

Evaluation  
of  
Eco-Auditing

in the context  
of the  
National Development Plan  
2000-2006

Report prepared for the NDP/CSF Evaluation Unit

by  
Susan Scott  
Peter Bacon  
John Fry

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in association with

Peter Bacon & Associates

and

The Department of Environmental Resource Management  
University College Dublin



## **NDP/CSF Evaluation Unit**

The NDP/CSF Evaluation Unit is an independent Unit under the aegis of the Department of Finance. The Unit is responsible for ongoing evaluation of the National Development Plan (NDP) and Community Support Framework (CSF) for Ireland, 2000 to 2006. The Unit undertakes or commissions evaluations of the NDP/CSF Operational Programmes as well as providing advice and assistance to the European Commission, Government Departments, Regional Assemblies and other bodies on programme monitoring and evaluation issues generally. The Unit is part funded by the European Union Structural Funds.

For further information, please contact:

### **NDP/CSF Evaluation Unit**

Frederick Buildings,  
South Frederick Street,  
Dublin 2,  
Ireland

Telephone: (353-1) 6045333

Fax : (353-1) 6045334

Email: [evaluation@csfunits.gov.ie](mailto:evaluation@csfunits.gov.ie)

Web: [www.ndp.ie](http://www.ndp.ie) and [www.eustructuralfunds.ie](http://www.eustructuralfunds.ie)

## Evaluation of eco-auditing in the context of the NDP/CSF 2000-2006

### *Terms of reference*

In this task the consultant will, *inter alia*:

- (i) Review and assess the progress made in the use of eco-audits under all Operational Programmes and Plans within the NDP/CSF to date
- (ii) Comment on the role and input of the pilot eco-audits in the overall programming process
- (iii) Comment, in the context of the current NDP/CSF on the outputs/outcomes of the eco-audits carried out (including outcomes in terms of programme adjustment)
- (iv) Review relevant methodologies used elsewhere, drawing as appropriate on experience gained in Northern Ireland (cf. *Shaping Our Future, Towards a Strategy for the Development of the Region, Strategic Environmental Appraisal Report*; and *Euro-landscapes - MOLAND; development path analysis*), other EU Member States, the OECD and the UN, as well as on the findings of both national and international research / consultancy work in this area.

The consultant will draw appropriate conclusions and formulate recommendations on foot of this analysis. The recommendations will follow from the analysis and conclusions and will, *inter alia*: -

- (i) advise and recommend on further steps that should be taken to promote eco-auditing and, if considered necessary or desirable, the development of further processes and methodologies to facilitate achievement of environmental objectives and the advancement of sustainable development, and
- (ii) make recommendations, in particular, for enhancing the use and effectiveness of eco-auditing, as part of the 2003 mid-term review of the NDP/CSF and of Operational Programmes/Plans, and over the longer term.

## *ACKNOWLEDGEMENTS*

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## EXECUTIVE SUMMARY

1. This report evaluates the operation of the pilot eco-audit process applied to the NDP 2000-2006 and presents a comparative review of current thinking and relevant methodologies used elsewhere. Conclusions are drawn and recommendations are proposed.

### **Definitions: What is an eco-audit?**

2. The term is a broad one, used to describe the essentially retrospective procedures for identifying and evaluating the environmental performance of any actions, whether at the level of policies, plans, projects or organisational activities. The word *audit* holds out the idea of there being some sort of baseline information (akin to the opening balance in accounting) or standards against which the effects of those actions can be compared. In practice, with other things changing and with imprecise and incomplete baseline data, this is often an aspiration, though one that should be pursued and not be allowed to disappear from sight. There is an objective in this process: the well-being of the environment. An eco-audit holds out the objective of informing the manager as to where the project or policy is heading and of helping the manager to take good decisions. Eco-audit is therefore a generic term that includes several procedures in use at present, such as *Environment Proofing*, *Green Accounting* and, at company level, *Environmental Management Systems* such as ISO 14001 or EMAS. The various forms of Impact Assessment (*Environmental Impact Assessment/EIA*, *Environmental Assessment*, *Strategic Environmental Assessment/SEA*, *Environmental Appraisal*) are essentially comparable, but have a greater emphasis on predicting future effects. However, the impact assessment procedures should themselves be reinforced by periodic audit of performance. Although the terminology can be confusing, the above-mentioned procedures are separate methodologies, which differ in the objectives and scope of their application, whether formalised or otherwise. Those procedures that are formalised generally have the advantage that they are then standardised.

3. In the NDP 2000-2006 (p.220), the term *eco-audit* is equated to Strategic Environmental Assessment (SEA), the form of impact assessment appropriate to this planning level. Furthermore, the terms of reference for this review include the consideration of comparable methodologies and their potential relevance to the introduction of formalised SEA in Ireland. Therefore, the term *eco-audit* is used here to cover the procedure related to the NDP 2000-2006, including both the 'Guidelines' and the results.

### **Guidelines**

4. The Guidelines were the definitive instructions to inform prospective managers about the eco-audit process. Overall the Guidelines were clear and straight-forward and not overburdened with detail. Supporting seminars on eco-auditing and on indicators were held. However from discussions with the Managing Authorities and other personnel involved in the NDP, it was noticeable that **eco-auditing was subject to various interpretations.**

5. To some it meant a *process* for evaluating environmental consequences, but in many instances **eco-auditing was seen to be more in the nature of *environment proofing***, or merely checking for *compliance* with regulations that protect the environment. (Part 2 of this report evaluated adherence to the process, as required in the consultants' terms of reference. Environment proofing and compliance are mostly described in Appendix 6 to this report.)

## Pilot eco-auditing in the context of NDP 2000-2006: Key Findings

6. The study of the pilot eco-audit was conducted as a desk-based project combined with a consultative process. A large number of people were consulted at many levels of the NDP, but the main focus was on the Managing Authorities of the OPs since the responsibility for pilot eco-auditing lay with them.

7. **Generally a serious attempt** has been made to consider the environmental implications at OP level. This was largely qualitative and did not on the whole fulfil all the requirements laid down in the Guidelines. In the case of the CAP Rural Development Plan, however, and in the case of Roads at the Implementing Body level, procedures were found to fully comply or go beyond the stated pilot eco-audit process.

8. However, there was a **lack of clarity as regards the pilot eco-audit procedures** as seen from the various ways that the checklists were filled out. It appears that “impact” to the environment was not flagged as a ‘potential’ or likely outcome in some cases where it probably should have been. The verdict of no impact might only have been valid in some cases on the assumption that protection measures in place and compliance with regulations would render it true. Examples include aquaculture and tourism measures. In the case of the Economic and Social Infrastructure OP the checklist as filled in should have triggered the actions listed in the Guidelines, but these do not appear to have been undertaken.

9. The judgement on adherence to the process set out in the Guidelines is that **a useful but limited start has been made in the use of eco-audits** under all OPs and Plans within the NDP/CSF to date. However **the role and input of the pilot eco-audit in the overall programming process was marginal**. The outputs consisted of good qualitative information but with some exceptions there was little by way of quantified information. A useful output appeared to be that the process constituted **a learning experience** for the managers. As regards the pilot eco-audit process undertaken **at NDP level the Guidelines do not appear to have been followed**.

10. A recurring observation was that **the pilot eco-audit process was constrained** by:

- The *short amount of time* available to undertake the exercise, especially in the cases of those who were not already familiar with the environmental area.
- The *late stage* at which commencement and implementation took place, by which time the OPs were substantially completed.
- The *lack of resources* and seeming lack of clear lines of access to technical expertise and information that could support the exercise.

11. **The eco-audit process appears to be strongest at the lowest level**, i.e. at project level or where Environment Impact Assessments were undertaken (EIA). (This is excluding the eco-audit of the CAP Rural Development Plan that was undertaken under the sectoral eco-audits already underway.) As far as some implementing agencies were concerned, those that already had environment protection roles could avail of their expertise and ongoing procedures, such that the eco-audit of the NDP represented more of a change of framework than a change of activity. At the level of Priorities and OPs, the quantitative criteria in terms of **indicators are frequently not available** or the sustainability criteria are insufficiently articulated. Some managers felt that they would need to be experts to judge the information coming to them and the effectiveness or otherwise of the protective measures that were in



place.

12. Finally, the pilot eco-audit process lacked formal **requirements for NGO involvement**, although some consultation did occur. It also lacked provision for public participation and there was no evidence that any took place.

### **Other methodologies**

13. Turning to other methodologies, openness was expressed towards the adoption of Strategic Environmental Assessment (SEA). It was recognised that there was a commitment to adopt it in the future and that this required preparation to be made in good time. One Managing Authority made the constructive suggestion that it would be appropriate to apply a pilot SEA to one of the Priorities under the current NDP in order to become acquainted with the procedure and be better prepared for the formal adoption of SEA. Although the finalised directive is stronger than that initially proposed, it falls short of current theory and some international practice on the assessment of both sustainability issues and policy formulation. More particularly, it also falls short of the formalised assessment procedures already adopted in the Netherlands, the most pro-active EU member state in this respect. Although legislative provision has yet to be made for SEA in the UK, there is much relevant experience, and the semi-formalised *Environmental Appraisal* system contains elements corresponding to the requirements of the directive. Arguably, the UK's semi-formalised *Sustainability Appraisal* provides an even better framework for formalised SEA, since some of its aspects go beyond the requirements of the directive. **Either of these jurisdictions provides a model for advancing the development of SEA in Ireland.**

14. International experience suggests that the assessment of policies merits a different assessment procedure from that for plans and programmes. **The Dutch 'E-Test' offers a useful model** since, although formalised in the legislative sense, it is low-key and flexible in its approach - as befits the inherently fuzzy nature of policy formulation. However, the 'E-test' only works because it is reinforced by more rigorous procedures for the assessment of any subsidiary plans and programmes. Experience with project-level EIA indicates that full assessment is limited in those situations where the project choice is determined by a higher planning level, which cannot itself be assessed or modified.

### **Recommendations with respect to eco-auditing of NDP 2000-2006**

15. The following questions need to be addressed. These relate to the tasks that have not received sufficient attention in the eco-audit process so far. How will the eventual evaluation of the environmental consequences of the NDP be achieved? And, in the cases where there is potential impact, how will the requirement for consideration of alternative policy options be met? The Mid-Term Review of the NDP will be a good time to make adjustments that address these requirements of the eco-audit process, specified in the Guidelines.

1) The requirement to evaluate the environmental consequences of the NDP needs assistance. Reactivation of definitive Guidelines should be considered (inserting the word "potential" before the word "effect" on the checklist) and **any potential effects other than insignificant ones ought to be candidates for assessment.**

2) Assessment of effects requires the support of technical expertise. It would be appropriate that this comes from the organisation that already is charged with recording

environmental quality, the EPA. The terms of reference of the **future Centre of Excellence**, which is scheduled to be established in the EPA, include the development of information systems, making the Centre the ideal body to provide this support. In the meantime, before the Centre is established, **an interim forum is required**, consisting of the Managing Authorities and relevant implementing agencies on the one hand, and on the other hand EPA personnel who have expertise in the data area.

3) **The forum would be properly resourced** and it should function until the establishment of the Centre. There should be a seamless transition when the Centre takes up the reins.

4) It is recommended that the function of the proposed forum would be to set up appropriate indicators that would be relevant for **measuring the environmental effects of investments** under the NDP, where appropriate. The competence of the forum would include:

- a) the provision of support and assistance in the understanding of data definitions and of the underlying environmental processes. Appropriate breakdown by geographical area would be attempted according to data availability.
- b) the production of indicators that would ideally include those that measure outcomes, i.e. the Pressure, State or Impact indicators from the **DPSIR framework** (Driving forces, Pressures, State, Impact, Response). Positive as well as negative outcomes ought to be measured, the positive ones providing managerial information also.

5) The requirement for the consideration of alternative policy options, by its nature, has to allow for application of various disciplines, as appropriate. The **alternative options**, or rather the adjustments that suggested themselves in the course of this evaluation (Appendix 6) were usually of a regulatory and economic nature, which require analysis by persons versed in economic investment appraisal and cost-benefit analysis, though other types of expertise are likely to be needed also.

6) With respect to environmental protection and compliance, an adjustment that would be worth investigating now is how to **ensure that recommendations made in Environmental Impact Assessments (EIA) are fulfilled**. This would apply in particular to the question of ensuring that ongoing monitoring and maintenance are performed.

### **Recommendations for adapting the eco-audit to SEA**

7) An **official standardised terminology** should be developed, giving the Irish interpretation of concepts of *sustainable development* and *sustainability*, together with the associated objectives and criteria. The future Centre of Excellence should have a role in this respect. A basis for the standardised terminology has already been provided by COMHAR. Having achieved an agreed terminology, apparent synonyms should be avoided because their meaning can be ambiguous and might be misconstrued.

8) Similarly a comparable **standardised terminology be adopted in relation to procedures for the assessment of plans and programmes (and policies as well)**.

9) The experience gained during the eco-audit should be capitalised upon and the momentum maintained by **initiating a full policy pilot SEA**. It is recommended that this should be conducted on the national transport policy, since this is an area for which there is likely to be appropriate baseline data.

10) The provisions for SEA in the Planning and Development Act 2000 should be fleshed out through **Statutory Instrument without delay**, and **appropriate training** should be provided to the relevant local authority staff. The Planning & Development Act 2000 contains provisions for the *de facto* SEA of Local Area Plans, County Development Plans and Region Planning Guidelines. Unfortunately, although the Act is now considered to be fully operative, there has been no ministerial guidance on what these procedures constitute. **Both guidance and in-service training** need to be provided to the planning authorities involved as a matter of urgency simply to maintain the credibility of the new legislation. Since it is envisaged that much assessment would be done 'in-house' within different departments and regional or local planning authorities, mechanisms should be put in place to facilitate the exchange of experience and to develop an 'institutional memory'.

11) A **unit should be established** in an appropriate government department or agency, or any existing team should be strengthened, and should be given responsibility for co-ordinating SEA for all planning activities. This unit should provide expertise, where necessary, to other government agencies and provide an institutional memory for SEA. In the short term, this body should obtain guidance from independent experts in SEA, and its activities should be intermittently reviewed in the same way.

12) **Transposition of the SEA directive** should definitely not be delayed beyond the deadline in July 2004. The manner of transposition **should allow for feedback** from the assessment of projects, programmes or plans to influence the respective higher planning level. Ireland now has considerable experience with project-level EIA. However, the literature suggests that project-based methods have very limited application for plans and programmes. **In transposing the SEA directive, the government should seek an upstream transfer of EIA philosophy, rather than methodology**, that is, using more general approaches higher up the planning hierarchy. The resulting procedures should combine the procedural strengths of the directive with a level of flexibility appropriate to a range of SEA assessments. The directive stipulates, as a minimum requirement, that the **SEA should consider the likely evolution of the environment without implementation of the proposal. The requirement to address other alternatives should be considerably strengthened in transposing the directive.**

13) Evidence from evaluations of EIA and SEA practice world-wide firmly indicates that quality and effectiveness of assessment are related to the experience of the practitioners and the involvement of multi-disciplinary teams. There is also agreement on the benefits of external expert guidance and review. It is recommended that **SEA (whether formalised or voluntary) should be conducted by multi-disciplinary teams** within or between the organisation(s) **concerned in conjunction with external expert guidance**. Finally the SEA report should be subjected to an external review process.

14) The transposition should be accompanied by the development of **clear explanatory regulations**, and ample **training** should be provided to the relevant planners in order to bring the provisions into effect.

