.	Grant fully allocated under phase 1 – 3.
Rural environment-al protection scheme (REPS)	This programme aims to protect the rural landscape, increase biodiversity and improve water quality.	Reduced use of fertilisers and pesticides contributing to lower greenhouse gas emissions as well as improved water quality.	Over €400m/year has been allocated for 2007 – 2013.
Common Agricultural Policy reform (CAP)	The new CAP will be geared towards consumers and taxpayers, while giving EU farmers the freedom to produce what the market wants.	The majority of subsidies will be paid independently from the volume of production. This will lead to a decrease in the total numbers of animals and hence a reduction in methane emissions from enteric fermentation (cows burping).	GHG emissions from the agricultural sector are already decreasing in response to this policy reform as seen in EPA GHG reports for Ireland.

Table 4: Negative Subsidies for Reducing GHG Emissions

Name	Description	Effect	Performance *(Note 1)*
Internal flights subventions	The Department for Transport offers a subsidy on six internal air routes from Dublin to Kerry, Galway, Sligo, Knock, Donegal and Derry (2005).	This allows the cost of a seat on a flight to be limited to less than €75 for a number of seats on the route daily. This affects the competitiveness of more sustainable means of transport such as trains and buses operating the same routes.	——
Subsidised peat burning power stations	Two new peat power stations were subsidised by the Government and opened in 2005.	Peat is one of the most carbon intensive fossil fuels on a Kg CO_2/KWh basis. Due to its use, Ireland's carbon emissions from power generation increased accordingly.	——
Motor travel rates for civil service (mileage rates for travel)	The Department of Finance currently offers those with engines of smaller sizes a lower motor mileage rate than those with larger engines. This is replicated by most companies' mileage rates for employees.	Larger engine sizes generally emit more CO_2/km especially in older model cars. The difference in rates in 2007 between a 1200cc engine and a 1501cc engine for the first 6437km is 26.16 cent per km.	——

Note 1: If blank, no reports on the performance to date were identified in the course of this study.

Some of the subsidies described in Table 3 are driven by the EU, such as the current CAP reform; these are outside the direct control of the Government but can be influenced by Irish Members of the European Parliament.

In Table 4, a number of subsidies are described that conflict with Government policy on Climate Change for economic and political reasons. Motor travel rates are an example of a difficult area for policy makers. Those with larger engines will be paying more for fuel, insurance and tax and therefore would expect to receive a higher mileage rate. However, this encourages the use of larger cars by subsidising their use for business travel. A majority of companies set their mileage rates at those laid out by the Department of Finance and hence the policy on motor travel rates has a wide ranging effect across the country.

An example for annual claimed travel up to 6437km:
Car A is a 1200 cc car and Car B is a 1501cc car. It is assumed Car B consumes more fuel and therefore emits more CO_2 than Car A.
Car A receives €0.5216 per km and Car B receives €0.7832 per km under the current system. If Car A and Car B do 6,000 km each in 2007 and claim their motor travel rates, Car B will receive over €1,569 more for the travel than Car A. It should also be noted that as Car B will consume more fuel, the costs for the journeys will be higher.

3.3 Regulatory Instruments

An alternative approach to taxation instruments to encourage Sustainable Development is the regulatory or 'command-and-control' method whereby environmentally effective standards are set for emissions and discharges from activities that cause pollution. Failure to comply with this legislation can result in legal action and/or penalties/fines. In addition, the financial cost of legal challenges before fines and/or penalties have even been issued is a major dissuader to breaching of environmental laws.

In Table 5, a summary list of some of the regulatory instruments in Ireland is given with a brief description of the objective of the tool. As in Table 2, each incentive is introduced, briefly described and, where available, an assessment of its performance is included.

Table 5: Regulatory Instruments

Name	Description	Effect
Building Regulations 1997 - 2006	These regulations control the standard applied to construction of buildings in Ireland. Part L of the code is concerned with conservation of fuel and energy.	These regulations control the operational energy use of buildings such as their heating/cooling, hot water supply and lighting. There is also a limit set on the emission of CO_2 by dwellings.
Energy Performance in Buildings Directive (EPBD)[13]	This Directive has a range of provisions aimed at improving energy performance of residential and non-residential buildings, both new-build and existing.	Irish building regulations have been amended to implement this Directive. All buildings will eventually require a building energy rating (BER) certificate giving guidance to the owner/user of the building on the energy costs for the building. This is being implemented on a phased basis with all new buildings from 2007
National Car Test (NCT)	All cars over 4 years old must undergo the NCT every 2 years. Cars are tested for safety and for environmental emissions.	All cars are tested for emissions and those in breach of EU standards fail and must be fixed before a retest. Cars that are better maintained are generally more fuel efficient.
IPPC Licensing	All activities covered under the EU Integrated Pollution Prevention Control (IPPC) Directive must hold an EPA issued IPPC licence. This sets emission limits and ensures environmental reports are completed annually.	IPPC licences aim to prevent or reduce emissions to air, water and land, reduce waste and use energy/resources efficiently.
Planning Permission and the Planning Act 2000	The majority of buildings constructed in Ireland must apply for and obtain planning permission before construction begins. LAs decide on planning applications based on their accordance with the local development plans and other prerequisites.	All types of building should be considered within the development plan for the area to ensure their suitability. Once-off housing and ribbon development is discouraged and some LAs (such as areas of Fingal county council) have sustainability prerequisites. The National Spatial Strategy 2002-2020 is based on a sustainable development policy framework and seeks to minimise transport related energy consumption.

[13] This is being implemented on a phased basis. A BER certificate will be required by all new dwellings commenced after 1st January 2007, all new buildings commenced on or after 1st July 2008 and from 1st January 2009 all buildings for sale or to let.

3.4 Voluntary Approach

Another approach that is used in the absence of a regulatory instrument is that of voluntary agreements. This involves firms undertaking to act or behave in an agreed way to achieve a certain level of environmental efficiency or performance. There is an inherent threat that failure to remain within the agreements may result in the authorities introducing more restrictive methods of achieving the objectives covered by the agreements, such as more regulation. When combined with a tax policy instrument, negotiated agreements can provide an opportunity to reduce a company's exposure to tax while ensuring the desired environmental objectives are achieved.

A number of agreements that have benefited Ireland's carbon footprint have been negotiated at EU level. An example of this voluntary approach is the EU ACEA (European Automobiles Manufacturers Association) car performance agreements, whereby the motor industry agreed collectively to reduce CO_2 emissions from their vehicles to an average of 140 g/km for new cars in 2008 and to launch new car models emitting 120 g/km or less by 2010. In this way, Ireland has benefited from the increased fuel efficiency and CO_2 reduction of those new vehicles bought in Ireland. However, some of the benefits of increased engine efficiency have been negated in Ireland by the trend in the sales of new vehicles moving towards larger engine sizes. Without the ACEA agreement, Ireland's transport emissions would be even higher than the current levels.

The following case study on two of Sustainable Energy Ireland's (SEI) voluntary programmes is an illustration of how effective this policy tool can be when used in the area of energy use.

Case Study: SEI Voluntary Agreements

Energy Agreements

The Energy Agreements Programme is based on agreements between SEI and individual companies and was launched in May 2006. Its objective is to help energy aware companies create cost savings and improve energy risk management while enabling reductions in intensity of energy use and GHG emissions. Assistance is provided to participating companies in obtaining and retaining certification of their Energy Management System to the new Irish Energy Management Standard IS 393.

Participating firms are required to obtain and retain certification to IS 393 and to implement the Standard in a way that will maximise its impact. Participants enter into a 3-year agreement with SEI. In return, SEI offers tailor-made support in obtaining certification status and advice on how to maximise benefit from the process. Financial support can be offered in areas such as Gap Analysis assessment. This can be used to engage specialist technical help and to investigate significant energy efficiency opportunities. SEI may also involve participating companies in publicity initiatives. In order to enter this programme, the applicant applies for and receives IS 393 within 12 months (max of 24 months) of entering agreement. It has been adopted by over 30 companies as of August 2007.