15) A form of policy assessment should be developed, with the **Dutch E-test as a suggested model.**

16) **Measures for public involvement should be strengthened to provide appropriate participation at each stage of the planning and assessment hierarchy.**

# **PART 1: INTRODUCTION**

## **1.1 Background to the study**

In June 1999, the Government approved proposals for a pilot scheme for eco-auditing policies in specific sectoral areas by Government Departments and in respect of National Development Plans. Guidelines on eco-auditing were developed to assist the introduction of the procedure and this pilot process was then applied to the NDP and to the Operational Programmes and Plans. With a view to enhancing the use and effectiveness of eco-auditing, particularly in the context of the Mid-Term Review of the NDP and Operational Programmes in 2003, the NDP/CSF Evaluation Unit have commissioned this study. The study is undertaken in the context of the work of the NDP/CSF Environment Co-ordinating Committee.

The purpose of the study is to evaluate the eco-auditing procedure applied to the NDP/CSF, focusing in particular on a review of the pilot methodology used. In this task the study reviews and assesses the progress made in the use of eco-audits of the NDP, the Operational Programmes and Plans to date and comments on the role and input of the pilot eco-audits in the overall programming process, and on the outcomes.

Relevant eco-audit methodologies used elsewhere are also reviewed and various developments are discussed.

Drawing on these analyses, the study forms conclusions and makes recommendations for enhancing the present application of eco-auditing. These are also intended to inform the 2003 mid-term review of the NDP/CSF and Operational Programmes and Plans. Finally the study makes recommendations for the use of eco-audits in the longer term.

## **1.2 Structure of the report**

The report is structured as follows. The remainder of this introduction covers a number of aspects that form the background to the study. The environmental and policy contexts that frame the eco-auditing process are outlined. Definitions of the term *eco-audit* and related procedures are given, clarified and discussed. The pilot eco-audit process specified for the NDP is also described.

The next part, Part 2, reviews the pilot eco-auditing of the NDP. Using the eco-audit process that was specified, the review examines the eco-auditing at the NDP level (that is given in NDP, Appendix 4) and at the level of the Operational Programmes. Implementation of the process, the resources availed of and the general approach are described and the results of the process are described, as given in the OPs, Programme Complements and Progress Reports. The indicators used and the issues arising are assessed and key conclusions are drawn on the application of the process to the NDP.

Part 3 steps back to provide a comparative review of equivalent methodologies and to outline recent thinking. Various aspects are discussed with a view to drawing general recommendations for procedures to be applied to policies, plans and programmes in Ireland.

Part 4 summarises the principal findings of the evaluation and draws conclusions. Finally, Part 5 gives recommendations.

### 1.3 Environmental context

Ireland must retain its attraction as a place where current and potential employees wish to live and work if our medium term growth potential is to be realised. Development needs to be of the sustainable kind, that is development that links the economic, social and environmental objectives of society in a balanced way.<sup>1</sup>

By its nature the environment is vulnerable in the face of development and it is important that the areas that are vulnerable be identified. Key areas of concern have recently been highlighted by the EPA (2000, 2001, 2002) in a series of reports. Its *Millennium Report* and more recently its report *Environment in focus 2002 - Key Environmental Indicators for Ireland* point out that Ireland's environment is still generally of a high standard but that there are environmental problems requiring to be addressed. Based on their lists, these problems are:

- The over-enrichment of surface waters, posing a threat to Ireland's game fish population. There are indications that agriculture is the source of much of the nutrients that cause the problem. Recent improvements have mainly occurred in catchments where intensive management programmes for farms have been implemented.
- Recent surveys of groundwater quality indicate unacceptably high levels of contamination from such sources as septic tank effluent, agricultural organic wastes, landfills, as well as some elevated nitrate levels from agricultural sources.
- Waste remains a difficult issue, with an increase of over sixty per cent in five years. Recycling at 12.2 per cent has some way to go to reach the target of 35 per cent, and landfill capacity is dwindling.
- The rise in greenhouse gas emissions means that, in order to meet international commitments for 2008-2012, Ireland will now have to cut its greenhouse gas emissions.
- Agriculture is responsible for a large share of greenhouse gas emissions and emissions are growing fastest from the transport sector due to high growth in car ownership.
- Emissions of sulphur dioxide (which have decreased over the nineties) and nitrogen oxides will also need to be reduced for Ireland to meet its international obligations by 2010.
- Urbanisation has put land and transport infrastructure under pressure. The National Spatial Strategy has the potential to address environmental considerations, though belatedly. Sixty per cent of persons in employment travel to work in a car. Habits, many based on recent investments, are hard to undo.
- Traffic congestion and noise are significant in urban areas. Road traffic is a major source of air emissions and the greatest threat to urban air quality. With the projected rapid growth of the road vehicle fleet, road transport's share of national air emissions is expected to continue to grow.
- Overseas tourist numbers have doubled over the decade. A large influx of visitors into areas of high ecological and resource value can result in self-defeating damage to the local environment.

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<sup>1</sup> Fitz Gerald *et al.* 1999, DELG 2002.

- Peatlands once covered 17 per cent of the land area of the State but now about one fifth of that remains relatively untouched.
- Eighteen species of bird, many depending on farmland habitats, have been identified as being in rapid decline over the last 25 years and a further 76 are under threat.
- Many commercially important fish are heavily exploited in the waters around Ireland.
- Certain fish stocks have suffered and there is evidence to support the contention that salmon farms played a role in this decline.

Documentation on the state of the built heritage, as opposed to the natural environment, is less well-resourced and is consequently scanty. There are several concerns in relation to the implementation of the *Planning and Development Act 2000*, under which ministerial recommendations are made to planning authorities for the inclusion of structures in their Record of Protected Structures. These concerns centre around the following.<sup>2</sup>

- In the two years to August 2002, 3447 ministerial recommendations were made (under Section 53 of the Act) to planning authorities for the inclusion of structures in the Record of Protected Structures. A further 5000 ministerial recommendations are expected by end-2002 based on the National Inventory of Architectural Heritage surveys. Because there is no requirement on planning authorities to notify the Minister when his recommendations are accepted, the rate of uptake of these recommendations is difficult to assess.
- 40 out of 88 planning authorities have no architectural conservation officer and difficulties arise in the carrying out of responsibilities in relation to legislation. Relatively high staff turnover puts existing conservation officers under severe pressures, even from the tasks they already have.
- Although draft Architectural Heritage Protection Guidelines for planning authorities were published in December 2001 there is still an absence of technical guidance documents for practitioners involved with architectural conservation. Practitioners may therefore be reluctant to use permitted alternative approaches to meeting the requirements of the Building Regulations when dealing with protected structures, particularly in the matter of fire safety.

As already stated, Ireland's environment is generally of a high standard but the above problems help to flag the pressure points. Investment plans of the magnitude of the NDP 2000-2006 can have serious environmental impacts unless effective safeguards are in place. The Government's commitment to sustainable development, defined as "development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs", was underlined in the publication of *Sustainable Development – A Strategy for Ireland*<sup>3</sup>. It said:

"All development impacts on the environment. Sustainable development cannot eliminate such effects altogether. It aspires, however, to change the balance of impacts from negative to positive, pursuing policy choices which promote economic efficiency with less intensive natural resource use and less environmental stress."

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<sup>2</sup> Hanna, 2002; Donnelly, 2002

<sup>3</sup> Government of Ireland 1997

## 1.4 Policy context

What are these policy choices that can be pursued? There are only a few broad types of policy that are available to the authorities. These basically include exhortation, economic instruments, education, regulation and laws. The requirement that managers of government plans undertake eco-audits combines a bit of all of these. For example, the withholding of funds until a satisfactory eco-audit has been completed is an economic incentive of sorts. Regulations and laws are obeyed because compliance with them is a requirement and, if the groundwork is prepared, the whole experience should be a useful education process. If in addition all the policies surrounding the eco-audit process pull in the same positive direction, results are all the more positive. If on the other hand one of the policies that is needed is missing, then often the others are rendered less effective, or they have “to work harder” and be applied more intensively

The policy context is evolving and it is important to note that a number of developments are likely to facilitate or result in improving environmental management. The following list describes policy documents that form the context for policy and some policies that have been or are about to be adopted that affect the environment.

- Strategy document, *Sustainable Development – A Strategy for Ireland* (DOE, 1997) provided a comprehensive analysis and framework to allow sustainable development to be taken forward more systematically. It proposed supporting structures and general measures. The focus of analysis was sectors and environmental media or themes. It noted that the process of sustainable development requires continuing adaptation and review of policies, actions and lifestyles.
- *Green Paper on Sustainable Energy and National Climate Change Strategy*
- These set out a new framework for energy efficiency and the use of renewable energy sources, highlighting necessary measures. Cross-sectoral measures proposed in the Strategy include appropriate tax measures, prioritising CO<sub>2</sub>, and emissions trading. Sectoral measures are described for energy, transport, industry and commerce, agriculture forestry and the built environment and residential sector.
- Introduction of water pricing framework
- In line with international practice and emerging EU policy Ireland is moving towards making the full cost of water and waste water services to all sectors transparent, and securing full cost recovery in the case of non-domestic users. This framework provides for:
  - (a) Collection of capital contributions from non-domestic users in accordance with the polluter pays principle;
  - (b) Operational costs in respect of water and waste-water services to non-domestic users to be recovered in full;<sup>4</sup>
  - (c) Completion of the metering of all non-domestic users by 2006;
  - (d) Transparent funding and explicit presentation of costs of providing water and waste-water services to domestic users, consistent with efficiency and environmental sustainability.

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<sup>4</sup> A Eurostat (2001) data gathering exercise paved the way for estimating the per unit cost and price of water delivered and waste water received/treated.



- River basin management  
The EU Water Framework Directive (WFD) requires the co-ordination of measures for water management in relation to all waters. River Basin Districts (RBDs) must be established/identified to form the "administrative areas" and *River Basin Management Plans* must be prepared in relation to each RBD. The DELG is currently extending its existing catchment-based strategy by promoting the establishment by local authorities of river basin management projects.

Other recent developments include:

- Adoption by local authorities of Strategic Waste Management Plans
- Adoption of revised house building regulations
- Strategic Planning Guidelines for the Greater Dublin Area
- The adoption of the National Spatial Strategy
- New regulations relating to aquaculture
- The Strategic Environment Assessment (SEA) Directive

The SEA Directive is not applicable to NDP 2000-2006 but is to be transposed into law by 21 July 2004. It will be discussed in detail in Part 3.

Reforms embodied in the above developments are legislative and economic in nature. They mark good progress towards addressing some points made in the CSF Evaluation Unit's *Ex Ante Evaluation of the NDP 2000-2006* and in the previous section. They also help towards establishing the legal and economic framework for the environment, called for in the *Mid-Term Evaluation of the CSF 1994-1999* (Honohan, 1997, p 207), that is needed for investment to "realise its full potential".

## 1.5 Defining Eco-audits

Before proceeding to the review of the eco-auditing of the NDP, we should pin down some definitions and answer the question: *What is an eco-audit?* Eco-audit is a broad term used to describe the essentially retrospective procedures for identifying and evaluating the environmental performance of any actions, whether at the level of policies, plans, projects or organisational activities. The word *audit* holds out the idea of there being some sort of baseline information (akin to the opening balance in accounting) or standards against which the effects of those actions can be compared. In practice, with other things changing and with imprecision of some baseline data, this is often an aspiration, though an aspiration that should be pursued and not be allowed to disappear from sight. There is an objective in this process: the well-being of the environment. An eco-audit holds out the objective of informing the manager as to where the project or policy is heading and of helping the manager to take good decisions.

Eco-audit is therefore a generic term that includes several procedures in use at present, such as *Environment Proofing*, *Green Accounting* and, at company level, *Environmental Management Systems* such as ISO 14001 or EMAS. The various forms of Impact Assessment (*Environmental Impact Assessment/EIA*, *Environmental Assessment*, *Strategic Environmental Assessment/SEA*, *Environmental Appraisal*) are essentially comparable, but have a greater emphasis on predicting future effects. However, the impact assessment procedures should themselves be reinforced by periodic audit of performance.

Although the terminology can be confusing, the above-mentioned procedures are separate methodologies which differ in the objectives and scope of their application, whether formalised or otherwise. Those procedures which are formalised generally have the advantage that they are then standardised.

In the NDP 2000-2006 (p.220), the term *Eco-audit* was equated to Strategic Environmental Assessment (SEA), the form of impact assessment appropriate to this planning level.<sup>5</sup> Furthermore, the terms of reference for this review include the consideration of comparable methodologies and their potential relevance to the introduction of formalised SEA in Ireland. Therefore, we will use the term *Eco-audit* to cover the procedure related to the NDP 2000-2006, including both the 'Guidelines' and the results. However, the overall concept will be reviewed in the context of SEA in general. Some important aspects of the methodologies are discussed in this section. Further discussion of experience with methodologies elsewhere and of recent developments will wait until Part 3.

The NDP 2000-2006 and its ancillary documents refer to the *Eco-audit* process by name, and also call it an *Environmental Appraisal*.<sup>6</sup> Earlier, the national sustainability strategy<sup>7</sup> had given an undertaking to introduce *Strategic Environmental Assessment (SEA)* over and above the requirements of the, then, pending EC Directive on SEA<sup>8</sup> within a three year period. The NDP documentation alludes to the eco-audit as a fulfilment of this commitment and therefore infers that, at that time, the Irish Government viewed the eco-audit process as a form of SEA.

The NDP and its subsidiary operational programmes covered a wide range of activities, the assessment of which clearly fell outside the terms of the proposed SEA directive. The finalised Directive 2001/42/EC<sup>9</sup> is a stronger measure, but is still limited to consideration of plans and programmes, and specifically excludes proposals co-financed under the current round of structural funds or the European Agricultural Guidance and Guarantee Fund.<sup>10</sup> Since the NDP arguably contains elements of policy and includes proposals funded under the existing tranche of structural funding, the eco-audit process can indeed be viewed as going beyond the scope of the directive. The rest of this section defining eco-audits focuses on SEA.

SEA is a variant of *Environmental Impact Assessment (EIA)*, which was itself first formalised through the US National Environmental Policy Act (NEPA) 1969 and operative from 1970. Although initially considered applicable to all planning levels,<sup>11</sup> the term EIA became synonymous with project-level assessment and the concept of SEA was developed to encompass the assessment of *policies, plans and programmes*.<sup>12</sup> SEA was formally

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<sup>5</sup> Government of Ireland 1999, sub-section 13.21 (p 220) headed "Environmental Impact (Sustainable Development).

<sup>6</sup> Government of Ireland 1999 (sub-section 13.22, p 220); Anon. n.d.

<sup>7</sup> DoE 1997

<sup>8</sup> CEC 1997a/1999.

<sup>9</sup> CEC 2001.

<sup>10</sup> Under Regulation 1260/1999/EX, ex-ante evaluations must be drawn up for all current OPs. Furthermore, an attempt is currently being made to apply SEA methods to transport infrastructure (see <http://europa.eu.int/comm/environment/eia/home.htm>)

<sup>11</sup> NEPA required the assessment of the environmental effects of '*Federal actions*' likely to have significant impacts on the environment. In a subsequent review the US Council on Environmental Quality interpreted '*Federal actions*' to "*include programs (and) rules, regulations, plans, policies or procedures and legislative proposals*". SEA-type assessments (termed *programmatic assessment*) have been conducted under NEPA, but these have generally been applied to groups of technically-, or geographically- related projects.

<sup>12</sup> Wood and Djeddour 1992.

introduced in Canada in 1990 and reinforced by a cabinet directive in 1999. Canadian agencies have been a prime mover in the world-wide development of both EIA and SEA expertise, although one evaluation is that as a planning process, Canadian EIA is 'more relaxed' than that in Europe.<sup>13</sup>

The two widely accepted definitions of SEA derive from Thérivel *et al* and Sadler and Verheem. In view of their apparently slight but nevertheless significant differences, Partidario proposed the following hybrid definition<sup>14</sup>:

"[SEA is] a systematic on-going process for evaluating, at the earliest appropriate stage of publicly accountable decision-making, the environmental quality and consequences, of alternative visions and development intentions incorporated in policy, planning or programme initiatives, ensuring full integration of relevant biophysical, economic and political considerations".