Large Industry Energy Network (LIEN)

The LIEN is a voluntary network of companies dedicated to maintaining strong energy and environmental practices and has been in operation for 13 years. Currently, there are over 80 members comprising of many of Ireland's largest industrial companies and energy users.

In order to qualify for LIEN, the company applying should be a large energy user, generally defined as having an annual energy spend of over €1 million; however, the average spend is approximately €4 million. One of the conditions for participation is that information of a non-commercial nature on energy use should be shared with others in the network. Participation in meetings with others in the network is encouraged and facilitated by SEI. These meetings are a forum where managers can learn about energy management from energy experts and other specialists, as well as from other energy managers.

There is grant aid available through a sub-grant system called the Industrial Best Practice Initiative. The IBPI is only available to members who are part of the Energy Agreements Programme or the LIEN. This is a good example of two policy instruments being combined for better effect with those willing to join the voluntary groups being offered further grant support under the IBPI. The Initiative will provide up to 40% grant support to a maximum of €60,000 for all eligible incremental costs incurred by the project.

Performance

In September 2007, SEI released the findings of the programmes stating that the combined results of the two programmes in 2006 included savings of over €40 million, a saving representing 4% of their combined energy costs and avoiding the release of over 200,000 tonnes of CO_2e. In 2006, the LIEN saved 543GWH of energy through energy efficiency and the Energy Agreements recruited an initial 10 companies to implement IS 393.

3.5 Direct State Investment

There are many direct state investment programmes that have both positive and negative effects on Ireland's Sustainable Development. To avoid any unnecessary negative effects, many of these investments have environmental considerations balanced against social and economic needs and, where possible, integrate them into the fundamental objectives of the projects. Some of these major investments are described below.

3.5.1 National Development Plan (NDP)

The new NDP 2007 – 2013 is estimated to cost €184 billion. The key objective of the NDP is to build a prosperous Ireland for all people, characterised by sustainable economic growth, greater social inclusion and balanced regional development.

The NDP is the largest and most ambitious investment programme ever proposed for Ireland and has been divided into:

- €54.6 billion for investment in economic infrastructure;
- €49.6 billion for social inclusion measures (children, people with disabilities, etc.);
- €33.6 billion for social infrastructure (housing, health, justice, etc.);
- €25.8 billion for human capital (schools, training, higher education, etc.);
- €20 billion for enterprise, science and innovation.

Many of the other subsidies, grants, R&D and educational policy instruments are directly or indirectly financed and monitored under the NDP. Currently, from contact with the DEHLG, no carbon footprinting or Climate Change impact review is carried out as part of the NDP project assessment. Comhar recommended that the NDP spending should be Sustainable Development-proofed through a Strategic Environmental Assessment and these could have been included in the scope of the assessment but this has not been approved. However, all projects under the plan will be subject to the relevant EU and national statutory requirements under environmental protection.

The Government has committed to aligning the regional development dimension of the NDP 2007-2013 with the National Spatial Strategy 2002 - 2020 (NSS) objectives, and this prioritisation of capital investment along the lines of the NSS should establish the strategy as a viable and practical policy measure to encourage a more balanced regional development with lower GHG benefits. There was an original problem with the previous NDP 2000 - 2006 being launched before the NSS but this problem should not be an issue for the new NDP. The net effect of the NDP will be overwhelmingly positive for Sustainable Development by providing the infrastructure needed for progressing the economy, ensuring social cohesion and fairness, and protecting/enhancing the environment. However, it is important that the NDP does not under spend in areas of environmental protection and that the principles of Sustainable Development are met in each project undertaken as part of the plan.

3.5.2 Office of Public Works (OPW)

The OPW is a body directly funded by the Government and whose responsibilities include provision of accommodation for Government services and management and maintenance of the State's property portfolio. The OPW is also the Government's principal engineering agency and has the largest architectural practice in the country.

The Government Supplies Agency (sub-section of the OPW) is responsible for management of Government procurement and publications. It is currently responsible for ensuring that goods and services for departments and offices are met in the most cost effective way. This is not always the most sustainable solution. It also distinguishes which goods and services can be supplied by the Agency and which ones can be procured directly from the private sector. The OPW is to be a major user of the soon-to-be-published (by the end of 2007) Government Action Plan for Green Procurement. This is seen as a significant means of moving the market towards the competitive provision of sustainable products and services.

The OPW also produces the flood hazard maps to assist with the management of development in floodplains and other areas at risk from tidal, fluvial or surface water flooding. In the future, as Ireland's climate changes, these tools will become vital to control development in areas prone to flooding and other disruptions linked to changes in rainfall patterns.

3.5.3 Transport 21

As part of the NDP, Transport 21 is the capital investment framework in the Irish transport system for the period 2006 to 2015. One of the key aims of Transport 21 is to ensure all programmes and projects under its control are sustainable. Transport 21 is providing a record investment in public transport (approximately €16 billion of the total funding of the NDP). This major rebalancing of investment towards public transport should provide an alternative to private motor vehicles and promote a modal shift from private motor vehicles to less polluting and less energy-intensive forms of transport such as public transport, walking and cycling.

Transport 21 is also supporting a number of initiatives including pilot projects for biofuels, hybrid-electric technologies and eco-driving. These pilots will all be used to guide future policy especially in the areas of sustainable transport. The Transport 21 website states 'The Department of Transport, as outlined in its Statement of Strategy, is committed to tackling the adverse environmental impacts of the transport sector while maximising the efficiency and increasing the mobility of goods and people on the transport network.'[14] It is not enough that adverse environmental impacts are dealt with. The Department should ensure firstly that these impacts are avoided/reduced and not just dealt with when they occur.

There is little mention of cycling in the current Transport 21 plan. Cycling is one of the few zero emission transportation options and has the added health benefits

[14] See The Transport Challenge on the Transport 21 website www.transport21.ie .

associated with exercise. According to the latest Transport 21 progress report, September 2007, 50 of the 100 additional buses funded by the Exchequer and 25 of the 90 replacement buses part funded by the Exchequer had been entered into service. It is important that the additional new buses are added to ensure a high quality and reliable public transport system is put in place to give car users additional motivation to use public transport.

3.5.4 Direct Purchase of Carbon Allowances

Under the current National Climate Change Strategy (2007 – 2012), the Government has committed to fulfilling its Kyoto obligations by purchasing over 3.6 Mt CO_2e per year through the Kyoto flexible mechanisms. At current carbon prices under the EU ETS (October 2007, one carbon credit for December 2008 = €22.35); this could cost the Government over €80 million per year during the period 2008-2012. This would be a direct state investment on behalf of the people of Ireland and would be funded indirectly through tax revenues. Currently, the state has designated €270 million under the NDP 2007-2012 for investment in these flexible mechanisms.

3.5.5 Forestry Investment

According to the National Climate Change Strategy (2007 – 2012)[15], approximately 10% of Ireland's land area is currently covered by forests. The current target is to increase this to 17% through the use of grant aid under the State / EU funded afforestation schemes. From the National Council for Forest Research and Development (COFORD) project 'Carbifor' on carbon sequestration in Irish forests, forestry plantations set up since 1990, will deliver savings under the Land Use Change and Forestry (LUCF) of 2.08 Mt CO_2e per year from 2008 to 2012, assuming a planting rate of 14,000 hectares annually.

3.6 Information and Education

There are a number of general information and awareness campaigns currently funded by the Government, which have a direct influence on Ireland's GHG emissions. These include:

- Power of One: Energy efficiency campaign;
- Race Against Waste: Waste reduction campaign;
- Tap Tips: Water conservation campaign;
- Combat Climate Change SEI: Reduce CO_2 campaign;
- One Small Step: Traffic congestion reduction campaign.

[15] National Climate Change Strategy 2007 – 2012, DEHLG, 2007.

There is a Climate Change communication campaign currently out for tender (October 2007) and this will seek to promote the integration of the Climate Change message into each of the above campaigns. This campaign will seek to inform the general public of the science of Climate Change and the potential consequences of inaction.