This definition avoids the tautology of defining SEA as being 'strategic'. Noble questions the somewhat indiscriminate use of the term 'strategic' and suggests that to qualify as SEA the proposal in question must have a set of principles and objectives that shape the visions and development intentions.<sup>15</sup> Partidario's definition is reinforced by a hybrid set of principles for SEA good practice (see the annex to this chapter, Annex 3.1). These are themselves reflected in SEA performance criteria recently published by the International Association for Impact Assessment.<sup>16</sup>

There have been concerns about applying SEA at the policy level for fear of constraining political choice, but in all cases SEA (like EIA) is seen by advocates as an aid to decision-making, not a substitute for political judgement.<sup>17</sup>

It should be stressed that SEA arose precisely because a different tool from project EIA was needed to assess the inherently more fuzzy nature and greater political content of policies, plans or programmes. The popular concept that SEA occurs 'before' or 'above' project-level assessment is simplistic and potentially problematic. However, it is true that SEA is an essentially proactive counterpart to the reactive EIA which is not sufficient to evaluate current opportunities which may be gone tomorrow.<sup>18</sup> SEA aims to provide a mechanism by which goals and objectives will incorporate cross-cutting environmental and sustainability perspectives. It should also allow for greater examination of alternatives to the proposal, of indirect, secondary, cumulative and synergistic effects, and of how to avoid rather than mitigate impacts.<sup>19</sup> More succinctly, SEA considers alternative options where EIA is constrained to dealing with alternatives within an option.<sup>20</sup>

It is therefore important to distinguish where SEA is needed from the more limited situations where improved EIA will do, or where SEA is needed even for activities which will not merit EIA.<sup>21</sup> Conceptually, evaluation of the various stages of the planning hierarchy of policies,

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<sup>13</sup> Dalal-Clayton and Sadler 1998; CEAA 2000; Environment Canada 2000; Noble 2000.

<sup>14</sup> Thérivel *et al* 1992; Sadler and Verheem 1996a; Partidario 1999.

<sup>15</sup> Noble 2000.

<sup>16</sup> IAIA 2002a

<sup>17</sup> Sheate *et al* 2001a; Dalal-Clayton and Sadler 1998; Partidario 1999; Verheem 2002; CEC 2002.

<sup>18</sup> Partidario 1999; Smith and Sheate 2001a.

<sup>19</sup> Thérivel and Brown 1999; Nooteboom 2000a/b; Smith and Sheate 2001a.

<sup>20</sup> Noble 2000.

<sup>21</sup> Partidario 1999; Thérivel and Brown 1999; Nooteboom 2000b.

plans, programmes and projects can be reduced to questions of 'why', 'whether', 'who', 'what', 'where', 'when', and 'how'. EIA has traditionally been applied for 'how' questions and some aspects of 'where'; SEA for 'why' (the need, objectives and principles of new actions), 'what' (selecting best methods) and 'where'. However, there is also a recognised need to distinguish the objective ('why') and subjective ('what', 'where', 'when' and 'how') purposes of development, and this arguably necessitates differing forms of SEA.<sup>22</sup>

Terminology in the literature suggests a resistance to the universal use of the expression *SEA*. This is partly due to differing definitions of what constitutes a policy, plan or programme, but also results from changes in the theoretical scope of SEA following recognition of the complexity of strategic analysis and the continuous development of focused methodologies described by more specific terms.<sup>23</sup> This is reinforced by increasing convergence between SEA and other environmental management methods - which begs the question (as with the *Eco-audit*) of whether SEA is being done, but not being called that.<sup>24</sup>

Within the EU, environmental assessment was an arena of significant debate and political horse-trading between member states during the development of both the EIA directive<sup>25</sup> and that for SEA. One result is that, although there was general acceptance of the principal, there has been political avoidance of the actual term SEA. This has led to the development of a confusing terminology of synonyms, with the result that assessments that are currently the basis for recognisable SEA have names such as '*environmental appraisal*', '*sustainability assessment*' or '*integrated vision*'.<sup>26</sup>

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<sup>22</sup> Carlman 1996; Dalal-Clayton and Sadler 1998; Thérivel and Brown 1999; Nooteboom 2000b; Verheem and Tonk 2000; Briassoulis 2001.

<sup>23</sup> Partidario 1999; Carlman 1996; DGXI 1997; Goodland 1997; Goodland 1998; Buckley 1998; Kessler 2000; Persson and Nilsson 2002

<sup>24</sup> Thérivel and Brown 1999; Noble 2000; Fischer 2001/2002.

<sup>25</sup> CEC 1985.

<sup>26</sup> Fischer 2001.

## **PART 2: REVIEW OF ECO-AUDITING IN THE CONTEXT OF NDP 2000-2006**

### **2.1 Method of review**

#### *2.1.1 Guidelines for the Conduct of Eco-Audit of Policies*

An aim of the project is to evaluate implementation of the eco-audit of policies as it was applied to National Development Plans. The basis used for this evaluation is a document entitled *Eco-Audit of Policies Guidelines*.<sup>27</sup> This document, called the Guidelines from here on, is reproduced in full in Appendix 1.

This document states that eco-audit will be applied initially:

- (a) to new policies and to existing policies (including the financial aspects) which are being substantially modified in the following sectors:

Agriculture  
Energy  
Transport  
Industry  
Tourism  
Forestry  
Marine and natural resources and

- (b) to national development plans

As regards (b) above the following extract from the CSF (p. 31) is relevant:

#### “1.7.1.4 Pilot eco-audit

The pilot eco-audit element of the process will involve implementing agencies reporting on:

- The significant positive or negative environmental impacts, whether direct or indirect. In identifying these impacts the eco-audit will in particular quantify as far as possible the environmental effects and their significance for the state of the environment
- The means by which the programmes shall contribute to the protection and improvement of the environment and a description of measures to eliminate/mitigate any harmful environmental impacts likely to arise;
- Identification of environmental policies, standards and licensing requirements with which the programme and or projects will comply and provision for assessment of impact following implementation.

On the basis of these reports, managing authorities will prepare an overall eco-audit as set out in the Plan (with support from DOELG). The analysis contained in

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<sup>27</sup> The document was issued by DOELG to Managing Authorities and Implementing Bodies, prospective or otherwise. [Date?]

eco-audits is likely to be mainly qualitative in nature, given the broad strategic thrust of the exercise, although quantitative impacts will be documented where possible.”

The present study is concerned only with eco-audits conducted under reference (b) above, i.e. all Operational Programmes and Plans within the NDP/CSF to date (as set out in the terms of reference reproduced at the front of this Report).

### *Objectives*

The *Guidelines* document states that the objective of the eco-audit of policies is to ensure that the environmental impacts of policies are identified as early as possible and that action is taken where appropriate to eliminate or mitigate any *potential* adverse impacts identified (Guidelines, para. 1.2.)

### *Scope and Trigger Mechanism for an Eco-audit*

The guidelines state that it will be necessary to conduct an eco-audit in respect of policy/policy changes likely to have substantial environmental impacts and that the checklist in the Annex may be used as means of identifying those policies to be subject to eco-audit.

An eco-audit requires the assessment of the environmental impacts of policies with particular reference to the effects on air, water, land, habitats, flora and fauna, natural resources and to the production of waste. An eco-audit will address the following:

- Significant positive or negative environmental impacts, whether direct or indirect, quantified as far as possible, with their significance for the state of the environment nationally and in a transboundary/global context;
- The alternative policy options considered
- Description of measures to eliminate/mitigate any harmful environmental impacts likely to arise;
- Identification of environmental policies, standards and licensing requirements with which policy and/or projects implemented under policy will comply and
- Provision for assessment of impact following implementation.

This eco-audit should be carried out when significant environmental effects are likely in respect of any areas listed, when environmental effects of some significance are expected in two or more areas or when more detailed investigations are required to determine whether the effects are significant.

### *Governance, Monitoring, Resources & Time Available for Eco-Audit*

The Guidelines state that it is a matter for individual Departments and where appropriate their associated agencies to decide, in line with the Eco-audit Guidelines, whether or not a policy should be subject to eco-audit.

The Guidelines contain no explicit reference to monitoring arrangements in relation to the provisions of the Guidelines, or to any resources (including technical assistance) that would be available or to the timeframe within which the exercise should be undertaken.

However a series of supplementary seminars was organised by the DELG. These consisted firstly of seminars that gave the basic outline of the pilot eco-auditing process. These conveyed the message that a number of straightforward steps need to be followed and attendants at the seminars consisted of likely or potential Managing Authorities, since the OPs had yet to be decided.

The issue of indicators was addressed in another seminar that consisted of three presentations. One presentation was given by ERM, the consultants that had prepared the report on indicators (ERM 1999). It pointed to the importance of attempting to find measures that indicated extent of achievement of objectives, namely, what improvement to the environment had occurred. These would ideally be "State", "Pressure" or "Impact" indicators. Data on items such as the amount of money spent or number of clean-up facilities installed, that is, "Response" indicators, were sometimes not informative, though they might be all that was obtainable. Another presentation was made by a representative from the NDP/CSF Evaluation Unit which clarified the need for baseline data against which to measure the outcomes. The indicator of the environmental outcome should also be capable of being directly linked to the financial indicator, which could help investigation of environmental results for money spent. A third presentation was made by a representative from the EPA and it outlined the national information that was available.

### *2.1.2 Consultation in respect of the Pilot Eco-Audit Process*

The most efficient method of review was deemed to be by way of immediate and direct consultation with the Managing Authorities of the Operational Programmes. To facilitate discussion with the managers, to give them a preview of the issues to be addressed and also to impart a logical order to the discussion, an "Interview Protocol" was prepared for use in the interviews. The Interview Protocol is reproduced in Appendix 2.

It can be seen that the questions in the Interview Protocol broadly follow the terms of reference.

Appointments to interview all the Managing Authorities were arranged and face-to-face interviews took place, each lasting for between one and two hours. In some instances the managers were alone and in others they were accompanied by assistants and experts. The managers often supplied relevant literature about environmental protection relating to their area and usually suggested that follow-up interviews be undertaken with the implementing agencies, who in some cases were also the bodies that were engaged in environmental vetting of projects. The follow-up interviews were undertaken in most cases. A list of the organisations with which interviews were conducted is given in Appendix 3.

It is to be put on record that the consultants received excellent co-operation from all with whom interviews were arranged. By way of preliminary observation it can be said that respondents had mixed reactions to the questions in the Interview Protocol. The majority said that they could not answer the questions as they stood. At least one expressed the view that the questions implied that the eco-audit procedure was more advanced than it in fact was, as far as they were concerned. In addition there was a more widespread sense that the eco-audit process has been overtaken by events, notably by Strategic Environmental Assessment (SEA).

In writing up the evaluation the consultants also referred to the Programme Complements, to any available Progress Reports and to other relevant literature and reports.



## 2.2 Review of pilot Eco-Audit of the National Development Plan 2000-2006

### 2.2.1 Description of the Pilot Eco-Audit

The NDP contains a Pilot Eco-Audit in Appendix 4. This states that the EPA's report *Environment in Focus* had "informed preparation of the Plan." It notes that "the main threats to the environment arise in the areas of climate change, eutrophication, the urban environment (including transport) and waste". It states that the "environment dimension is addressed through measures to:

- Develop a National Spatial Strategy and promote regional development;
- Secure better land use and transport planning, through, for example, adherence to the Strategic Planning Guidelines for the Greater Dublin Area;
- Enhance the eco-efficiency of transport, through a more efficient road network, substantial investment in public transport and other sustainable modes and development of demand management measures;
- Support the meeting of climate change policy objectives, as a major test of sustainable development, through action across the Plan and in specific sectors, for example, in the energy and forestry areas (further measures in relation to climate change will be set out in the planned National Greenhouse Gas Abatement Strategy);
- Assist towards the achievement of sustainable agriculture through the Rural Environment Protection & Control of Farmyard Pollution Schemes;
- Improve water supply and waste water treatment facilities in accordance with the Drinking Water and Urban Waste Water Directives and national legislation;
- Implement integrated waste management strategies;
- Support a dedicated programme of environment research."
- The potential emergence of unsustainable patterns of development within the framework of the Plan is recognised. It notes that it is of critical importance to ensure that the environmental dimension is fully integrated into the further stages of programme planning and into implementation. It considers that this should be achieved through:
  - "Integration of environmental consideration into the preparation of Operational Programmes and specific policies and measures with a view to maximising eco-efficiency and minimising adverse impacts;
  - The use of environmental criteria in Operational Programme project selection;
  - The inclusion of environmental representation on Operational Programme Monitoring Committees;
  - The inclusion of the environmental dimension in all evaluations to be carried out under the Plan;
  - The establishment of an Environment Co-ordinating Committee for the 2000-2006 Period."

Development and implementation of indicators of environmental performance at Operational Programme and measure levels is seen as critical for demonstrating the proper integration of environment consideration into the Plan implementation.

### 2.2.2 *Assessment*

When considered in the context of the Guidelines provided in relation to compiling Pilot Eco-audits the evaluation undertaken appears weak in a number of respects. (Table 2.1)

There is a lack of any analytical framework incorporating consideration of environmental indicators or sustainability criteria or objectives considered relevant and appropriate at the macro-level of the NDP. This short-coming could have been overcome, for example, by adopting even at a qualitative level the DPSIR framework (i.e. Driver, Pressure, State, Impact, Response). This would have a number of advantages. For example, it would show indicators in their context rather than as isolated estimates. It would facilitate providing a degree of integration of environmental consideration at the macro-level by setting out a causal chain and a statement of relationships between the Plan and different aspects of environmental pressure, allowing the possibility of more explicit determination of priorities regarding economic-environmental relationships.

There is no attempt at quantification in terms of laying down high-level performance indicators to be maintained, sustained or achieved.

There is no evidence of consideration having been given to the impact and response measures in a comparative context, i.e. there is no consideration given to alternatives or any sense that the balance of policies and measures in the Plan represent the most efficient balance between competing, economic, social and environmental objectives or constraints.

There is recognition of the importance of these issues. However, the approach seems to be that they ought to be dealt with at the level of the OP and the measures rather than at the macro-level of the Plan.

Doubtless these shortcomings reflect the late stage and compressed time-frame in which the Pilot Eco-Audit was undertaken and the fact that it was the first such undertaking in relation to any Irish Plan at national level. With the benefit of the present study and other relevant research it should be possible to overcome or significantly improve the process at the Mid-term Evaluation Stage.

**Table 2.1: Summary of Pilot Eco-Audit of NDP in Relation to Criteria Contained in the Guidelines**

Checklist prepared	Significant Environmental effects or environmental effects of some significance under 2 or more headings identified in the checklist	Significant positive or negative environmental Impacts Identified	Significant positive or negative environmental Impacts Quantified	Alternative Policy options considered	Description of measures to eliminate/mitigate harmful effects	Identification of environmental policies, standards and licensing requirements with which there will be compliance	Provision for assessment of impact following Implementation
		✓			✓	✓	✓

## 2.3 Review of Pilot Eco-Audit of CAP Rural Development Plan

### 2.3.1 Overview of the CAP Rural Development Plan

The CAP Rural Development Plan, it should be noted, stands apart from the Ops. It had already been subject to pilot eco-audit under the programme to introduce eco-audit to policies in selected sectors.

The CAP Rural Development Plan, which was launched in November 2000, provides for total public expenditure of over Euro 4.9 billion, (£3.9 billion) over the 2000-2006 period. Its overall aim is to maintain farming as the backbone of a vibrant rural economy and the basis for a quality food industry capable of competing in world markets while enhancing the rural environment and countryside. Specifically the Plan proposes to:

- Help improve agricultural structures;
- Support farm incomes in disadvantaged areas;
- Enhance the rural environment;
- Provide further sources of income for farmers and rural dwellers through access to a substantial afforestation programme.