In June 2007, the Department of Education and Science (DES) commissioned the development of an Education for Sustainable Development Strategy (ESDS) and ECO-UNESCO is currently progressing with this project. As part of the review of this project, there will be a national conference held on the topic on the 7th December 2007 where the discussion paper on the strategy will be discussed. The scope of this project will not only include formal education establishments but will seek to inform the informal sectors such as the broader media and adult education systems.

Policy options in formal education can be divided into two areas: schools and higher level education.

Primary and Secondary Schools

An Taisce's Green School Environmental Education Programme, known internationally as Eco-Schools, is an international environmental education programme, environmental management system and award scheme that promotes and acknowledges long-term, whole school action for the environment.

The Green Schools initiative was founded by the Foundation for Environmental Education (FEE) and is co-ordinated on an international level. There are currently over 14,500 schools in 37 countries in Europe, Africa, Asia, Oceania and South America that take part in the programme and 1,000 of these are based in Ireland.

Higher Level Education

From the Comhar sponsored study, Research Project on Education for Sustainable Development in Ireland[16], there appears to be no coordinated higher education programme to focus on the education of students in the concept of Sustainable Development. The ESDS should provide the framework for the integration of Sustainable Development into all the courses in third level education. There is also no coordinated programme for assessing and increasing the sustainability of college campuses.

However, on an individual level many colleges have set up environmental groups and policies that have a large influence on college developments and operations. Examples of this include the Trinity College Dublin College Recycling and Environment Committee (CREC) and the University College Dublin Students Action on Climate Change (SACC) campaign. Also Government sponsored programmes such as the E3 programme for energy management in college buildings (UCD, TCD, DCU and DIT) help reduce CO_2 emissions by reducing the energy consumed in college buildings and providing benchmarks for other colleges.

[16] Research Project on Education for Sustainable Development in Ireland, E. Nevin, D. Ginnetty, Comhar by ECO UNESCO, 2007.

3.7 Research and Development

The research and development programme for Climate Change in Ireland is currently funded under a number of Government programmes. Many of these are funded directly by the NDP €8.2 million allocation for R&D.

- Environmental Research Technology Development & Innovation (ERTDI) Programme through the EPA;
- EPA Environmental Research Centre;
- SEI Renewable Energy Research Development & Deployment (RE RDD) Programme;
- SEI Carbon Capture and Storage Research;
- Department of Communications, Energy and Natural Resources (DCENR) Charles Parsons Energy Research Awards.

The Department of Education and Science is currently preparing a new Statement of Strategy for the period 2008-2010. This is to be a progressive, high level document which will provide a basic framework for action by the Department. This document will be informed by the development of an Education for Sustainable Development Strategy and cover the aspects of education for Sustainable Development and Climate Change.

4 PERFORMANCE CHARACTERISTICS OF INSTRUMENTS IN IRELAND

A review of the performance characteristics of the policy instruments in Ireland was undertaken as part of this study. However, after an initial search and contact with Government Departments it was found that no reports are available on the performance characteristics of the majority of policy instruments reviewed as part of this assessment. The CO_2e reductions are drawn from the National Climate Change Strategy 2007 – 2012 and the Byrne Ó Cléirigh report 'Determining the Share of National Greenhouse Gas Emissions for Emissions Trading in Ireland 2008 – 2012'[17].

In the absence of detailed analysis reports on each policy measure, Table 6 overleaf is an initial qualitative opinion of the research personnel in consultation with Comhar. This indicates a need for major efforts to monitor the performance of individual or combinations of policy options. Comhar SDC should not underestimate the challenge of this task as many policy measures overlap and the exercises are extremely data intensive.

The initial qualitative assessment of performance characteristics of the different policy tools was carried out under the following headings and the results of the assessment are given in Table 6:

- Application of polluter pays principle: Does the polluter bear the full cost of the activity or does the environment or wider community absorb the cost?
- Cost effectiveness: Are there more cost effective means of producing the same results?
- Extent encourage and facilitate innovation: Is technical innovation and adaptation encouraged?
- Environmental effectiveness: Are the environmental effects positive in the short term and long term?
- Feasibility: Is it possible to introduce these measures with the support of the general public?
- CO_2 Reductions in 2010 in millions of tonnes.

[17] Determining the Share of National Greenhouse Gas Emissions for Emissions Trading in Ireland 2008 – 2012, DEHLG by ICF and Byrne Ó Cléirigh, 2006.

Table 6: Assessment of Performance Characteristics

Policy Tool	Application of polluter pays principle	Cost effectiveness	Extent encourage and facilitate innovation	Environmental effectiveness	Feasibility	CO_2 Reductions ($Mt\ CO_2e$)
1. Excise Duties on Mineral Oils	✓		✓		✓	
2. Vehicle Registration Tax Rebalance		✓	✓	✓	✓	**0.05**
3. Landfill Levy	✓	✓	✓	✓	✓	**0.7**
4. Plastic Bag Levy	✓	✓	✓	✓	✓	
5. Biofuels Tax Exemption	✓	✓	✓	✓	✓	**0.27**
6. Tax Saver Commuter Ticket	✓	✓	✓	✓	✓	
7. Capital Allowances for Corporate Investment in Renewables			✓	✓		**1.3**
8. VRT Reduction on Hybrid Electric and Flexible Fuel Vehicles	✓		✓	✓	✓	
9. Business Expansion Tax Relief			✓			
10. Water Charges	✓	✓	✓	✓		
11. Bin/Waste Charges	✓	✓	✓	✓		**See 3**
12. IPPC Licence Charges	✓		✓	✓	✓	

Policy Tool	Application of polluter pays principle	Cost effectiveness	Extent encouraged and facilitate innovation	Environmental effectiveness	Feasibility	CO_2 Reductions (Mt CO_2e)
13. Pure Plant Oil Grant			✓		✓	
14. Renewable Heat Deployment Programme			✓	✓		
15. Bio-Energy Establishment Scheme			✓			
16. Greener Homes Scheme			✓		✓	**0.037**
17. Combined Heat and Power Scheme			✓	✓		**0.162**
18. Forestry Grants				✓	✓	**2.08**
19. Emission Trading Scheme	✓		✓	✓	✓	**3.02**
20. Rural Environmental Protection Scheme			✓	✓		**2.4**
21. Common Agricultural Policy Reform			✓	✓	✓	**See 20**
22. Building Regulations		✓	✓	✓	✓	**0.405**
23. EU ACEA Car Performance Agreements		✓	✓	✓	✓	**0.48**
24. SEI Energy Agreements		✓	✓			**0.037**
25. SEI LIEN		✓	✓	✓		**0.145**
26. NDP		✓	✓	✓		

Policy Tool	Application of polluter pays principle	Cost effectiveness	Extent encouraged and facilitate innovation	Environmental effectiveness	Feasibility	CO_2 Reductions (Mt CO_2e)
27. OPW		✓	✓	✓		
28. Transport 21			✓		✓	**0.51**
29. Direct Carbon Certificate Purchase (Flexible Mechanisms)		✓		✓		**3.607**
30. Forestry Investment				✓		**See 18**
31. An Taisce Green Schools Environmental Education Programme			✓	✓	✓	
32. Awareness Campaign Efficient Driving				✓	✓	**0.13**
32. Environmental Research Technology & Innovation (ERTDI) Research Programme			✓	✓		
33. SEI Renewable Energy RD&D Programme			✓	✓		

5 BEST PRACTICE INTERNATIONALLY OF MOBILISING POLICY INSTRUMENTS

In this section, we present a brief review of policy making and other policy instruments in use, including the use of Best Practise Instruments, where available. The selected countries and regional bodies include the UK, Germany, Norway, the EU and the Organisation for Economic Co-operation and Development (OECD).

The UK, Germany and Norway were chosen due to their standing as countries with a long history of using policy tools in the area of Sustainable Development and Climate Change. The UK and Germany are also two of the few countries on track to meet their Kyoto obligations, according to the European Environment Agency (EEA) and shown in the graph in Figure 5. Ireland is also a member of the EU and OECD and both groups provide best practice guidance in the area of Sustainable Development and Climate Change. These are reviewed at the end of this section.