### 2.3.2 Description of the Pilot Eco-audit

The CAP Rural Development Plan endeavours to implement a number of integrated actions that should impact favourably on a range of areas. The Plan has been designed to ensure that measures have a positive effect on the environment. For example, Measures are contained to promote extensification, less intensive use of resources and environmentally friendly land use. Participation in a measure under the Plan requires compliance either with *Good Farming Practice* or a *Code of Best Forest Practice*, to safeguard the environment and preserve the countryside by conducting farming activities in accordance with established codes of good practice and in compliance with environmental legislation.

A Final Report of the Eco-audit was produced in September 2000. The Report concludes that the Plan is expected to have a favourable impact on the environment. A summary overview of the Pilot Eco-Audit in relation to the Guidelines is contained in Table 2.2.

The four measures in the Plan (i.e. Early Retirement Scheme, Compensatory Allowances Scheme, REPS and Forestry) were included in the audit. Each of the four measures was evaluated using a matrix of parameters, including the effects of the measures on water quality, air quality, bio-diversity, land-use, resource conservation, waste, architectural and archaeological heritage, health and welfare of the population and dangerous substance.

The Eco-audit Report contains a general account of the expected impact of each measure on the environment and the transmission mechanisms involved. As regards REPS, this account incorporates findings from an *Evaluation of the Rural Environmental Protection Scheme* (July 1999). The account takes into consideration the results of earlier evaluations of measures and of modifications and revisions to earlier versions of schemes. In addition, the report considers the Complementarity of the measures contained in the Plan with other environmental initiatives, such as with the procedures for dealing with Nitrate Vulnerable Zones (NVZs). Specific consideration is given also to measures designed to eliminate or mitigate any harmful environmental impacts.

The Report describes how a number of options were considered for the four measures during the design of the Plan, for example, allocating more resources to the Farm Waste Management Scheme and amending REPS to enable intensive farmers to participate.

On the basis of the analysis provided a comprehensive summary checklist of the steps that were undertaken has been completed. The checklist is supported by the analysis contained in the report of the Pilot Eco-Audit of the CAP Rural Development Plan 2000-2006.

### *2.3.3 Assessment*

Environmental assessment is a major consideration underpinning the CAP Rural Development Plan and has been given high priority. The pilot eco-audit undertaken represents a rigorous analysis, using material and results of ongoing appraisal and evaluations of the measures contained in the Plan. Identified deficiencies are being addressed already, in the context of the forthcoming Mid-Term Review, to be undertaken in 2003.

The pilot eco-audit process was a particular formalisation of an ongoing process of evaluation, including environmental assessment of measures in the CAP Rural Development Plan. The process of evaluation would have occurred in the absence of the Pilot Scheme, although the format may have been different.

The Pilot eco-audit was not integrated in the overall programming process, as it occurred mainly after the CAP Rural Development Plan was completed. However, the process of environmental appraisal and review and evaluation of measures was taken into consideration and represented an integral part of the design of the measures contained in the Plan.

Officials responsible for the eco-audit attended a workshop of the Department of the Environment & Local Government in relation to eco-audits. Workshop documentation and the Guidelines were used to “put a particular formulation on the ongoing environmental appraisal of the Department of Agriculture Food & Rural Development in relation to the measures in the Plan.” A Draft Report was submitted to the Department of the Environment & Local Government, which provided substantial comments on the draft. A Report incorporating consideration of these comments was completed in September 2000. Since then there has been no further communication from the Department of the Environment & Local Government in relation to the Report. It was envisaged that a ‘Blue-Print’ for future eco-audits would be made available.

It is considered that there is weakness in terms of ‘high-level’ environmental indicators and their relationship with the Plan. The issue here primarily relates to causation and quantification. The officials would like to have access to more definitive ‘cause and effect’ relationships between the Plan and environmental indicators.

In terms of methodological development of the eco-audit process it is considered that SEA probably represents the most appropriate way forward.

**Table 2.2: Summary of Pilot Eco-Audit of the CAP Rural Development Plan in Relation to Criteria Contained in the Guidelines**

Checklist prepared	Significant Environmental effects or environmental effects of some significance under 2 or more headings identified in the checklist	Significant positive or negative environmental Impacts Identified	Significant positive or negative environmental Impacts Quantified	Alternative Policy options considered	Description of measures to eliminate/mitigate harmful effects	Identification of environmental policies, standards and licensing requirements with which there will be compliance	Provision for assessment of impact following Implementation
✓	✓	✓	✓	✓	✓	✓	✓

## 2.4 Review of Pilot Eco-Audit Process at OP Level

Table 2.3 contains a summary of the Pilot Eco-audit Process undertaken in respect of each of the OPs in relation to the Guidelines. In summary, the pilot eco-audit, comprised principally of completing the checklist from a qualitative perspective that reflected the thrust and objectives of the Measures contained in this OP. However, a checklist does not appear to have been completed with respect to the Human Resources Development OP. In most cases the criteria for triggering an eco-audit were not reached and where they were (i.e. in the ESIOP) an eco-audit along the lines envisaged by the Guidelines does not appear to have been undertaken.

The late stage at which the process was undertaken, the limited availability of resources and time that could be devoted to it have all contributed to the restricted nature of the exercise. However, important lessons are highlighted. Most notable is the lesson that at individual project level, there should be adequately developed methodological tools for incorporating environmental protection and identifying potential risks. However, there is considerable weakness at higher levels of abstraction in policy formulation and these should be the focus of future development. A conclusion of the consultation process is a view that SEA is regarded as potentially the best way forward.

The sections below provide a summary description and assessment of the pilot eco-audits undertaken for the OPs, more detailed descriptions of the processes and procedures for considering environmental effects in each OP are contained in Appendix 6.

### 2.4.1 *Description of the Pilot Eco-audit: Economic & Social Infrastructure*

A report of the pilot eco-audit of this OP, setting out the methodology employed and basis for the conclusions reached does not appear to have been undertaken. This is so, even though the checklist indicates expected impacts of some significance with regard to more than two of the criteria, (in respect of roads priority: land use, resource conservation and waste; in relation to the housing priority and the health facilities sub-programmes: air quality, resource conservation and waste). However, as discussed in Appendix 6.2, there is a considerable amount of environmental appraisal underpinning many of the measures contained in the OP. This is not surprising, considering that the objectives of the OP relate mostly to achieving environmental improvement and greater sustainability of activity.

Officials with responsibility for implementation of Measures conducted a qualitative audit by way of completing the checklist, with reference to the environmental assessment framework outlined above under various headings. The qualitative nature of the audit was stressed during the consultation process, resulting from a lack of any dedicated resource to undertake the task and the fact that very little time was available, within which to carry out the work.

### 2.4.2 *Assessment*

Because of the late stage at which the pilot eco-audit was undertaken, the limited resources available and the qualitative nature of the exercise the results played little or no role in terms of the overall programming process. However, the assessment framework cited above has provided significant environmental underpinning for much of the OP, especially large-scale Priorities, such as Roads and Environmental Infrastructure, which have potentially far reaching environmental consequences. Some of the consequences would be dependent on

other policies that impact on the area, as well as on future activities such as adequate maintenance and monitoring.

The principal output is a summary statement in the OP, of expected environmental effects, consistent with the environmental assessment and regulatory framework within which the OP is framed. According to the Guidelines the checklist results should have triggered an eco-audit of the Roads and Housing Priorities but this was not undertaken. The constrained context within which the exercise was undertaken, in terms of resources, time available and the late stage at which the exercise was embarked upon have been stressed in the course of the consultation process.

Extensions to the indicators have been suggested by COMHAR. For example, in their recommendations of 26 October 2000, "Transport-related issues under the National Development Plan and the Economic and Social Infrastructure Operational Programme", again with a view to measuring progress towards achieving specific environmental objectives, they suggest that relevant public concerns ought to be covered. Indicators proposed include customer opinions (alongside relevant information), travel time, ease of access to public transport (e.g. distance to nearest bus stop or rail station).

Another aspect, which was noted, is that availability of data and procedures for conducting environmental appraisal are more highly developed at the project level. By contrast, cross-cutting horizontal issues at a high level of policy formulation are extremely difficult to evaluate in a robust and consistent manner. There seems to be a consensus that this latter aspect should provide the focus for future development of eco-auditing. In this regard it was considered that attention should be focussed on the SEA Directive and the manner in which effect is given to it, as probably the most appropriate way of overcoming the perceived significant weakness of the eco-audit process.



**Table 2.3: Summary of Pilot Eco-Audit of the Operational Programmes of the NDP in Relation to Criteria Contained in the Guidelines**

Operational Programme	Checklist prepared	Significant environmental effects or environmental effects of some significance under 2 or more headings identified in the checklist	Significant positive or negative environmental impacts identified in the eco-audit	Significant positive or negative environmental impacts quantified	Alternative policy options considered	Description of measures to eliminate/ mitigate harmful effects	Identification of environmental policies, standards and licensing requirements with which there will be compliance	Provision for assessment of impact following implementation
Economic & Social Infrastructure	✓	✓ (some negative)				(implicit in implementing bodies' activities)	✓	Limited
Employment & Human Resources						✓	✓	✓
Productive Sector	✓	✓ (all positive)				(implicit in implementing bodies' activities)	✓	Limited
Regional: BMW	✓	✓ (mainly positive)		(good progress)*		(implicit in implementing bodies' activities)	✓	(based on data to date)*
Regional: SE	✓	✓ (all positive)		(good progress)*		(implicit in implementing bodies' activities)	✓	(based on data to date)*

\* (Include: Number of persons benefiting from water schemes; Air quality flagged; Waste disposal recovery data proposed; Tidy Towns data; Fisheries improved; Woodland improved; CO2 sequestration)

### 2.4.3 Description of the Pilot Eco-audit: Employment & Human Resources Development

A checklist of the expected environmental impacts of this OP does not appear to have been completed. However, an eco-audit has been undertaken in respect of the predecessor to the present OP, the *Human Resources Development Operational programme, 1994 -1999*. It indicates that the actions taken can be classified according to the following typology:

1. Knowledge of the environment (such as second-level general education and FAS training for the unemployed).
2. Promotion of positive attitudes towards environment (such as second-level general education).
3. Specific environmental methods and technologies training (such as third – level professional courses and FAS/ETU training).
4. Social employment environmental projects (such as FAS-Community Employment Scheme).
5. Environmental compliance advice (such as Enterprise Ireland for industry).
6. Environmental compliance auditing (such as Enterprise Ireland for industry).
7. Sector-specific environmental training (such as Fishery, Forestry and Agriculture).

While the numbers who received benefit from each category of education are not available, the ‘awareness’ typology types 1 and 2 above would likely have been provided to the largest numbers of students and to the unemployed. In terms of quality/depth of environmental education, type 3 (third-level professional courses) would be the most significant, being provided towards professional formation. All of the categories involve recipient training or education except type 4 where the environmental benefit is mainly the work output and type 6 where the environmental benefit results from the extra environmental effort identified as necessary. Technically, all of the environmental benefits accrued would be indirect with the exception of type 4 and possibly also, type 6. In terms of direct environmental effects, while type 1 would probably have been the most diffuse/indirect, types 3, 5, 6 and 7 should have resulted in improved protection from, for example, emissions to air and water.

### 2.4.4 Assessment

It is considered that collectively, insofar as education and training are concerned, these programme measures must have had an appreciable positive effect on awareness and appreciation of environmental concerns. The measures having environmental implications, supported under the OP are expected to contribute to:

- Increased public awareness amongst those at school, the unemployed and those at work of the importance of the environment and of the consequences of their actions in relation to it.
- The provision of a range of environmental expertise required at various levels across the economy.
- The restoration or preservation of buildings (or other heritage related locations) through the development of community-level projects.
- The provision of environmental advice and audit services to small and medium-sized enterprises.

#### 2.4.5 Description of the Pilot Eco-audit: Productive Sector

A checklist has been completed for this OP. However, it is interesting to note that none of the Priorities in this OP, even the industry and sea fisheries priorities, was deemed “likely to have substantial environmental impacts”. Therefore, applying the criteria contained in the Guidelines an eco-audit is not triggered. This may be due to the nature of the projects and an implicit assumption that adequate protective measures are in place and therefore there would indeed be no significant negative environmental effects.

To determine whether the checklists were appropriately filled out the question to be answered is: was there appropriate expertise available and do the completed checklists constitute a realistic assessment of where the benefits and/or threats to the environment lie? The consultation process indicates that the Managing Authority felt that more expertise would have helped them to perform this task better.

#### 2.4.6 Assessment

The following outputs and outcomes are observed.

- The process is better described as “Environment Proofing”, and it appears to have had a positive effect in raising consciousness.
- The OP Managing Authority, in seeking and digesting and then reporting on the information fed back by implementing bodies, had to acquaint themselves quickly with a new process in an area with which they were unfamiliar.
- Given the wide scope of activities, the Managing Authority were under-resourced to determine the extent to which actions taken by those reporting to them were effective or aspirational, though experience will help to reduce this problem.
- The process may have been started too late for it to cause changes in the outcome of the OP. This may account for the process being more akin to once-off environment proofing. However, the choice of some projects, including the Positive Actions of Enterprise Ireland and the Sea Fisheries projects, may have been made in the foreknowledge that environmental requirements in this Plan would be more demanding than before and/or would afford the opportunity to include these actions.
- The indicators were scanty and, though useful, further development should aim for more information on the net environmental effects of the projects. This will help to yield some estimates of ‘environmental value for money’ to help with decisions on future projects.
- There may be scope for developing the indicators, to feed up the chain of command. Three examples of indicators worth investigating would be:
- (1) emissions per job or per euro of value added (as attempted in the EUROSTAT (2001) project), (2) the extent that charges for environmental services reflect full costs<sup>28</sup> to integrate the environment into decision-making and (3) more “state” or “pressure” indicators relating to before and after the project that would show its net effect. Each of these would be possible and relevant in only some of the projects.

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<sup>28</sup> An example of the perverse pressure exerted by inadequate charging is given in O’Malley (2002 forthcoming). A third level institution was recently reported as being unable to invest in grey water recycling which held out the possibility of saving money at national level. Owing to a derogation from water charges, the college would not save money itself and the investment was turned down as it was deemed ‘uneconomic’.

- Owing to the nature of the environment, indicators are not likely to be a sufficient tool for providing feedback. It would also be important for views on policies such as the content of regulations and standards, on the incentive structure, on education and awareness and so forth, to be fed up the decision chain by those who implement the projects.

As far as Enterprise Ireland's Environment Unit was concerned (Enterprise Ireland being a major Implementing Body in this OP), the work entailed in ensuring that the environment would be protected represented not so much a change of process as a change of framework.

#### *2.4.7 Description of the Pilot Eco-audit: SE and BMW Regional OPs*

There is one eco-audit checklist filled in for each Priority. No Priority has sufficient negative effects to meet the criteria that would require "an eco-audit", according to the Guidelines. In fact there is only one expected negative effect "of some significance" and that is the effect of the Local Infrastructure Priority of the BMW Regional OP on local air quality, presumably emanating from the Non-National Roads Measure.

#### *2.4.8 Assessment*

While no eco-audit was triggered a process was applied to the Regional OPs which has had several positive outcomes. Important progress was made in comprehensively taking the environment into account. A major objective was to ensure compliance with legislation which would protect the environment. Breaches of legislation were to be avoided.

Two tourism sub-measures under the Local Enterprise Priority had already been the subject of the pilot scheme to introduce eco-auditing of policies in specific sectors, thus giving the OPs a head-start. Undertaken by the DTSR, the pilot involved the laying down of project selection criteria for development of Major Attractors and Special Interest Pursuits, including a strong emphasis on "integration and coherence" with existing attractions and tourist activities in the area. An emphasis on coherence with existing natural assets would also have been welcome. The pilot did give consideration to effects of projects on environmental indicators from the checklist.