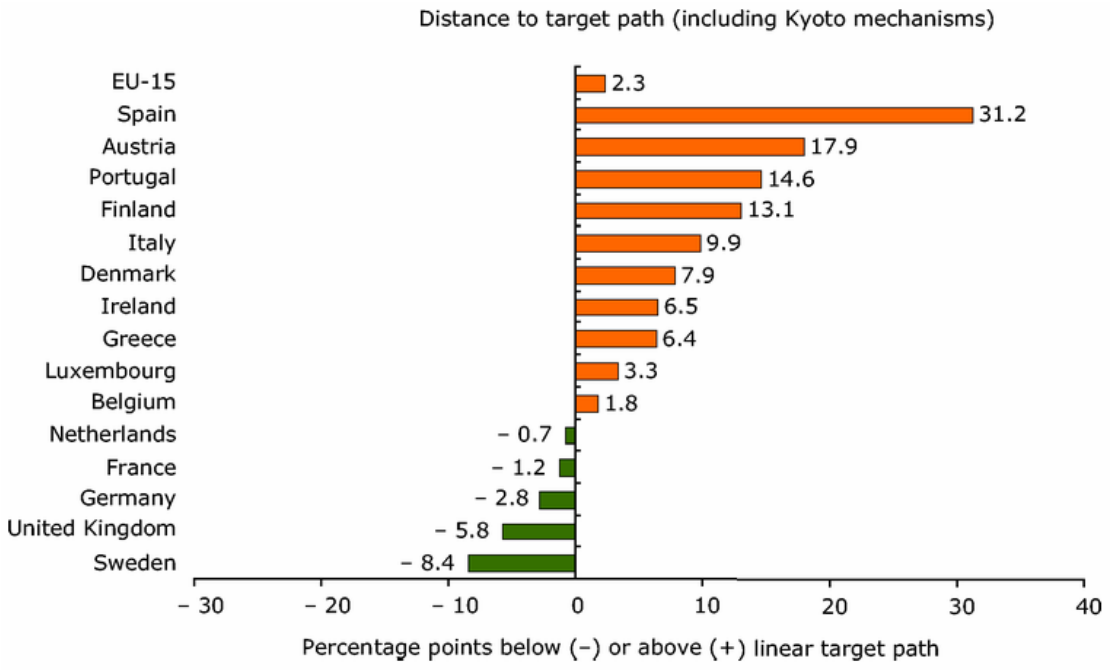


Figure 5: Kyoto Distance-to-Target Indicator for EU 15 (2004)[18]

5.1 UK

From the outset, the UK has taken a strong interest in the issue of Climate Change. However, it took the UK until the late 1990s to reverse its image of being the 'dirty man of Europe' which had resulted from resistance towards environment policies during the 1970s and 1980s[19].

[18] See EEA website http://dataservice.eea.europa.eu/atlas/viewdata/viewpub.asp?id=2574 .
[19] Climate Policy: Britain and Germany Compared, Wuppertal Institute for Climate, Environment, Energy, 2002.

Under the Kyoto protocol, the EU-12 group of nations has agreed to reduce their GHG emissions by 8% of 1990 levels for the 2008 – 2012 period. Within the EU burden sharing agreement, the UK has agreed to a 12% reduction on 1990 GHG emission levels for the 2008 – 2012 period and domestically has set a target of a 20% reduction of CO_2 by 2012 in their Climate Change Programme, which was launched in 2000.

The UK Government has emphasised that the Climate Change programme has not developed in isolation and in the motto 'gain not pain', stresses that the Climate Change programme is part of a broader UK sustainability strategy[20]. An example of this can be seen in the transport policies, which aim to reduce the negative impacts of congestion, urban air quality and health impacts while keeping mobility affordable for the general public.

The UK policies for Climate Change have so far focused primarily on economic instruments with their emissions trading system (ETS) a fundamental component of their strategy. This has also been a precursor for the European ETS and elements of the UK scheme are now used by many European and other countries as part of their Climate Change strategies. The UK ETS allocated the permits through an auctioning process. The UK has also implemented a number of environmental taxes to work in partnership with other policies, such as the air passenger duty and the fuel duty. However, there has been strong public opposition to these, as witnessed in the fuel protests over road fuel duties seen in the UK during September 2000[17].

The UK introduced its first Climate Change Levy, otherwise known as a carbon tax, in April 2001. This levy is based on a company's energy consumption and the revenues are recycled back to companies through cuts in their employers' national insurance contributions and also through energy efficiency and renewable energy support schemes set up by the UK Government. Exemptions exist for the domestic user and also for large electricity generators.

In the UK Government white paper, 'Professional Policy Making for the 21st Century' modern policy making is defined as:

> '… the process by which Governments translate their political vision into programmes and actions to deliver 'outcomes' – desired changes in the real world.'

It also gives the characteristics needed for modernised policy. These are shown in Table 7.

[20] Carbon reduction in the real world: how the UK will surpass its Kyoto obligations, N Eyre, 2001.

Table 7: Characteristics of modernised policy[19]

Modernised Policy	
Strategic	Looks ahead and contributes to long term Government goals
Outcome focused	Aims to deliver desired changes in the real world
Joined up	Works across organisational boundaries
Inclusive	Is fair and takes account of all the interests of all
Flexible and innovative	Tackles causes, not symptoms and is not afraid of experimentation
Robust	Stands the test of time and works in practice from the start

Traditional policy making in the UK has been described as a sequence of closely inter-related and inter-dependant activities, grouped together to form a cycle that leads to the progressive improvement of outcomes[21]. An example of this model can be seen in Figure 6.

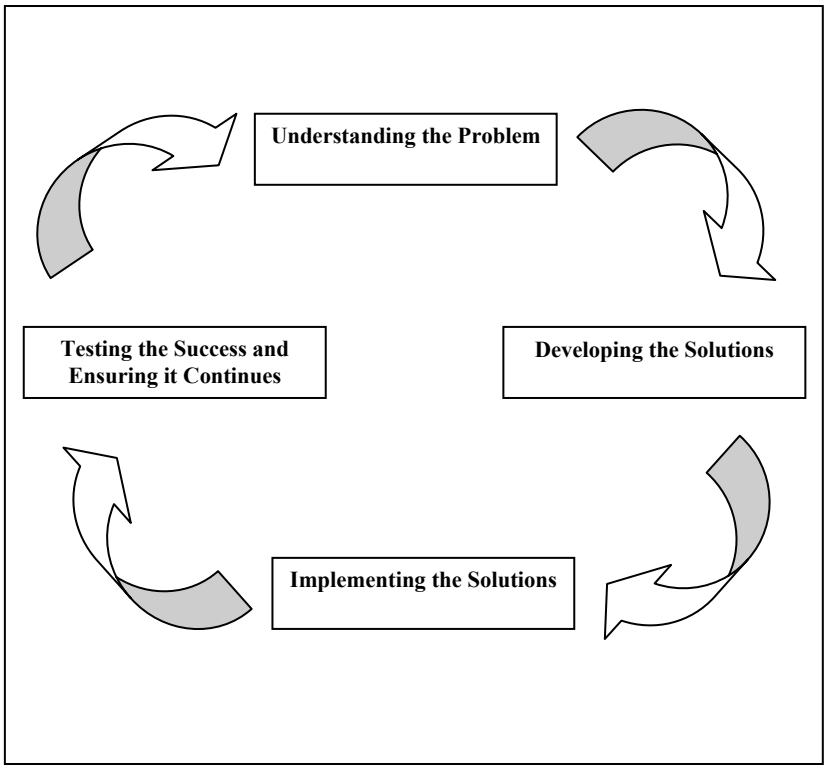


Figure 6: UK Policy Process

In the UK, it was found that policy making rarely followed this course as pressures and events outside of the control of policy makers can largely influence the policy making process. For policy making to be fully effective, the traditional attributes of knowledge of law and implementation, understanding of stakeholders' views and ability to design the systems for implementing solutions needs to be supplemented

[21] Professional Policy Making for the 21st Century, by Strategic Policy Making Team Cabinet Office, 1999.

with an understanding of the context within which the policy is being created. Examples of this in the UK include an understanding of Ministers' priorities and how policies work in practice. The way policy making can be influenced by these different layers is illustrated in the paper 'Professional Policy Making for the 21st Century' and shown in Appendix A.

The paper also found, by reviewing some best practice examples of policy making, that for real change to be achieved and sustained, it must go beyond the 'show case' policy areas and have an effect on policy work in national Government and on down to local Government. It also highlighted that while 'joining up' and 'inclusiveness' are important, less attention is being paid to learning lessons from the past and to being forward and outward looking. It was found that the policy being run along project management lines stood out as being focused and well managed, while the use of risk management helped to provide a less risk adverse environment, allowing innovative and creative ideas be discussed and specifying the precise outcomes and milestones at an early stage allowed the policymakers assess the process from the beginning. For this reason, the use of project management tools in policy making is seen to be a useful best practice tool.

The UK Climate Change Programme (CCP) has been devised with the guidance of the above review. Table 8 is a list of the most innovative policy instruments in use in the UK CCP annual report to parliament[22].

[22] UK Climate Change Programme Annual Report to Parliament, Defra, 2007

Table 8: UK Policy Instruments

Name	Description	Effect	Performance *(Note 1)*
International promotion of low-carbon economies	Enhance the efforts to help India, China, Brazil and other large emerging countries evolve as low-carbon economies.	Working with the World Bank and other multilateral development banks, the UK has promoted the Clean Energy Investment Framework for promoting energy efficiency and low carbon energy sources.	Environmental Transformation Fund (£800m) was set up in March 2007 with the aim of delivering both poverty reduction and environmental benefits in developing countries.
Maintaining efforts to demonstrate global leadership	The UK has committed to being one of the forerunners for a low-carbon economy.	The effectiveness of the UK Climate Change Strategy is regularly reviewed and the outcomes it is achieving is updated.	In 2007, the development of closer governance between climate change and energy policy issues was identified.
Carbon pricing	This policy ensures that the environmental externalities of emitting greenhouse gases are included in decision making processes, e.g. by incentivising energy efficiency and low carbon investment.	A price is put on carbon in three ways, explicitly through emissions trading and taxation, and implicitly through regulation.	A climate change levy has been implemented in the UK and it is to increase in line with inflation in April 2008.
Technology policy	The UK technology policy is used to address some of the other barriers and market failures that can limit the development of low carbon technologies, in particular through the support for research, development and deployment of immature technologies, and government procurement and targets.	Other barriers to technological development such as legal barriers for carbon capture and storage and planning barriers for energy technologies.	
Removing the barriers to behavioural change	The inconvenience and low visible rewards from the take up of energy efficiency means that some opportunities for investment that would save money and reduce emissions are not being made.	The UK is working on ways to better show real-time information on energy use, is further developing its Act on CO_2 calculator and is raising awareness of smarter (eco) driving.	In leading by example, the UK is creating a shared willingness to act. This is being brought about through the reductions in emissions from the public sector.

Note 1: If blank, no reports on the performance to date were identified in the course of this study.

Name	**Description**	**Effect**	**Performance** *(Note 1)*
Carbon Reduction Commitment	To achieve carbon emissions reductions in large non-intensive energy organisations.	A new mandatory auction based cap-and-trade scheme is to be set up to target energy use by large non-energy intensive businesses and public sector organisations not covered by the EU ETS.	It is expected to come into force in January 2010 and current estimates indicate that it could save 1.8 $MtCO_2$ per year by 2015, rising to 3.7 $MtCO_2$ per year by 2020.
Low Carbon Transport Innovation Strategy	In July 2006 the energy review announced that the UK would develop a Low Carbon Transport Innovation Strategy.	Launched in May 2007 the Strategy will provide the framework and resources to help bring cleaner, more fuel efficient vehicles to market and to stimulate innovation.	The first call for R&D projects under the Innovation Platform began in October 2007.
Zero carbon homes	It was proposed that by 2016 all new homes in England will be zero carbon homes.	This would in reduce the total carbon emissions from the residential sector and, as the housing stock is renewed, reduce the Uk's carbon emissions considerably.	In July 2007, proposals on interim steps along the way for progressive tightening of energy efficiency standards in the Building Regulations, by 25 per cent in 2010 and by 44 per cent in 2013, up to the zero carbon target in 2016, were announced.
Sustainable Operations in Government	In June 2006 Sustainable Operations targets on the UK Government Estate was launched. This included commitments for the office estate to reduce carbon emissions by 30% by 2012 and to be carbon neutral by 2012.	In March 2007 the Sustainable Procurement Action Plan was launched. Its goal is to make the UK an EU leader in sustainable procurement by 2009, and outlines how the government offices and public services will become low carbon, low waste and water efficient, as well as respecting biodiversity and delivering wider sustainable development goals.	The UK government has committed to an average CO_2 limit for its new fleet of cars. It has also committed the Government Estate to only procure buildings in the top quartile of energy performance.
NHS and schools	The NHS has been set energy consumption targets and new schools are to be low carbon or carbon neutral.	This will reduce the energy bill for the health and education sectors as well as reduce carbon emissions.	In January 2007, a £100m energy efficiency fund for the NHS was launched. An additional £110m for low carbon schools was also granted in April 2007.

5.2 Germany

In Germany, public interest in Climate Change was initially stimulated by a scientific address by the German Physical Society (DPG) in 1986. This was widely covered in the German media and ensured a wide spectrum of the public were informed on the subject. After political discussions on the issue, the Commission on *Vorsorge zum Schutz der Erdatmosphäre* (Preventive Measures to Protect the Earth's Atmosphere) was established in 1987 with the primary task of dealing with all aspects of Climate Change. Domestic action was committed to early in 1991 and Germany has continued to provide leadership in this area ever since.[23]

Under the EU burden-sharing agreement, Germany has agreed to a 21% target reduction for the Kyoto basket of gases in the period 2008 - 2012. Domestically, the German Government has pledged to reduce the GHG emissions of its own departments by 30% from 1990 levels by 2010 (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU) 2000). Under the then coalition Government of Social Democrats and Greens, an enhanced climate protection programme was adopted in 2000. This was based on a review process which found that the existing measures would experience a shortfall in the emissions reductions originally envisaged. The new programmes included policies that combined regulation, investment and fiscal measures.

These measures and policies were extensive and incorporated:

- the energy efficiency of different sectors and activities;
- the stimulation of new and more efficient energy sources, among them the introduction of a higher share of renewable energy sources;
- the cutting of emissions from the transport sector;
- the cutting of emissions from agriculture;
- the cutting of emissions from the public sector.

The German idea of an ecological tax has been discussed since the 1980s but it was only in the second half of the 1990s, when studies focused on the employment effects suggested that there would be a net positive jobs effect, that these taxes became more politically acceptable. In 1999, taxes on all fuels and electricity came into effect. The tax rates on heating oil, which had formally differentiated according to use, was harmonised to avoid distortions in electricity taxation.

In the 2002 report 'Climate Policy: Towards an Agenda for Policy Learning between Britain and Germany', several tools to ensure a more effective use of policy on Climate Change were put forward. These include:

[23] Climate Policy: Britain and Germany Compared, Wuppertal Institute for Climate, Environment, Energy, 2002.

- Policy integration: It was found in some assessments of the effectiveness of the present Climate Change policy programmes in Germany (and the UK) that many of the programmes for Climate Change were by-products of other policies. It was suggested that research be carried out on new policy tools that might be used to complement the existing policy tools in use in the area of Climate Change.

- Design of new instruments: In 2002, there was extensive research being carried out on introducing emission trading systems under the Kyoto Protocol and potential flaws in the system.

- Empirical research: The research in emission trading should have an empirical component reflecting the views of interest groups at an early stage as its effectiveness is ultimately dependant on the bargaining processes with the actors involved.