Returning to the issue of decisions at higher tiers and consideration of options, it is noted that the SE Regional OP includes investment in hazardous waste landfill capacity, under the Waste Management Measure. The capacity is to be provided in accordance with the National Hazardous Waste Management Plan. To the extent that the options for hazardous waste, ranging from reduction to disposal, have already been adequately explored, then investigation of alternatives as per the eco-audit Guidelines would not be required. In cases where previous investigations had occurred, the adequacy of original terms of reference would be a factor.

Many questions cannot be addressed in this process as it stands. Questions raised were whether or not aquaculture risks harming wild stocks and whether the balance of investment between aquaculture and tourist angling was satisfactory. Are the options for dealing with the issue of hazardous waste well-enough thought out? Are tourism facilities sited with adequate care for sensitive environments? Another question posed was who should have responsibility for the eco-auditing? Should different levels of responsibility reside in different parts of the administrative process as and if so how should interaction between levels be fostered? To pursue this further and taking aquaculture as our example again, under what process should

strategic questions be analysed, like the tourism/angling issue: should tourist angling be to Ireland what skiing is to Switzerland, just to take an example? This type of question would be more in the line of Strategic Environmental Assessment (SEA) and it was felt that broad SEA of this type of broad issue should probably not be the responsibility of OP managing authorities, but that nevertheless feedback from all levels would be important and valuable.

The indicators were well formulated in many cases, and a good start has been made. There are some well-specified indicators of the state or impact kind, such as marks in the Tidy Towns Competition or number of visitors to improved cultural institutions (see Appendix 6.5) or arguably the percent compliance with Drinking Water Regulations. There is still a predominance of the “response” kind, that is, indicators expressed in units of the output of the investment. This is unavoidable in many cases.

For the most part indicators are not yet available. This is generally unavoidable, given the start-up time required for the projects and, in some cases, the time for results to materialise.

A next step, that would need more resources and could benefit from involvement of the EPA, would be to gather information that indicated the state of, or pressures on, the environment over the course of the project. Not only would this show how much actual environmental improvement had been achieved, capable of being viewed in a national context, but it would also give helpful information on improvement-for-money-invested to enable strategic decisions to be made. This would be useful, for example in comparing policies: if say a habitat or species had cost X to preserve, then if preservation were put out to tender (e.g. Scott 1997), the authorities would know what was a reasonable tender price to accept.

One of the difficulties already remarked on is the absence of environmental data that can be readily used in relation to projects. There is apparently a dearth of basic data, familiar to REPS planners (Bohnsack 2002), with the absence of standardised, full-coverage, accessible data on basic resources such as soils (AFF Soil Bulletins apart), hydrology, geology, land use, hedgerows and habitats, biological records and so on, in map or GIS format. All the information collected on REPS farms may also not be publicly available. Compilation and presentation of databases on items such as hedges and green area concreted may be in the course of investigation but, at present, managing authorities and implementing bodies do not have much data to call on and have to make the most of what there is.

## **2.5 Indicators**

Indicators have been described at numerous stages in the foregoing review and it is worth drawing together the main observations. The NDP’s eco-audit (Appendix 4) stated that indicators were a requirement of the process and the introduction to this Part of the report outlined the instructions on indicators given to personnel, including likely Managing Authorities, who would be called upon to present indicators.

A conclusion of the foregoing review is that more work should be done on indicators. In most cases it was too early for data to have materialised, but the quality of indicators that were proposed and the few that were presented was mixed. Some were well-advanced. An example at the level of implementing bodies would be for roads, where the NRA have a developed, and are developing further, a method for analysing the environmental results of sections of road-building. The air quality measures from before and after the construction of the Nenagh

Bypass is an example. The Regional OPs also had some informative indicators, measuring carbon sequestration by the Woodland sub-measure, for example.

In some instances the indicators were quite inventive such as the Tidy Towns assessments used by the Regional OPs, though extra criteria of an environment-specific nature might be worth including into these assessments. Some projects in themselves are of the improving kind and therefore it is tempting to use the size or value of the project itself, the Response, as the indicator. The justification is that the result will obviously be in the right direction. However, again “before” and “after” environmental quality would be useful, such as local surface water quality in the case of waste water treatment plants or farm waste management, for example, in order to relate the expenditure to improvements achieved and provide managerial information on value for money spent. Where investment is being undertaken, paying heed to the saying “if we cannot measure we cannot manage” can benefit the environment too, not just the business world.

Difficulties in deriving indicators arise where, for example, one wants to measure the results of intrusion into fragile environments by visitors, or of severance, fragmentation or destruction of habitats by structures including roads. Detailed local information is needed that may or may not be available or may still be in the process of being collected. Indicators for projects that indirectly aid a sector based on marine fishing also pose some difficulty, because sustainability of current extraction levels is disputed. In the case of aquaculture where there are known risks, no environmental indicator is described and this absence needs to be rectified. Certification is a possible route but it may not indicate what are the environmental effects. More attention is required in these areas.

One of the obstacles to producing indicators has been the absence of information that would be relevant at the level of the actual investment being undertaken, be it Priority level down to project level. Fortunately, however, information collected by the EPA is in some instances more detailed than is realised. This information might be harnessed to good effect provided that it can be selected in such a way that it relates to relevant aspects of the NDP.

Furthermore a Centre of Excellence to be established within the EPA, described under the Environment RTDI Programme of the Productive Sector OP (page 81), could form the basis. The Centre will be dealing with such pertinent aspects as air and climate change and with issues covered by the Water Framework Directive. Its terms of reference described in the Productive Sector OP include the provision of “stronger environmental support in line with the CSF across the National Development Plan”, which fits the requirement here. The Centre of Excellence will be involved with developing information systems, integrated environmental assessment and environmental management systems. These tasks match the requirements for presenting useful indicators.

The exact institutional arrangements would need to be established whereby the Centre and the Managing Authorities collaborate on indicators. It is noted that the Centre of Excellence is not yet operational and therefore an interim forum might be set up. The objectives of the forum would be to provide a consultative framework for the Managing Authorities (1) to establish what data their Programmes would ideally need in order to be able to answer the question: what are its environmental effects? and (2) to advise on what data are or will be available. Adequate resources would be required and continuity needs to be built in.

As for the tasks, time required for familiarisation with data and understanding of environmental processes ought not to be under-estimated. Accessing and, where required, assembly of the data and formulation into indicators would follow. This is a minor project but a project nonetheless. Continuing reliance on qualitative information is not an option in many areas, at least, not if the “assessment of impact following implementation” of the NDP, as specified in the Guidelines, is to be fulfilled.

## 2.6 Conclusions

Six Operational Programmes/Plans have been reviewed in the foregoing sections and the conclusions that emerge from the reviews are as follows.

- The Guidelines provided instructions to Managing Authorities, and they were backed up with a seminar. There is variation in approach to the filling out of the checklists and even this was not completed in all instances (e.g. none was prepared for the NDP and none was prepared for the Human Resources Development OP. The requirement for ‘eco-audit’ was triggered by Priorities in the Economic and Social Infrastructure OP, but it does not appear that one was undertaken along the lines envisaged in the Guidelines. As regards the other OPs for which checklists were prepared, the criteria for triggering an eco-audit did not arise. However, a major shortcoming of the exercise was that no provision was contained in the pilot process for evaluating if the checklists prepared by Managing Authorities represented a reasonable assessment of likely potential environmental effects.
- The situation with respect to the CAP Rural Development Plan is an important exception to the foregoing. The exercise undertaken in that instance fulfilled all the criteria in the Guidelines and demonstrates the feasibility of the approach contained in the guidelines.
- Managing Authorities conducted the eco-audits largely from within their own general resources and made a conscientious effort to fulfil the requirements. The qualitative nature of the audit was stressed, resulting from a lack of any dedicated resource to undertake the task and the fact that very little time was available within which to carry out the work.
- Experience was mixed. In many instances the eco-audit was seen to be more in the nature of ‘environment proofing’ or checking for compliance with guidelines and with regulations for protecting the environment. There were instances where the Authority or implementing body was already well versed in applying environmental assessment (e.g. Agriculture and NRA)
- Where the Implementing Agencies had environmental protection roles or were familiar with implementing the protection procedures, the Managing Authorities were able to avail of information from them.
- The view was expressed that to go beyond checking for compliance or to question the regulations or the allocations between activities was, if not outside their remit, outside their immediate area of responsibility. Examples would be questions like whether the building regulations took sufficient account of environmental effects or whether the first-time house-buyers grant encouraged greenfield construction to the detriment of the countryside. On the other hand the view was also expressed that, with little expertise in environmental matters, the Managing Authority would need to be an expert in order to judge the information that came to them and the effectiveness of the protective measures in place.
- Where the OPs’ objectives were directly aimed at achieving environmental improvement, the eco-audit process was facilitated by being part and parcel of the underlying project

appraisal. But fuller eco-audit would have been useful in providing managerial information on environmental improvements for money spent.

- As far as implementing agencies were concerned that already had a role in protecting the environment, the eco-audit process was more of a change in framework, rather than a change of activity.
- The principal output is a qualitative summary statement of expected environmental effects. Quantitative information would be most highly developed at the project level. The Programme Complements and Progress Reports showed that some thought had been applied to their formulation in some cases. There was a general concern expressed at the dearth of data (whether real or perceived) that could be applied to measuring the environmental output of their projects.
- Concern or, rather, the need to be aware of monitoring issues also arose. This relates to the need for continuing checks and for resources to undertake them (e.g. of industrial procedures and of Local Authority maintenance of environmental safeguards relating to roads).
- The indicators that were proposed were usually of the Response kind. That is they would measure the expenditure or items installed for reducing environmental damage. It is suggested that it would be more useful if the indicators could give a measure of the change in environmental quality, or State indicators. Or else they could be in terms of Pressure, such as emissions per day. At the core of such data bases must be baseline data, against which to compare progress that has occurred on foot of the project or policy. In order to integrate the information into future investment decisions it is also helpful to measure the change in relation to the expenditure.
- Because of the late stage at which the eco-audit was undertaken, the limited resources available and the qualitative nature of the exercise, it played little or no role in terms of the overall programming process.

An overall summary conclusion addressing questions posed by the terms of reference is contained below.

Progress made in the use of eco-audits under all Operational Programmes and Plans within the NDP/CSF to date:	Useful but limited start
The role and input of the pilot eco-audits in the overall programming process:	Marginal
Outputs/outcomes of the eco-audits carried out (including in terms of programme adjustment:	Useful qualitative information though not comprehensive and little quantified



## **PART 3: OVERVIEW OF RELEVANT METHODOLOGIES USED ELSEWHERE OR PROPOSED**

Following on from the discussion and definitions advanced in Part 1.5 and from the review of eco-auditing of the NDP in Part 2, an overview of relevant methodologies used or proposed elsewhere is now presented. As discussed, the current eco-audit aspires to being a Strategic Environmental Assessment (SEA), and SEA will be the main focus of this part of the report.

### **3.1 Experience**

World-wide experience with SEA to date has been reviewed by various authors for scope and effectiveness,<sup>29</sup> and has also been analysed with a view to developing improved methodologies and guidelines.<sup>30</sup> Good practice guidelines for various forms of SEA are increasingly available, and a formalised review package for completed SEAs has now been developed along the lines of those already available for project-level assessments.<sup>31</sup>

SEA, broadly defined and designated, has been quite frequently applied in northern Europe (including some transition countries), albeit with differences in openness, scope, or intensity and duration.<sup>32</sup> Fischer identified at least 80 assessments from three EU jurisdictions for a review of examples most likely to conform with the requirements of the SEA Directive. Some had separate SEA documentation, in others the assessment was integrated into the presentation of the outcome.<sup>33</sup> France has carried out studies to develop SEA (called '*ex-ante evaluation of plans*') by testing it on a voluntary basis on several plans and programmes. Guidelines were produced for each of the tested areas.<sup>34</sup>

Thérivel and Partidario noted contrasting national SEA styles, the US products generally being comprehensive and bulky with an emphasis on public participation. German SEAs emphasise quantification and the use of GIS. British SEA reports tend to be qualitative and slim, generally being self-contained documents which avoid duplicating information already given in the primary documentation under consideration.<sup>35</sup> Swedish SEA reports tend to be fully integrated in the finalised proposal, a practice which reflects the desirability of integrating the assessment into an iterative evolution of policy, plan or programme.<sup>36</sup> In general these SEA approaches assess the implications of (a sub-section of) plans and programmes, with little formal attention being paid to the assessment of policies.

Procedures in the Netherlands are probably the most effective in Europe, have a fairly high socio-economic input, and deal well with hierarchies of decision-making through the

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<sup>29</sup> Thérivel *et al* 1992; Lee and Walsh 1992; de Boer and Sadler 1994; Lee and Hughes 1995; Sadler 1996; Sadler and Verheem 1996a; Thérivel and Partidario 1996; CEC 1997b; Dalal-Clayton and Sadler 1998; Sadler and Brooke 1998; Lee *et al* 1999; Scleicher-Tappeser 1999; Fischer 1999; Clement 1999; Verheem and Tonk 2000; Nootboom 2000a/b; DETR 2000b; Noble 2000; Fischer 2001.

<sup>30</sup> Carlman 1996; Sadler and Verheem 1996b; Clement *et al* 1998; Porter and Fittipaldi 1998; Thérivel and Brown 1999; Brown and Thérivel 2000; Verheem and Tonk 2000.

<sup>31</sup> Dalal-Clayton and Sadler 1998; Bonde and Cherp 2000; Simpson 2001.

<sup>32</sup> Thérivel *et al* 1992; Thérivel and Partidario 1996; Kristoffersen and Tesli 1996; DGXI 1997; Dalal-Clayton and Sadler 1998; Clement 1999; Bonde and Cherp 2000; Verheem and Tonk 2000.

<sup>33</sup> Fischer 2001.

<sup>34</sup> Turlin 2001; Brouhard 2002.

<sup>35</sup> Thérivel and Partidario 1996; Fischer 1999; Fischer 2001.

<sup>36</sup> Bonde and Cherp 2000.

application of *tiered SEA* using differing approaches tailored to separate normative levels.<sup>37</sup> The recent Dutch 'E-Test' for assessing the impact of policies will be discussed later.

### *SEA in the UK and Northern Ireland*

The UK has no legislative provision for SEA, but pioneered the techniques during the development of the North Sea gas and oil fields, and is now credited with having considerable experience. During the recent UK presidency of the EU, the Department of the Environment Transport and the Regions sponsored an international seminar on Strategic Environmental Appraisal.<sup>38</sup> Two forms of appraisal have been developed for assessing the impacts of UK regional or local development plans. First, *Environmental Appraisal* was developed for county development plans and *Regional Planning Guidance (RPG)*, but this has been increasingly replaced by the second form, *Sustainability Appraisal* which is also applied to *Regional Economic Strategies (RES)*.<sup>39</sup> These voluntary procedures are formalised to the extent that planning guidance notes and good practice guides are available.

ECOTEC have undertaken an ex-ante environmental assessment (ECOTEC, 2001) of the Northern Ireland Community Support Framework Operational Programmes '*PEACE II*' and '*Building Sustainable Prosperity*'. ECOTEC used a methodology previously drafted on behalf of Directorate General Regional Policy and Cohesion of the European Commission, and combined Developmental Path Analysis (DPA) and Environmental Criteria Analysis (ECA). DPA attempts to assess how much emphasis the proposal puts on shifting regional development towards paths that are likely to be less environmentally damaging than 'business as usual'. ECA assesses proposals in relation to a set of environmental indicators mainly derived from the 5<sup>th</sup> Environmental Action Programme. This combination of DPA and ECA approximates to a form of sustainability appraisal, and offers practical insights into the application of this technique in Ireland. However, some aspects of this approach should be critically evaluated before being adopted more widely. In particular, the ranking of development paths presented within the DPA is somewhat subjective and category 2 ('clean up the mess from past activities') is by no means (as suggested) necessarily the second-worst option, after 'business as usual'. Similarly, although monitoring criteria are suggested, several of these are simply budgetary.