- Human dimension: empirical research on the ETS found that implementation of policies with beneficial environmental, economic and social effects can have issues with their political and social acceptability. Research on the human dimensions would help create an understanding of the social, behavioural and educational aspects of Climate Change. The findings of this work should provide insights into individual behavioural changes towards more sustainable lifestyles.

In Table 9, a list of policy instruments in use in Germany for Sustainable Development and Climate Change are given with the performance indicators where available. These were derived from the summary of the German National Climate Protection Programme[24] 2005.

[24] National Climate Protection Programme 2005 Summary, Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU), 2005.

Table 9: German Policy Instruments

Name	Description	Effect	Performance *(Note 1)*
Renewable Energy Sources Act	This policy option helps promote alternatives to coal and nuclear power by requiring that power grids purchase energy from renewable sources such as wind, solar and biomass.	This ensures there is demand for renewable energy from the grids and that the price paid will be attractive.	
Energy Efficient Homes	KfW Development Bank and the federal government gave out €1.5 billion in loans and grants in 2006 to people who wanted to make their homes more energy efficient.	The increased energy efficiency of German homes through more efficient heating systems and better insulation.	Approximately 265,000 homes were refurbished as a result of this scheme.
International Promotion of Sustainable Development Policy	Through the EU, Germany is promoting many international responses to climate change.	The UNEP is currently not on a par with many of the other sub-sections of the UN. For this reason, Germany is promoting the upgrading of the UNEP to a UNEO (United Nations Environment Organisation). This would ensure better, more reliable funding.	
Transport CO_2 Emission Reductions	Transport emissions were reduced between 1999 and 2003 using ecological tax reform and the strengthening of the public transport system through the Law on the Regionalisation of Public Transport.	Less CO_2 emissions were released from transport as larger amounts of the general public used public transport.	Between 1999 and 2003 emissions from transport were reduced by 15m tonnes.
Incentives to Reduce Transport Intensities and Increase Energy Efficiency in the Transport Sector	The Federal Ministry of Transport, Building and Housing (BMVBW) identified the transport sector as needing further policies to ensure its target for CO_2 emissions is met for 2008-2012.	Germany has implemented revenue - neutral tax reductions for low fuel consumption passenger cars and introduced emissions-related landing fees at German airports.	These have been estimated to give a reduction of 1.5m tonnes.

Note 1: If blank, no reports on the performance to date were identified in the course of this study.

5.3 Norway

The paper entitled *Greenhouse gas emissions in Norway, do carbon taxes work?*[25] Was reviewed and some key learning outcomes are summarised below.

After the Brundtland Commission in 1987, Norway was one of the most dedicated ambassadors of Climate Change and set up a range of ambitious policies. In 1991, they implemented their first carbon tax and the prices have varied from an average of US$21 per tonne to a high of US$51 per tonne on petrol. The study showed that, despite having these ambitious carbon taxes, the policy measure only had a modest effect on GHG emissions. The modelled simulations indicated that the carbon tax only contributed to a reduction in total GHG emissions of approximately 2.3%.

The reasons given for such a small net effect are explained in the report by the exemption of a broad range of fossil-fuel intensive industries. The exemptions were motivated by concerns over competitiveness. It was found that the industries (such as process industries) where the carbon tax was expected to be most efficient, were the same ones exempted from the tax. It was advised that if the metal sector and industrial chemicals sector had not been exempted from the tax, a large number of them may have become unprofitable. Elsewhere, the lack of possibilities for substituting oil, e.g. for fishing and sea transport indicated that a tax could lead to reduced production levels in these industries and have knock-on consequences for jobs and small local communities.

When all GHG policy measures other than CO_2 reduction were considered it was seen, by the Norwegian Ministry of the Environment, that policies for reducing other GHGs had been far more successful, such as in the areas of abatement of landfill gases and regulation of the process industries. The recommendations in the paper for countries considering implementing a carbon tax included a more broad based, cost efficient tax, which is uniform for all GHGs and sources. In this way, larger reductions are possible at lower costs. To overcome issues with competitiveness, a joint international cooperation regarding carbon taxes was recommended to reduce trade effects of the domestic tax burden and lessen the call for tax exemptions.

5.4 EU

The EU Sustainable Development Strategy (SDS) sets out an approach to better policy-making based on better regulation and on the principle of Sustainable Development being integrated into policy-making at all levels. This requires all levels of Government to support and to cooperate with each other, taking into account the different institutional settings, cultures and specific circumstances in Member States.

In this respect, all EU Institutions should ensure that major policy decisions are based on proposals that have undergone high quality Impact Assessment (IA), assessing in a balanced way the social, environmental and economic dimensions of Sustainable

[25] Greenhouse gas emissions in Norway, do carbon taxes work? A. Bruvoll and B. M. Larsen. Statistics Norway Research Department. 2000.

Development and taking into account the external dimension of Sustainable Development and the costs of inaction.

Other tools for better policy-making include ex-post-assessment of policy impacts and public and stakeholders participation. Member States should make wider use of these tools when allocating public funds and developing strategies, programmes and projects[26].

5.5 OECD

The OECD has published a number of papers on Climate Change and sustainability. From these, there are a few suggestions that are worth considering as part of Ireland's policy instruments for Climate Change.

OECD analysis has shown that large reductions in GHG emissions are achievable at relatively low costs, if the right policies are put in place. This includes the strong use of market-based instruments worldwide to develop a global price for GHG emissions, together with better integration of Climate Change objectives in the relevant policy areas such as energy, transport, building, agriculture and forestry. Diffusion of technology and increased innovation should also be considered.

The OECD states that the stabilisation of GHG concentrations in the atmosphere can be achieved for less than $1/10^{th}$ of a percentage GDP per annum. In order for these low cost GHG reductions to occur the use of economically efficient market based policy instruments has been suggested. These can include:

- carbon taxes;
- emission trading;
- broad participation in mitigation efforts globally.

It is also suggested that the cost of these instruments will increase significantly if countries decide on the use of regulatory or voluntary instruments, or exempting large energy-intensive industries from these tax and trade systems.

The OECD has called for countries using the project-based flexible mechanisms of the Kyoto protocol to have them linked so as to provide a strong and consistent price across all GHG emitting activities. It also suggests that subsidies that can indirectly increase GHG emissions should be removed, especially in the energy and transport sectors.

Other policy tools available that can complement the market based instruments include R&D programmes, regulations (building codes) and information instruments (eco-labelling of carbon footprint). Labelling is a good method of informing the market of climate friendly technologies. The OECD also suggests that regulations

[26] Review of the EU Sustainable Development Strategy – Renewed strategy, 2006.

should be flexible and allow innovation by focusing on the results rather than specifying the methods or technologies to be used. Each policy instrument needs to be cost effective, complementary to the policy mix and checked for avoidable overlap with other policies.

The OECD states that all areas of public policy, particularly those in economic and social areas, needs to have Climate Change concerns integrated into them. The benefits of identifying these areas of collaboration with GHG reductions can include improved energy security, reduced economic loss from congestion, better urban air quality and increased health benefits. The ultimate aim is to produce a low carbon economy.

OECD Case Study on Biofuels

In September 2007, the OECD released a report entitled "Biofuels: Is the cure worse than the disease". It was written by a principle advisor to the OECD's roundtable on Sustainable Development, Richard Doornbosch and Ronald Steenblik and is not an official position statement for the OECD but used more as a discussion document.

The paper researches some of the concerns that have been raised about the sustainability of biofuels. These include rising food prices as biomass crops come into competition with food crops. It also suggests that the global surge in demand for non-fossil fuels has caused increased deforestation as land is cleared for energy crops. The paper continues to discuss the import tariffs some wealthy countries are imposing on the biofuels. While energy crops can be most effectively produced in tropical countries such as Brazil there are large subsidies given to domestic producers pointing to an average cost of $500 per tonne of CO_2 avoided. The current price of a tonne under the EU ETS is approximately €21 (for 2008). The paper concludes by acknowledging that the EU target of 10% biofuels target by 2020 is appropriate allowing for "production being sustainable, second generation biofuels becoming commercially available and the Fuel Quality Directive being amended accordingly to allow for adequate levels of blending".

6 OPTIONS FOR IRELAND'S USE OF BEST PRACTICE AND ADDITIONAL POLICY INSTRUMENTS

6.1 Topics for Discussion

There are many policy instruments examined in this paper that highlight the additional measures which must be put in place to ensure Ireland meets its Kyoto commitments and beyond. As the issues of Climate Change and Sustainable Development gain greater public attention and support, policy changes to reflect these attitudes will need to be developed to promote changes in people's behaviours and to reinforce the commitments needed to meet Ireland's Kyoto obligations.

Some policy instruments that should be considered are:

Local Authority Subsidies

Notwithstanding the introduction of new building regulations Local Authorities should designate low carbon/sustainability areas where for planning permission to be granted a number of stringent conditions for energy efficiency and renewable energy production must be met. In combination with this tool, the Local Authorities should offer lower rates to commercial premises that report on and remain below a certain threshold of GHGs released.

Planning Policy

Planning policy is a useful tool to create and maintain sustainable areas and communities. Planning policy should be enforced where breaches occur and if a breach in planning permission is identified, actions must be taken to enforce the planning policies quickly and decidedly, ensuring the polluter pays principle is implemented.

The planning of sustainable, low carbon communities has already begun with many building shows and conferences now focusing on how to construct the most energy efficient homes. In conjunction with this, more and more developments are looking at how to incorporate better forms of sustainable transport into their developments such as free local bus services or positioning at or near a railway or light rail station. LA should lead the way in constructing these types of developments and promote the benefits that can be gained from them for residents and owners. A similar programme to that being implemented in the UK should be undertaken to progress Irish homes towards the carbon neutral standard under a time line similar to that of the UK.

Green Procurement

All Government procurement, where practicable, should be purchased under a green procurement plan whereby appropriate weightings are given to products with a low carbon footprint when being assessed. All major purchases should have a life cycle analysis carried out to ensure they are the most sustainable product in the medium to long term and to encourage the markets to provide more sustainable, low carbon products by creating the initial demand needed to stimulate this sector.

Carbon Proofing NDP

All major infrastructure projects under the NDP should have their carbon footprint calculated and be carbon proofed[27] to ensure the carbon footprint is reduced. As part of the current reporting and auditing of public infrastructure projects, this instrument should be incorporated into the current procedures to ensure that current systems in place are utilised and reinvention of systems is avoided. NDP 2007-2012 will need to have all projects assessed for the next 30 to 40 years to ensure that adaptation that might be required due to changes in climate such as, *inter alia*, reduced water availability, energy shortages, increased temperatures and stronger climatic events such as storms and hurricanes are assessed.

The NDP is an opportunity for the present generation to provide a set of infrastructure for following generations to use and build on, and each project could be future-proofed to ensure this infrastructure can be used and expanded on in the future.

Tax Rebates and Grants on Building Renovations for Energy Efficiency

Currently, in Ireland, there are many grants and subsidies available for the introduction of new renewable energy systems and CHP to buildings through SEI programmes. However, as a large part of the building stock in Ireland has not been built to the current high level insulation standards there is an opportunity for older buildings lacking adequate insulation to be upgraded by draft proofing and attic and/or wall insulation. In Section 5.2, the German equivalent of this is described. In order to encourage people to consider reducing their energy use in buildings a system of grants for those without capital and tax rebates for those who do, should be set up to decrease the initial cost of installing these upgrades. This could be combined with an advertisement campaign to inform households of the financial benefits and the environmental reasons for reducing energy use.

[27] Carbon Proofing involves calculating the whole life cycle GHG emissions of a project and then reducing or choosing a less carbon intensive option.

Carbon Reporting and Labelling

Companies should be encouraged to report on their Carbon Footprint[28]. Currently, there is a global 'Carbon Disclosure Project[29]' which Irish companies should be encouraged to join. In order to ensure this is carried out, a voluntary reporting initiative should be established with large companies, the alternative being a legislation driven reporting system. In order for the full benefit of carbon reporting to be realised, a form of Carbon Labelling should be adopted. This would involve creating a methodology for companies to follow when building up the carbon footprint of their product. The carbon label should be easily understood by the consumer and be graphically similar to the energy efficiency labels now used on fridges and other white electronic goods.

Under the programme for government, the national budget will be accompanied by a carbon report and this should be seen as a government initiative to lead by example.

6.2 Enforcement of Policy Instruments

From the review of policy instruments in Ireland and abroad, the current list of policy instruments for Sustainable Development and reducing GHG emissions is strong. One failing for some policies such as regulations and commitments to sustainable policies is the lack of measurement and enforcement. From developments without planning permissions to the illegal burning of waste, there is considerable scope for improving the enforcement of policy instruments.

6.3 Combination of Policy Instruments

As has already been highlighted, there are many options for the successful combination of policy instruments. However, it should be noted that the full effects and knock-on consequences of some policies can be difficult to predict. In order to ensure that policy instruments do not contradict each other and, where possible, to enhance the success rate of the policy, a full annual review of all Climate Change policy instruments should be carried out at a high level. This review should assess the performance characteristics listed in Section 4 and ensure that complimentary policy instruments are implemented where the objectives of the policies are not meeting the performance characteristics required.

[28] Carbon Footprint is an assessment of the total GHG, converted to CO_2 equivalent, released during the whole lifecycle of a product or activity.
[29] This independent not-for-profit project is available at www.cdproject.net

6.4 Best Practice

The use of best practice instruments from across the EU and worldwide should be assessed annually to ensure that Ireland is making use of the most suitable policies in the areas of Climate Change and Sustainable Development. This report could be used as a starting point for such a database but further contact with other countries could be used to set up an international network for storing of Sustainable Development policy instruments and their successes and failures.

An example of best practice policies for Sustainable Development includes the use of life cycle analysis (LCA). In the LCA, all environmental effects and carbon emissions must be calculated. Examples of areas where this should be carried out include:

- biofuels against petroleum based fuels;
- timber-frame against concrete buildings;
- train against flying/driving;
- waste recycling against thermal heat recovery.

Another best practice option available to policy makers in Ireland is the use of carbon-proofing of decisions. This ties into the LCA option for policy making as all policy and regulation decisions would be assessed for their total GHG emissions and highlight options for reducing these impacts. Taking the smoking ban as an example: the banning of smoking in public houses led to an sudden increase in the use of patio heaters, both gas and electrical, around the country, which has in turn led to a corresponding increase in the use of energy and hence release of CO_2. By carbon proofing the policy before implementation, a list of suggestions on how the use of patio heaters might have been limited should have been compiled and the best practice options disseminated to public houses as part of the campaign.

6.5 Innovation and Learning from Mistakes

As seen in the policy adaptations that have been taken in some of our European neighbours, not all new policy tools put in place to combat Climate Change have been successful. This is clear from the example of high carbon taxes in Norway and the small effect it has had on reducing GHG emissions. Measures and policies must be carefully assessed in advance of implementation taking into account Ireland's location, social attitudes and other factors.

There have been a number of reasons why policies have underachieved but in all cases the countries implementing these policies have learned from the mistakes made. Policy makers should not be discouraged from devising and using new or experimental policy by way of pilot studies or other means to assess if the policy can be adapted to succeed or if any other lessons can be learned from the implementation of these policies.

6.6 Urgency of Action and Adaptation

It is no longer the case that Ireland follows in the footsteps of our European and global neighbours on the issues of Climate Change and Sustainable Development. It is easy to blame developing countries such as China or India and to complain about how little Ireland can affect the global situation but it should be remembered that a large part of these countries' emissions are due to producing consumer goods for people in the Western world. According to the latest research from the UK based Tyndall centre for climate change research, up to a quarter of all China's CO_2 emissions come from good for export.