The official policy document '*Shaping our future: Regional Development Strategy for Northern Ireland 2025*' was subjected to an in-house iterative SEA including an equity test. This was conducted under the leadership of Jim Hetherington (Senior Planning Officer, DRDNI) with guidance from Riki Thérivel of CAG consultants. The full report (including the section sub-titled *Strategic Environmental Assessment*) has yet to be published due to lack of concluding chapter, but an interim '*Strategic Environmental Appraisal*' is available on the internet.<sup>40</sup> The regional development strategy will have crucially important links to the NI strategy for sustainable development, and the SEA was carried out to test '*Shaping our future*' against separately published sustainability criteria. Regional planning policy statements prepared as part of the implementation will be tested for sustainability and subjected to equality impact assessments, and all proposals for expenditure will be subject to economic,

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<sup>37</sup> Verheem 1992; Thérivel and Partidario 1996; VROM 1996; Dalal-Clayton and Sadler 1998; Thérivel and Brown 1999; Fischer 1999; Verheem and Tonk 2000.

<sup>38</sup> Heritage Council 2000; Fischer 2001; Sadler and Brooke 1998.

<sup>39</sup> DoE[UK] 1992/1993; Pearce and Hett 1999; DETR 2000a; DTLR 2001; Smith and Sheate 2001a/b; George 2001.

<sup>40</sup> DRD 2001a; DRD in preparation; DRD 2001b.

social, financial and environmental assessment. There was a strong element of public involvement, with 774 participants building consensus for the content of the strategy. The overall approach reflects the guiding expertise and fulfils the major criteria for a theoretically perfect SEA.<sup>41</sup>

### *SEA in the Irish Republic*

Irish experience with SEA prior to the late 1990s had been severely limited,<sup>42</sup> and there is evidence that its absence has reduced the effectiveness of project-level EIA. This corresponds with evidence from the Netherlands where the introduction of SEA reduced the EIA workload by about one sixth.<sup>43</sup> The following examples encompass Irish experience prior to the *eco-audit*.

The National Development Plan 1994-1999 was subjected to obligatory 'quasi-SEA' under the amended EU structural fund regulations.<sup>44</sup> Although much of the assessment was carried out within the European Commission, the preliminary environmental profile was developed by the (then) Department of the Environment and "*reflected as appropriate in the more detailed Operational Programmes*". The NDP "*sought, as a strategic consideration, the integration of environmental and economic objectives in the interests of sustainable development*".<sup>45</sup> This *ex-ante* environmental appraisal was viewed positively, but found to have a number of problems, not least a lack of methodology. This led to development of improved guidelines (reproduced in Appendix 1 in this study), of which the *eco-audit* of the current NDP is an outcome.<sup>46</sup>

In 1999 the Marine Institute published its report '*Marine and coastal areas and adjacent seas - An environmental assessment*', which was viewed as a basis on which environmental policies and associated management requirements could be reviewed. Presumably for that reason, Sheate *et al* evaluated it as though it were an SEA. The report provides a very comprehensive baseline survey of the Irish marine environment, but the extent to which it fulfils the definition of 'strategic' is debatable since this baseline is not evaluated against a framework of maritime policy objectives. Viewed solely as an SEA, it also took a long time to produce - prompting the criticism that procedural changes would be needed to facilitate a speedier and more efficient environmental assessment process.<sup>47</sup> Furthermore, since its production was externally driven (by Irish commitments to the 1998 OSPAR Convention for the protection of the marine environment of the North East Atlantic), it cannot be credited as an example of proactive development of SEA in Ireland.

The 'Environmental Assessment' section of the *eco-audit* of the NDP refers to '*Strategic Environmental Assessment of the Irish fish processing industry*' produced by Enterprise Ireland for an Bord Iascaigh Mhara.<sup>48</sup> Once again the extent to which this is a true SEA is

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<sup>41</sup> e.g. Partidario 1999.

<sup>42</sup> Bradley 1996; Breen 1997; Zagorianakos 2001; Sheate *et al* 2001b; Brouhard 2002; Scott and Marsden 2002.

<sup>43</sup> Fry, J.: Unpublished summary of information derived from over 200 wide-ranging projects submitted in partial fulfilment of the UCD Diploma in EIA Management, Department of Environmental Resource Management, University College Dublin, and Verheem, personal communication.

<sup>44</sup> Government of Ireland 1993; Bradley 1996/1999; DGXI 1997; Sheate *et al* 2001b.

<sup>45</sup> DoE 1997.

<sup>46</sup> DGXI 1997; Bradley 1999; Zagorianakos 2001.

<sup>47</sup> Sheate *et al* 2001d.

<sup>48</sup> Kelly *et al* 2000.

debatable. The introduction alludes to eight key strategic objectives, but only two of these are specifically identified and the objective of 'environmental sustainability' is not fleshed out. On the other hand, the report does make policy recommendations in respect of siting options and industrial refitting, and discusses the need for monitoring. It was, therefore, a valid step towards SEA in Ireland.

A commitment in the national sustainability strategy to amend the planning and development legislation "*to require planning authorities expressly to take account of sustainable development considerations in the elaboration of their plans*",<sup>49</sup> was pursued (amongst other things) through provisions in the Planning and Development Act, 2000, for the assessment of the environmental effects of local area plans, county development plans and regional planning guidelines.<sup>50</sup> Although the Act is now nominally in full force, this requirement has yet to be elaborated through ministerial regulations. Surprisingly, a future need to carry out SEA was not one of the 'challenges for the planning system' considered at the Irish Planning Institute's National Planning Conference on the implementation of the Planning and Development Act 2000 and the National Development Plan - despite subsequent privately expressed concerns of a number of local authority planners that they were unprepared for this change.<sup>51</sup> However, strategic environmental assessments have been initiated by some local authorities, including one on the Cork Draft County Development Plan.

In a parallel move, the Heritage Council has developed a thorough system for *Heritage Appraisal* closely based on the UK environmental appraisal procedures for development plans. This has been piloted on the Donegal Draft County Development Plan.<sup>52</sup>

According to Scott and Marsden the DELG is already consulting national and local authorities on the range of plans and programmes subject to future assessment, with the early intention that the final scope of Irish SEA will cover a wide range of sectors and levels of decision-making. The Irish authorities are reportedly intending to review and analyse international experience in SEA in order to develop appropriate procedures, tools and methods. However, work is already underway on an environment RTDI funded desk study on SEA. It has been suggested that this might lead to an SEA methodology that may be applied to a wide range of plans and programmes. A positive sign is the suggestion that there is a search for procedural mechanisms that might go beyond the requirements of the directive in providing "*benefits and advantages to the strategic management of the environment*".<sup>53</sup>

#### *The eco-audit of the NDP 2000-2006*

The pilot eco-audits of the NDP and operational programmes were officially viewed both as fulfilment of the undertaking to introduce SEA and as allowing for environmental, social and economic dimensions of policies to be looked at in an integrated way.<sup>54</sup> These aspects will be addressed later. The eco-audit applied to the NDP has been reviewed (with varying levels of

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<sup>49</sup> DoE 1997.

<sup>50</sup> The relevant clauses of the Planning and Development Act, 2000 (No. 30 of 2000) are: local area plans [Part II, section 19 (4 a)], county development plans [Part II, section 10 (5a)], and regional planning guidelines [Part II, section 23 (3 a)]. These provisions came into force on 1 January 2001 through the Planning and Development Act, 2000 (Commencement) Order, 2000 (S.I. No. 349 of 2000).

<sup>51</sup> IPI 2001; Fry personal observation.

<sup>52</sup> Heritage Council 2000; Scott and Marsden 2002.

<sup>53</sup> Scott and Marsden 2002; EPA 2002 personal communication; Scott and Marsden 2002.

<sup>54</sup> DoE 1997; Government of Ireland 1999; Sheate *et al* 2001c; Irish Times 2002.

analysis) on five occasions previous to this one.<sup>55</sup> The main positive aspect of the process was its compliance with the frequent recommendation to simply get on and start SEA - a case where embracing the process is almost more valuable than any particular outcome.<sup>56</sup> In this case the Irish government is rightly praised for voluntarily assessing some aspects of policy before institutionalising SEA for plans or programmes.

Scott and Marsden are confident that the eco-audits have demonstrated the value of strategic-level appraisal of environmental impacts, and have shown that it may be possible to transfer some of its tools (especially the policy scoping checklist) to other levels of decision-making. Some positive procedural elements (such as screening and scoping) were found to be evident, but this was not surprising in procedures seen as being similar to project-level EIA. Other positive aspects are signs of a continuous and iterative process, NGO consultation which exceeded the guidelines, and documentation of results.<sup>57</sup>

Unfortunately, the pilot eco-audits lack other procedural steps of the SEA directive, especially in relation to public participation and a need to take the results into account. Zagorianakos and Sheate *et al* are more critical and also point to poor understanding and implementation of the Guidelines, patchiness in the application of the eco-audit, no consideration of alternatives, an over-emphasis on direct impacts, and a lack of analytical rigour (especially in relation to readily quantifiable transport issues).<sup>58</sup> This anticipated some of the findings of the current study, summarised in Part 4 and in the Executive Summary. Confusion over the Guidelines may be institutional since an internal document entitled '*Eco-audit of Policies - Guidance on completion of checklist and evaluation of eco-audits*' is a confusingly retitled EU guidance to assessment procedures within Directorates General.<sup>59</sup>

Zagorianakos is critical of the failure to capitalise on the quasi-SEA experience with the NDP 1994-1999 to develop analytical rigour for the current eco-audit. This underlines commentary on SEA procedures in general - that mechanisms for 'institutional memory' are needed.<sup>60</sup>

### 3.2 Developments with SEA including E-test

Some form of project-level assessment (EIA) has been adopted in most jurisdictions worldwide, but there is general agreement on the necessity for assessing all strategic decisions that have environmental, health, sustainability or trans-boundary consequences.

The International Association for Impact Assessment (IAIA) lists the adoption of SEA as the first of five strategic directions for navigating a journey to sustainable development, and recommends the adoption of full SEA in all nations by 2012. IAIA feels that this should be done in accordance with widely agreed principles and standards for best-practice SEA. There is clear emphasis on the promotion of *ecologically sustainable development*, and the IAIA's third strategic direction is for clear linkage of biodiversity considerations to SEA and EIA.<sup>61</sup> Assessment should occur from the earliest possible stage in the planning hierarchy and

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<sup>55</sup> WWF 1999; Zagorianakos 2001; Sheate *et al* 2001b/c; Brouchard 2002; Scott and Marsden 2002.

<sup>56</sup> Dalal-Clayton and Sadler 1998; Partidario 1999.

<sup>57</sup> Scott and Marsden 2002; Zagorianakos 2001; Sheate *et al* 2001c.

<sup>58</sup> Brouchard 2002; Scott and Marsden 2002; Liang *et al* 2002; Zagorianakos 2001; Sheate *et al* 2001c.

<sup>59</sup> Anon. n.d.

<sup>60</sup> Zagorianakos 2001; Sheate *et al* 2001a.

<sup>61</sup> IAIA 2002b/a; Verheem and Tonk 2000.

decision-making process, since policy assessment is seen as being crucial for addressing unsustainable development.<sup>62</sup>

Agreement was reached on the EC directive on SEA and this becomes binding on all member states on 21 July 2004. Although its specific provisions are limited to the assessment of certain plans and programmes and implicitly exclude policies, it does allow member states to legislate for assessments at different levels of the planning hierarchy. As previously indicated, it explicitly excludes a requirement to apply SEA to proposals co-financed under the current structural fund provisions and, therefore, does not specifically correlate with the current eco-audit.

When transposed, procedures must encompass any plans and programmes which can give rise to projects covered by EIA, or are screened by the appropriate articles of the Birds directive (79/409/EEC) or Habitats directive (92/43/EEC),<sup>63</sup> and other proposals may be included. It should be noted that a similar obligation will apply in relation to the Water Framework Directive (2000/60/EC) when that is transposed. Assessment is to be carried out during preparation of the plan or programme, and should take into account the objectives, geographical scope and likely significant effects of the proposal, together with any reasonable alternatives.

The directive has been long expected and elsewhere its draft provisions have been incorporated into some recent evaluations and tools.<sup>64</sup> It has also been overtaken by the rapid developments in SEA and sustainability theory discussed below. Although SEA has been formally or informally established in a number of jurisdictions, only five countries appear to have grasped the political nettle of policy assessment. The fact that, however marginally, Ireland is one of these may have been driven by the need to secure negotiated EU financial aid, but is nevertheless praiseworthy.<sup>65</sup> This pioneering approach should be maintained.<sup>66</sup>

The common position paper produced during gestation of the SEA directive included provision for the assessment of policies, but this was dropped from the final version. However, the European Commission recently announced its intention to launch impact assessment as a tool to improve the quality and coherence of its own *policy* development process. Technical guidelines were scheduled for September 2002 and the procedure will operate in some EU policy areas from 2003.<sup>67</sup> This new measure was justified as enabling more coherent implementation of the European Strategy for Sustainable Development, and delivering on commitments to establish a tool for *Sustainable Impact Assessment*. The procedure will also integrate all sectoral assessments concerning direct and indirect impacts (business, trade, environment, health, gender, mainstreaming and employment) into one global instrument.

An important side effect of this initiative is that member states may have to carry out policy assessments themselves. This would occur wherever member states are effectively creating

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<sup>62</sup> IAIA 2002b; Buckley 1998.

<sup>63</sup> Guidance on assessing plans and projects that affect Natura 2000 sites is available - DG Environment 2001.

<sup>64</sup> Fischer 2001; Lee *et al* 1999; Persson and Nilsson 2002.

<sup>65</sup> Zagorianakos 2001.

<sup>66</sup> Ireland was one of the first nations to introduce project-level EIA (1976), but the measure was tentative and little practical experience was gained before the delayed transposition of Directive 85/337/EEC in 1989.

<sup>67</sup> CEC 2002a.

policy by using the right of initiative for new legislation, or by transposing directives that leave them broad margins for implementation.

### *The Dutch 'E-test'*

SEA for plans and programmes (locally known as SEIA) was introduced in the Netherlands in 1987 and more than forty such assessments had been carried out by 2000.<sup>68</sup> This was followed by a retrospective assessment of the extent to which existing policies contributed to sustainable development. SEIA was extended in 1994 with the introduction of a simplified and less formal '*Environmental-*' or '*E-test*' assessment for proposed legislation. The operational relationship between EIA, SEIA and the 'E-test' has been reviewed in general terms and as an example of *tiered impact assessment* in relation to waste management planning.<sup>69</sup>

The procedural differences between the 'E-test' and SEIA recognise that 'why' questions are visionary and fairly abstract, while 'what' and 'when' questions demand open well-structured review, with safeguards for public participation. The 'E-test' approach is deliberately low key and seeks to encourage trust and co-operation between civil servants and stimulate, rather than force departments to make good assessments. It is informal, internal, and currently has no mandatory direct public participation or monitoring requirements. The number of operations is kept low and the 'E-test' questionnaire has four (branched) questions relating to impacts on energy consumption, supplies of raw materials, waste and emissions, and the use of available physical space (see Box 3.1).<sup>70</sup> Although this administrative informality suits Dutch legislative characteristics, it may not be a perfect model for jurisdictions where there is less public trust in politicians and civil servants. However, the current Dutch review of the 'E-test', with the recommendation of incorporating mandatory reporting, might generate a model more suited to Irish experience.

### *Integrated Assessment and Sustainability*

There is widespread reference in the literature to the development of *integrated assessment* to replace the first generation of SEA procedures.<sup>71</sup> There is some variation in what is meant by the term 'integration', but there are three main aspects.