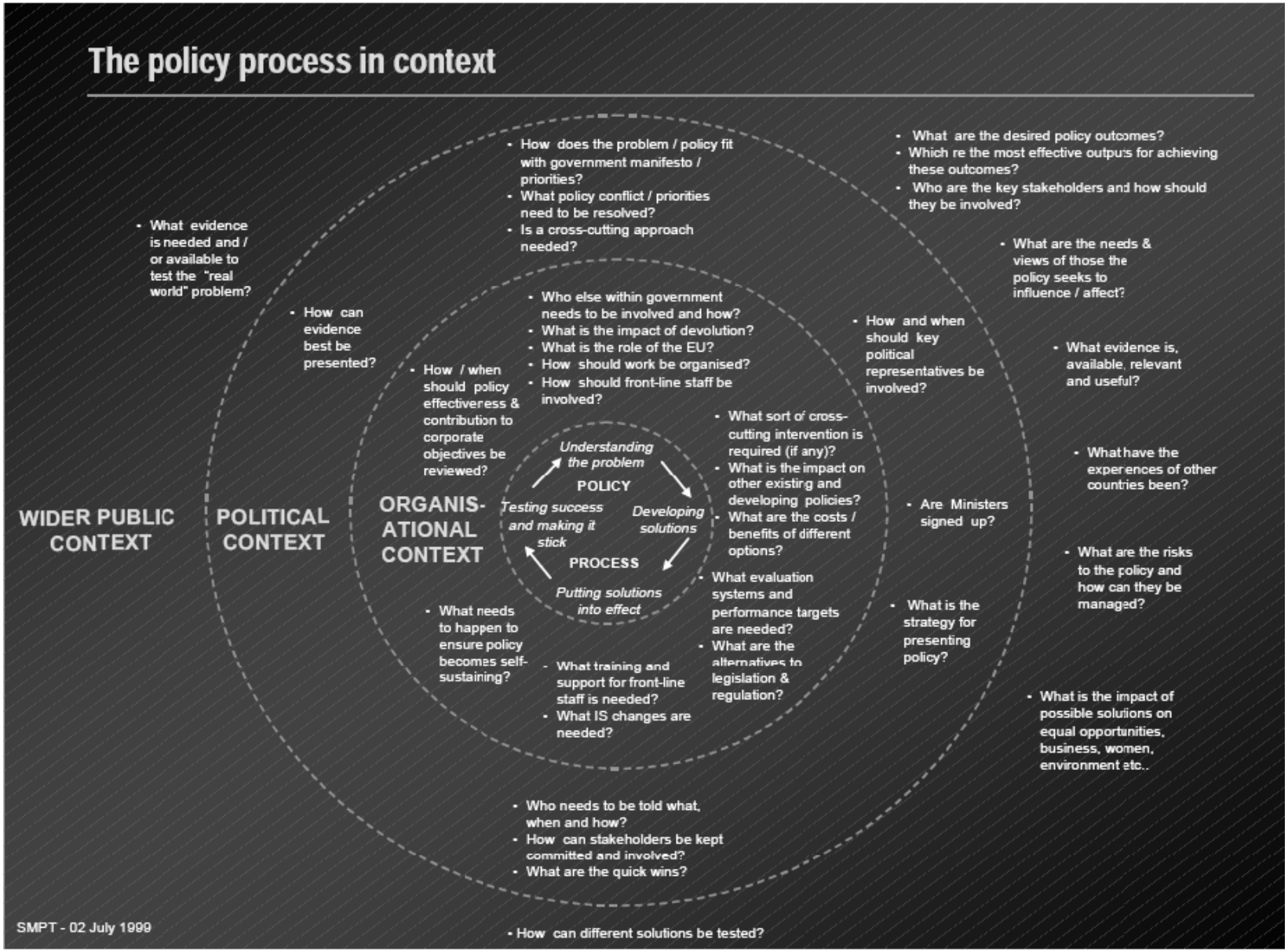
It is also worth noting that because global warming and the resultant Climate Change is a global issue, every reduction in GHG emission is a step in the right direction for ensuring the safety of the earth's climatic systems for today and for future generations. The GHG sector mix, climate and many other influencing factors are unique to Ireland. For this reason, Ireland needs to take the lead in addressing its own sustainability challenges and designing an appropriate mix of policies.

Finally, there is an urgent need to assess the impacts of Climate Change on our current way of life. From increased insurance costs to decreased cold related deaths, the positive and negative effects of Climate Change need to be identified and planned for. Certain issues such as increased migration from poorer countries experiencing severe Climate Change effects and decreased water supplies for the Dublin region need to be planned for now and a strong strategy put in place to ensure housing, health and other sectors are prepared for these eventualities.

7 RECOMMENDATIONS AND FEEDBACK

This section will be added after all feedback from conference has been received.

Annex A: UK Policy Process from 'Professional Policy Making for the 21st Century', by Strategic Policy Making Team Cabinet Office, 1999'.



Annex B: Kyoto Protocol

The 1997 Kyoto Protocol was part of the 1992 United Nations Framework Convention on Climate Change. It committed Annex I parties, such as the EU, USA, Russia, Canada, Japan and Australia to individual, legally-binding targets to limit or reduce their GHG emissions. Only countries that have ratified the Protocol are bound to its commitments. Under the EU sharing of emissions Ireland was given a 13% rise in GHG emissions from its 1990 baseline.

To date 175 countries have ratified the Protocol and of these 36 countries and the then EEC must reduce their GHG emissions below the levels set in the treaty. These can be seen in Table A and their total cut in GHG emissions from 1990 levels of at least 5% for the commitment period 2008 – 2010. The Kyoto Protocol entered into force in February 2005 after ratification by the Russian Federation.

Table A: UNFCCC list of Annex I countries[30]

Country	Target (1990** - 2008/2012)
EU-15*, Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland	-8%
US***	-7%
Canada, Hungary, Japan, Poland	-6%
Croatia	-5%
New Zealand, Russian Federation, Ukraine	0
Norway	+1%
Australia	+8%
Iceland	+10%

* The EU's 15 member States will redistribute their targets among themselves, taking advantage of a scheme under the Protocol known as a 'bubble'. The EU has already reached agreement on how its targets will be redistributed.
** Some EITs have a baseline other than 1990.
*** The US has indicated its intention not to ratify the Kyoto Protocol.

[30] From the United Nations Framework Convention on Climate Change (UN FCCC).

Annex C: Summary List of the Current Policy Instruments in Use in Ireland

Instruments				
Market based	**Taxes**	Excise duties on mineral oils	Vehicle registration tax	Landfill levy
	Tax incentives	Tax exemptions for biofuels	Tax saver commuter ticket	Corporate investment in renewable energy tax relief
	Tax incentives	Reduced VRT on hybrid cars		
	Charges	Water charges	Bin/waste charges	IPPC licence charges
	Emission Trading	European ETS Phase 1	European ETS Phase 2	Direct purchase of carbon allowances by industry & Government
Subsidies and Grants	**Positive**	Forestry payments	REPS	Capital subsidies for wind, CHP, anaerobic digestion and biomass
	Positive	Greener homes scheme	Renewable Energy Feed-In Tariff (REFIT under PSO)	Renewable Heat Deployment Programme
	Negative	Internal flights subventions	Peat subsidy	Higher mileage rates for larger engines
Regulatory Instruments	**Ireland**	Building Regs	NCT - Car emission testing	Spatial Strategy/land use planning
		Biofuels Obligation		
	EU Directives	Renewable Energy 2001/71/EC	EPBD 2002/91/EC energy performance of buildings	Landfill Directive
	EU Regulations	F-gases Regs		
Voluntary Approach		SEI Agreements	EU ACEA car performance (Ireland is a technology taker)	Large Industry Energy Networks SEI
Direct State Investment		NDP	Forestry planting	Green Procurement
		Public buildings programme (OPW)	Transport 21	Forfas/IDA
Information and Education		Awareness Campaigns	Schools (Green Schools Campaign)	Third level education
Research and Development		EPA Programme	SEI programme	University centres
		Science Foundation Ireland		