First, integrating multiple assessments into a single coherent process. For procedural reasons, integrated assessments are favoured over a process of conducting multiple forms of assessment, and this is in line with current Commission thinking on the assessment of its own policy development.<sup>72</sup> Second, integrating the assessment into the evolving development of the proposal. This iterative approach is a basic tenet of any form of impact assessment and is a requirement of the SEA Directive.<sup>73</sup> Third, a thorough integration of concepts of sustainability into decision-making.

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<sup>68</sup> SEIA: Strategic Environmental Impact Assessment.

<sup>69</sup> Verheem and Tonk 2000; Burger 1992; van der Lee 1992; VROM 1996; Verheem 1992; Verheem 1998.

<sup>70</sup> VROM 1996; Verheem and Tonk 2000.

<sup>71</sup> Nooteboom and Wieringa 1999; IAIA 2002b.

<sup>72</sup> Bonde and Cherp 2000; CEC 2002.

<sup>73</sup> Thérivel and Brown 1999; Bonde and Cherp 2000; CEC 2001.

**Box 3.1: The Dutch 'Environmental-Test' ('E-Test') for testing draft regulations (Source: VROM 1996)**

Format:	The 'E-test' constitutes an ex-ante questionnaire checklist.
Applicability:	Implemented in respect to draft regulations (bills, administrative orders etc.).  Implemented at the earliest possible stage when it is still possible to choose between instruments and between the various forms of regulations.
Screening:	Only applicable to proposed legislation with likely environmental effects - if no substantial consequences are expected, there is no need to fill in the E-Test.
Screening Criteria:	Which category of draft regulation? (excludes budget bills etc.).  Are substantial side effects are suspected?  Is there national policy space/legal competence for modification? (e.g. measure is not driven by pre-existing international/EU obligations).  In fiscal provisions, is there a change in structure? (simple tariff adjustments excluded).  Applies to proposals not previously before cabinet.
Depth of Analysis:	Generally involves light testing, generating <i>indications of trend</i> or <i>orders of magnitude</i> of main environmental consequences.
Undertaken by:	Department initiating the proposal, supported by: 1) Ministries of Justice, Economic Affairs and VROM. 2) Joint Support Centre on Proposed Legislation help desk.
Context:	Four branched E-Test questions are included as questions 8-11 in the general 'Questionnaire for the aid of Draft Regulations' (questions 1-8 address 'Business effects', questions 12-15 address 'Feasibility and Enforceability').
The Questions:	What are the consequences of the draft regulations for energy consumption (question 8a) and mobility (question 8b)?  What are the consequences of the draft regulations for the use and control of the supplies of raw materials (question 9)?  What are the consequences of the draft regulations for floods of waste ( <i>sic.</i> waste streams) (question 10a) and for emissions into the air (question 10b), soil (question 10c) and surface water (10d)?  What are the consequences of the draft regulations for the use of the available physical space (question 11)?



Integrated assessment was favoured by the 'Brundtland' Commission which advocated "*that the ecological dimensions of policy be considered at the same time as the economic... and other dimensions on the same agendas and in the same national and international institutions*".<sup>74</sup> The Irish sustainability strategy recognised SEA's "*potential as an integration tool*" and the NDP 1994-1999 "*sought, as a strategic consideration, the integration of environmental and economic objectives in the interests of sustainable development*". Promises were also made to require planning authorities expressly to "*take account of sustainable development considerations in the elaboration of their plans*". Although this wording may not be as strong as 'integrate', the DELG is convinced that the concept of sustainability has been deeply integrated into the provisions of the Planning and Development Act, 2000.

One criticism is that, unless what is meant by 'sustainability' is clearly articulated, integrated assessments can lose sight of the environmental core. There is also debate as to the balance between components. In reviews of a range of more or less integrated procedures, some authors suggest that environmental issues dominate, but others that they become subordinate to socio-economic considerations.<sup>75</sup> Part of this tension is inherent: economic assessment is generally seen as promotive or attacking, whereas environmental assessment is defensive and deals with negative aspects. However, there is general agreement that a better balance can be obtained by modifying the procedure(s) to achieve a fair weighting of environmental and socio-economic impacts.<sup>76</sup>

Following the Rio declaration, there has been a significant move to embrace the concept of sustainable development. One of the OECD's international development goals is that every country will have a sustainable development strategy by 2005, and progress has been made in this regard.<sup>77</sup> The earlier strategies have been criticised for being imposed rigid master-plans with weak socio-economic components, but newer or revised strategies tend to be the product of a flexible integrated process with a better balance between environmental and developmental issues. As a consequence, SEA is developing into wider *sustainability appraisals*, a move that seems to coincide with official Irish thinking.<sup>78</sup>

Unfortunately there is controversy over the meaning of 'sustainable development', and confusion between this and 'sustainability', with the two terms (see Glossary) often being used interchangeably.

The term *sustainable development* was coined by Barbara Ward for her 1972 report to the Stockholm Conference on the Human Environment, but only popularised with the publication of the 'Brundtland Report' in the lead up to the 1992 anniversary 'Earth Summit' conference in Rio de Janeiro. Brundtland offered a description of sustainable development which has been widely quoted and has achieved the status of a quasi-definition, but this was better rephrased in a joint IUCN/WWF/UNEP statement that sustainable development means: "*improving the quality of human life while living within the carrying capacity of the environment*". Strictly speaking, this differs (however slightly) from 'sustainability' which carries the standard English meaning of the root *sustainable* and means "*capable of being kept going on an*

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<sup>74</sup> WCED 1987.

<sup>75</sup> Dalal-Clayton and Sadler 1998; Smith & Sheate 2001a/b; DTLR 2001; George 2001.

<sup>76</sup> Niekerk and Voogd 1999; Zagorianakos 2001.

<sup>77</sup> DoE 1997; Dalal-Clayton and Bass 2002.

<sup>78</sup> Dalal-Clayton and Bass 2002; Dalal-Clayton and Sadler 1996; Partidario 1999; Noble 2000; DoE 1997; Heritage Council 2000.

*indefinite basis*". Smith argues that sustainability is a pure concept which is biosphere related, whereas sustainable development is economic. In theory, therefore, sustainability is the end goal of a sustainable development process.<sup>79</sup>

Undertakings to "*work towards sustainability*" are also not synonymous with sustainability and, being aspirational, may not even equate to sustainable development. However, a commitment to fully sustainable development means that development cannot be a primary objective unless allied to ecosystem preservation.<sup>80</sup> The official Australasian adoption of the more specific *Ecologically Sustainable Development (ESD)* was theoretically unnecessary, but did strongly reinforce this message.<sup>81</sup>

Much of that debate is academic, and relates to the ongoing theoretical tension between concepts of 'strong' and 'weak' sustainability. However, what constitutes sustainable development in practice will vary from one sector of activity to another with, for example, true sustainability being easier to envisage with agriculturally-based systems than those which utilise non-renewable mineral resources. Further confusion comes when sustainability or sustainable development are hinted at through apparent synonyms such as '*sustainable growth*', many of which are oxymorons. The NDP 2000-2006 is guilty of this and makes loose reference to '*sustainable economic and employment growth*' and '*sustainable progress*', neither of which are necessarily environmentally related.<sup>82</sup>

Therefore, it is necessary to develop clear concepts of what is being sought in a sustainability strategy. The first task of the Dutch working group formed to reflect on potential sustainability assessment for plans and large projects was to establish working definitions of sustainability and sustainable development. The first stage of a comparable analysis has been undertaken in Ireland by COMHAR.<sup>83</sup>

Having achieved standard working definitions, it is necessary to integrate them into an effective SEA process. Terms such as *Sustainability Appraisal* or *Sustainability Impact Assessment* are simply shorthand for saying that the social, economic and environmental spheres of sustainable development are evaluated. Therefore, a proper appraisal requires that the proposal be evaluated against sustainable development objectives and criteria.<sup>84</sup>

SEA addresses questions of 'why', 'what', and 'where'. 'Why' encompasses the need, objectives and principles of new actions (i.e. the need for a transport connection), 'what' and 'where' addressing the more practical aspects (such as road versus rail, and the broad determinants of route selection). Therefore, no form of SEA can be carried out unless there is clarity about the planning objectives of the policy, plan, or programme - and about possible alternatives to them. The objectives of some proposals have greater penetration than others; in particular, land-use planning should focus on cumulative and synergistic impacts, and should present assessment, monitoring and mitigation objectives for project-level EIA. During SEA, the significance and acceptability of the proposal and alternatives must also be

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<sup>79</sup> Porrit, 1993; WCED 1987; IUCN/WWF/UNEP 1991; Redclift 1987; Smith 1993; Thériver *et al* 1992.

<sup>80</sup> Thériver *et al* 1992; George 2001; Smith 1993.

<sup>81</sup> As did its subsequent integration into the entire New Zealand legislative code through the Resource Management Act.

<sup>82</sup> Pearce 1993; Government of Ireland 1999; Zagorianakos 2001.

<sup>83</sup> Verheem 2002; COMHAR 2001.

<sup>84</sup> George 2001.

evaluated within an equally clear framework of environmental objectives and standards. The UK's *Environmental Appraisal* guidelines suggest thirty such environmental objectives.<sup>85</sup>

If the process aims to deliver sustainable development, it must also define primary and secondary objectives for that, and evaluate the interacting social, economic and environmental factors that contribute to that goal. The review is then likely to result in the addition or substitution of objectives, and the justification and clarification of conflicts, compromises or inter-linkages between different objectives.<sup>86</sup> There are acknowledged problems in establishing objectives that define sustainable development, but this can be tackled by breaking the concept down into a series of manageable components. This must be done at a national level since the usefulness of regional objectives depends upon the extent to which sustainable development is defined nationally. In the Dutch SEIA system, evaluation of sustainable development was made operable through a checklist of components.<sup>87</sup>

Other reviewers found the eco-audit Guidelines to be thematically more comprehensive than the previously used environmental profile specifications, and the NDP 2000-2006 does give higher priority to the environment than its predecessors. However, the reference criteria were considered to be mainly economic and failing to establish detailed environmental or sustainable development benchmarks. The NDP text is also confused as to whether economic and employment growth, or the environment (or both) are to be sustained. Proper objectives-led assessment cannot be adopted until the overall objective of the NDP (preferably *sustainable development* rather than *sustainable economic and employment growth*) has been decided.<sup>88</sup>

Unfortunately, objectives are inadequate in isolation for decision-making. They must give rise to a clear set of criteria or targets by which success can be evaluated. This is especially important when dealing with private sector proposals (or even public-private partnerships) since these are less likely to include sustainability objectives.<sup>89</sup> This procedural aspect is still being developed; a review of sustainability appraisals in England found that, although all but one employed a set of objectives, none employed targets or identified indicators, and a similar situation seems to exist with EU Structural Fund programmes.<sup>90</sup>

Environmental indicators, Geographical Information Systems (GIS) and remote sensing data bases are increasingly available and should be exploited wherever appropriate. However, the available data need to be expressed in a relevant format if they are to be meaningful. The database for Ireland and the border counties for Eurolandscapes-Moland will be available at the beginning of 2003. However an interim report identifies information gaps created by marrying two otherwise equivalent datasets expressed on the different geographical national grids used in the Republic and Northern Ireland.<sup>91</sup> The 'pressure-state-response' paradigm, though widely used by environmental statisticians, has been criticised as being a vague classification and is not widely accepted in planning theory. Response type indicators are often the easiest to measure and can be instructive, but the response must correlate directly

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<sup>85</sup> Verheem and Tonk 2000; Sadler and Verheem 1996b; DGXI 1997; Partidario 1999; Bonde and Cherp 2000; Thérivel and Brown 1999; Fischer 2001; Noble 2000; IAIA 2002; Liang *et al* 2002; DoE[UK] 1993.

<sup>86</sup> Breen 1997; DGXI 1997; George 2001; Liang *et al* 2002.

<sup>87</sup> George 2001; Verheem 2002; DETR 2000a; Smith and Sheate 2001a; Briassoulis 2001; Verheem 1992.

<sup>88</sup> Government of Ireland 1999; WWF 1999; Zagorianakos 2001.

<sup>89</sup> Carlman 1996; Partidario 1999; Bell and Morse 1999; Noble 2000; Smith and Sheate 2001a; George 2001; Verheem 2002; Persson and Nilsson 2002; Thérivel and Brown 1999.

<sup>90</sup> Smith and Sheate 2001a; Clement 1999.

<sup>91</sup> Thérivel and Brown 1999; Lehane *et al* 2002; ERA-MAPTEC 2002.

with the initial cause for concern.<sup>92</sup> Before-after comparisons, simple impact, trend extrapolation and comparative static models are, in general considered equally deficient. Furthermore, assessments and predictions are insufficient indications of whether certain states are more desirable than others, and indicators integrating and balancing societal demand and environmental or economic supply do not seem to exist at a level accessible to planners.<sup>93</sup>

### *Eco-audit and the SEA Directive*

Directive 2001/42/EC on SEA has taken a long time to materialise and (despite revision) is more limited in scope than originally intended. The final directive is an improvement on the earlier proposed version since it covers a larger range of plans and programmes. Unfortunately, this improvement seems to have generated a mixed official response in Ireland. The DELG apparently feels that compliance with the strengthened directive will fulfil all government undertakings to develop SEA over and above the requirements of the previous version. However, Scott and Marsden give the impression that the government is searching for appropriate procedural mechanisms that not only meet the directive's requirements, but also provide benefits and advantages for strategic environmental management.<sup>94</sup>

The directive is strong on procedural elements and public participation, but limited in scope and application, since no policy assessment is considered and no economic or social considerations are requested.<sup>95</sup> It has also been overtaken by developments in impact assessment and sustainability theory. The extent to which its procedures resemble project EIA is both a strength and weakness. There are several essential elements in common, and there is some evidence that SEAs which closely follow project EIA procedures perform better than those which do not. However, it is also recognised that SEA approaches which attempt to apply project-based EIA methodologies will have very limited application. Furthermore, while a legal obligation to undertake SEA generally encourages success, to be effective such measures should prescribe outcomes not procedure.<sup>96</sup>

The SEA directive's list of environmental categories to be addressed is slightly more expansive than for EIA Directive 85/337/EC, and includes specific mention of biodiversity, population, and human health. It also requires identification of existing environmental problems and environmental protection objectives relevant to the proposal in question. However, the failure to demand economic or social considerations limits its role in integrated decision-making and evaluating sustainable development. Not surprisingly, a clear majority of UK experts and practitioners surveyed on implementing the directive favoured modifying the existing sustainability appraisal process to incorporate the specific requirements of the directive. This amalgamation is seen as compensating for the directive's limitations whilst introducing important procedural elements into the existing procedure, such as the need to take the results of appraisal into account.<sup>97</sup> Draft guidance, currently being finalised, on

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<sup>92</sup> For example, the money expended on REPS, or figures for uptake of the scheme or even any component of it cannot be justified as indicators of biodiversity or water quality.

<sup>93</sup> ERA-MAPTEC 2002; Briassoulis 2001.

<sup>94</sup> DELG 2002 - personal communication; DoE 1997; Scott and Marsden 2002.

<sup>95</sup> Partidario 1999.

<sup>96</sup> Bonde and Cherp 2000; Fischer 2001; Thérivel and Brown 1999; Sheate *et al* 2001a.

<sup>97</sup> Bonde and Cherp 2000; Partidario 1999; Smith and Sheate 2001b; Liang *et al* 2002.

implementing SEA in England and Wales is pro-active and goes beyond the terms of the directive in envisaging integration of SEA with existing sustainability appraisal procedures.<sup>98</sup>

Evaluation of the current eco-audit suggests that the procedures are similar to project-level EIA and resemble the SEA directive in a number of respects, including giving some attention to transboundary effects.<sup>99</sup> Once again this anticipates the findings of the current study as, for example, in point 11 of the Executive Summary. However, although the eco-audit Guidelines (reproduced here in Appendix 1) include programmes, they omit land-use plans and therefore only partially correspond in scope to the SEA directive. The eco-audit lacks many of the procedural steps of the directive - especially in relation to public participation, but is at least judged to have introduced the concept and tested a range of tools. Most worryingly, in view of the perceived procedural strengths of the directive, other reviewers also found that the Guidelines were not consistently adhered to during the process.<sup>100</sup>

One procedural strength of the directive is the requirement (Article 6) for public participation, and this was lacking from the eco-audit process.<sup>101</sup> Part 5 and the Executive Summary of this study advocate appropriate public participation. It is recognised that participation must involve more than informing the public of progress or outcome. However, it is also realised that widespread participation is often illusory until issues become more clarified and questions of siting arise. Mechanisms for effective participation need to be established (even if they are subsequently not availed of), but these should probably be tailor-made to suit the planning level under consideration.<sup>102</sup> It could be argued that, given effective participation in the assessment of plans and programmes, public involvement in decisions about policies is not appropriate since policies form part of election manifestos and can, in any event only be realised through plans and programmes which would themselves be assessed.

There is also a need to correlate SEA and EIA procedures. As tiered EIA becomes more of a reality mechanisms must be in place for any assessment to reach back up to challenge assumptions made at a higher planning level. An assessment must not be constrained by the uncritical adoption of a higher level proposal (such as an unassessed policy). On the other hand, the introduction of assessment for policies, plans or programmes must not create a situation where a positive SEA effectively constitutes a decision funnelling to the project.<sup>103</sup>

It is often recommended that the best approach to SEA is to 'start doing it', and (as in the UK) good results have been obtained from voluntary approaches without having to establish legal frameworks. The eco-audit experience corresponds with both these criteria. However, administrators must feel the need to be accountable both within their organisation and in response to external public and regulatory pressures; they must also feel that assessment is 'possible' using a pragmatic instrument that is 'good enough'. Furthermore, there is evidence that SEA quality correlates with the resources made available and the expertise (both experience and training) of the participants.<sup>104</sup>

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<sup>98</sup> Levett-Therivel Sustainability Consultants, 2002.

<sup>99</sup> Zagorianakos 2001; Sheate *et al* 2001c; Brouhard 2002.

<sup>100</sup> Zagorianakos 2001; Sheate *et al* 2001c; Scott and Marsden 2002.

<sup>101</sup> CEC 2001; Zagorianakos 2001; Sheate *et al* 2001c.

<sup>102</sup> Thérivel and Brown 1999; DGXI 1997; Smith 1993; Verheem 2002.

<sup>103</sup> Thérivel *et al* 1992; Niekerk and Voogd 1999; Carlman 1996.

<sup>104</sup> Dalal-Clayton and Sadler 1998; Partidario 1999; Verheem 2002; Bonde and Cherp 2000.

Although there is no single 'best SEA process' there is clearly recognisable 'best practice', and there are regular calls for good practice guidelines. An apparently unavoidable irony is that, while the publication of such guidelines may standardise and increase the frequency of SEAs, it has a tendency to inhibit the further development of methodologies as those involved adopt the basic standard procedure. All available evidence suggests that SEA is most effective when carried out by a multi-disciplinary team from the competent authority, with guidance from external SEA experts. Preparation of the SEA report itself is the least important part of the process and should be merely a record of the iterative design cycle of the proposal. However, the report does provide the basis for the essential independent review.<sup>105</sup>

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<sup>105</sup> Thérivel and Partidario 1996; Sadler and Verheem 1996; DGXI 97; Thérivel and Brown 1999.

### **Annex 3.1: Principles for good practice of strategic environmental assessment (Partidario 1996; Sadler 1996; Partidario 1999)**

#### *Policy framework*

- Effective application of SEA requires open and accountable political and organisational
- systems and commitment from the relevant organisations
- SEA should be undertaken in the context of national and/or institutional sustainability
- policies and strategies
- Action plans for sustainable development can provide specific and quantitative
- environmental objectives as benchmarks to environmental impacts of strategic actions
- Identify the relationship between SEA and other policy instruments in decision-making
- and establish mechanisms that ensure integrated decision-making
- Identify criteria and mechanisms to evaluate significance and determine acceptability
- against a policy framework of environmental objectives and standards

#### *Institutional*

- Provide for an institutional framework that will facilitate integrated decision-making
- Establish internal and external organisational frameworks that will ensure a continuous
- flow and interaction along the various stages of the SEA process
- Assign specific responsibilities and accountability for decision-making points
- Provide for an appropriate regulatory framework

#### *Procedural*

- SEA should be an intrinsic element of policy and programme development processes and should be applied as early as possible
- The focus of SEA should be on the fundamental elements of policy proposals
- Establish to what kind of instruments SEA should apply
- Establish when SEA should be applied
- Be focused and ask the right questions when using SEA
- The scope of SEA must be comprehensive and wide ranging to be able to act as a sustainability tool
- The scope of the assessment must be commensurate with the proposal's potential impacts or consequences for the environment
- SEA must help with the identification and comparison of equally valid options
- Relevant factors, including physical, ecological, socio-economic, institutional and political factors should be included in the SEA, as necessary and appropriate
- Public involvement should be a fundamental element in the process of SEA, consistent with the potential degree of concern and controversy of proposals
- Objectives and terms of reference should be clearly defined
- Develop guidance that will set SEA in motion
- Use simple methodological approaches

- Provide for public reporting of the assessment and decisions (unless explicit, state limitations of confidentiality)
- Establish monitoring and follow-up programmes to track proposals
- Establish independent oversight of process implementation, agency compliance and government-wide performance.



## PART 4: SUMMARY AND CONCLUSIONS

The foregoing sections have (1) evaluated the operation of the eco-audit process applied to the NDP 2000-2006, and (2) presented a comparative review of current thinking and relevant methodologies used elsewhere. Summary and conclusions now follow and likewise look first at the current process and then at the other methodologies. Recommendations are given in Part 5.

### 4.1 Eco-auditing in the context of NDP 2000-2006

The study of the pilot eco-audit was conducted as a desk-based project combined with a consultative process. A large number of people were consulted at many levels of the NDP, but the main focus was on the Managing Authorities of the OPs since the responsibility for pilot eco-auditing lay with them.

**Generally a serious attempt** has been made to consider the environmental implications at OP level. This was largely qualitative and did not on the whole fulfil all the requirements laid down in the Guidelines. In the case of Agriculture, however, and in the case of Roads at the Implementing Body level, procedures were found to go beyond the stated pilot eco-audit process.

The Guidelines were the definitive instructions to inform prospective managers about the eco-audit process. Overall the Guidelines were clear and straight-forward and not overburdened with detail. Supporting seminars on eco-auditing and on indicators were held. From discussions with the Managing Authorities and other personnel involved in the NDP, it was noticeable that **eco-auditing was subject to various interpretations**.

To some it meant a *process* for evaluating environmental consequences, but in many instances **eco-auditing was seen to be more in the nature of *environment proofing***, or merely checking for *compliance* with regulations that protect the environment. (Part 2 of this report evaluated adherence to the process, as required in the consultants' terms of reference. Environment proofing and compliance are mostly described in Appendix 6 to this report.)

There was a **lack of clarity as regards the pilot eco-audit procedures** as seen from the various ways that the checklists were filled out. It appears that "impact" to the environment was not flagged as a potential or likely outcome in some cases where it probably should have been. The verdict of no impact might in some cases only be valid on the assumption that protection measures in place and compliance with regulations would render it true. Examples include aquaculture and tourism measures. In the case of the Economic and Social Infrastructure OP the checklist as filled in should have triggered the actions listed in the Guidelines, but these do not appear to have been undertaken.

The verdict on adherence to the process is that **a useful but limited start has been made in the use of eco-audits** under all OPs and Plans within the NDP/CSF to date. However **the role and input of the pilot eco-audit in the overall programming process was marginal**. The outputs consisted of good qualitative information but with some exceptions there was little by way of quantified information. A useful output appeared to be that the process constituted **a learning experience** for the managers.

As regards the pilot eco-audit process undertaken **at NDP level the Guidelines do not appear to have been followed** (NDP Appendix 4). The main role performed so far has been that of providing “environment proofing” and “checks for compliance”. Except in a few areas where it is inconclusive, the evidence suggests that the process has performed this role satisfactorily. The eco-audit does not appear to have had outputs/outcomes giving rise to adjustments, except in some cases at the project selection stage. It was pointed out in Part 2 and in Appendix 6 of this report that some adjustments or alternative approaches might be considered as per the Guidelines, perhaps at a higher level of decision-making than at OP level.

A recurring observation was that **the pilot eco-audit process was constrained** by:

- (1) The *short amount of time* available to undertake the exercise, especially for those who were not already familiar with the environmental area.
- (2) The *late stage* at which commencement and implementation took place, by which time the OPs were substantially completed.
- (3) The *lack of resources* and seeming lack of clear lines of access to technical expertise and information that could support the exercise.

**The eco-audit process appears to be strongest at the lowest level**, i.e. at project level or where Environment Impact Assessments were undertaken (EIA). (This is excluding the eco-audit of the CAP Rural Development Plan that was undertaken under the sectoral eco-audits.) As far as some implementing agencies were concerned, those that already had environment protection roles could avail of their expertise and ongoing procedures, such that the eco-audit of the NDP represented more a change of framework, rather than a change of activity.

At the level of Priorities and OPs, the quantitative criteria in terms of **indicators are frequently not available** or the sustainability criteria are insufficiently articulated. Some managers felt that they would need to be experts to judge the information coming to them and the effectiveness or otherwise of the protective measures that were in place.

**Indicators were of mixed quality.** Some were well thought-out and would be useful as measures of the environmental impact, i.e. Pressure or State indicators. On the other hand the indicators that were easiest to present were of the Response kind, showing the amount spent or done to protect the environment. This could be assumed to indicate environmental improvement, other things being equal. Unfortunately such measures do not provide helpful information for environmental management, such as environmental improvement for investment expended.

Accessing data, understanding it and relating it to the investment in question often require experience in dealing with environmental data. Although a seminar had been arranged to develop understanding of what was required, **the final step on how to access relevant data was undeveloped.**

Barely any evidence has emerged to show that the eco-audit process had an **iterative aspect** that would have permitted alternatives to be assessed and mitigation to be developed. Environmental quality in a number of Priorities and projects would have benefited from consideration of “the **alternative policy options**” as per the Guidelines. This is considered to be the most significant shortcoming which needs to be addressed. Alternatives, or supplementary policies, that seemed worthy of consideration might not be just of the ‘NDP investment kind’, but might include changes to regulations and fiscal or economic

arrangements. It was not clear that there was a place for such considerations in the process and neither was it clear that personnel involved would be encouraged to present them.

Finally, still on the subject of the current pilot eco-audit, the process lacked formal **requirements for NGO involvement**, although some consultation did occur. It also lacked provision for public participation and there was no evidence that any took place.

Turning to other methodologies, there was an openness expressed towards the adoption of Strategic Environmental Assessment (SEA). It was recognised that there was a commitment to its use in the future and one that required preparation to be made in good time. One Managing Authority made the constructive suggestion that it would be appropriate to apply a pilot SEA to one of the Priorities under the current NDP in order to become acquainted with the procedure and be better prepared for the formal adoption of SEA.

While criticisms can be levelled at the way in which the pilot eco-audit was conducted, it was without doubt a useful learning experience for those charged with its undertaking and their growing familiarity with the environmental area will stand them in good stead with the application of future methodologies.

#### **4.2 Other methodologies:**

In the national sustainability strategy, the Irish government gave clear signals that it is actively pursuing a path of sustainable development, and this has been followed up in the recent planning and development legislation. The government also committed itself to work actively for the development and introduction of the, then, proposed SEA directive. The current Eco-audit has been officially justified as a partial fulfilment of these commitments.<sup>106</sup>

Although the finalised directive is stronger than that initially proposed, it falls short of current theory and some international practice on the assessment of both sustainability issues and policy formulation. More particularly, it also falls short of the formalised assessment procedures already adopted in the Netherlands, the most pro-active EU member state in this respect. Although legislative provision has yet to be made for SEA in the UK, there is much relevant experience, and the semi-formalised *Environmental Appraisal* system contains elements corresponding to the requirements of the directive. Arguably, the UK's semi-formalised *Sustainability Appraisal* provides an even better framework for formalised SEA, since some of its aspects go beyond the requirements of the directive. **Either of these jurisdictions provides a model for advancing the development of SEA in Ireland.**

As with EIA, **the Irish government is to be commended for the introduction of procedures for some forms of SEA** in advance of obligatory compliance with a directive. The Planning & Development Act, 2000 contains provisions for the *de facto* SEA of Local Area Plans, County Development Plans and Region Planning Guidelines. Unfortunately, although the Act is now considered to be fully operative, there has been no ministerial guidance on what these procedures constitute. **Both guidance and in-service training** need to be provided to the planning authorities involved as a matter of urgency simply to maintain the credibility of the new legislation. Since it is envisaged that much assessment would be done 'in-house' within different ministries and regional or local planning authorities,

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<sup>106</sup> DoE 1997; Planning and Development Act, 2000; NDP 2000-2006.

mechanisms should be put in place to facilitate the exchange of experience and to develop an 'institutional memory'.

Whatever criticism might be levelled at the eco-audit procedure in general, it has raised expectations and provided practical experience with the assessment of plans, programmes and some aspects of policy. Unlike with EIA, this moral advantage and experience must be capitalised on. Not only must **the directive be transposed ahead of its deadline**, but further proactive assessments should be initiated in order to devise an effective working procedure.

There is confusion in both the literature and practice as to what is meant by sustainable development and what exactly constitutes an SEA. While it is difficult to maintain a consistent international terminology, clear definitions can be generated of the concepts advanced at national level, and these can be used as a basis for later international comparison and standardisation.

Therefore, **care should be given to developing a standardised terminology** for sustainable development. The official concepts of '*sustainable development*' and '*sustainability*' (and the relationship between them) should be fleshed out. Apparent synonyms such as '*sustainable growth*' should be studiously avoided because their meaning can be ambiguous and might be misconstrued. **An equally well-defined terminology needs to developed for plan and programme appraisal**, and such processes should be clearly acknowledged as being forms of SEA. In particular this should indicate whether these are once-off retrospective audits or (preferably) a process of continuous pro-active assessment.

The government apparently feels that its original **commitments to introduce SEA** at levels over and above the requirements of the proposed SEA directive have been overtaken by the more comprehensive final version of that document. However, the directive specifically excludes policy assessment and therefore falls short even of the Commission's subsequent thinking in this area.<sup>107</sup> The government should capitalise on the fact that, arguably, the eco-audit addressed some elements of policy and **move towards developing a procedure in this area**. International experience suggests that the assessment of policies merits a different assessment procedure from that for plans and programmes. **The Dutch 'E-Test' offers a useful model** since, although formalised in the legislative sense, it is low-key and flexible in its approach - as befits the inherently fuzzy nature of policy formulation.

However, the 'E-test' only works because it is reinforced by more rigorous procedures for the assessment of any subsidiary plans and programmes. Experience with project-level EIA indicates that full assessment is limited in those situations where the project choice is determined by a high planning level which cannot itself be assessed or modified. Any procedure for the assessment of plans and programmes will face similar constraints unless there is a feed-back mechanism which can, at least conceivably, bring about a revision of policy. Therefore **moves towards policy assessment should go hand-in-hand with those for transposing the SEA directive**, and a clear connection should be demonstrated between the two resultant procedures.

The government has indicated its preference for integrating consideration of sustainable development into assessment at all planning levels, and initial steps have been taken in this direction with the recent planning legislation. However, sustainability assessment depends

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<sup>107</sup> CEC 2002.

on the **development of clear *sustainability objectives*, together with associated *criteria*** against which an SEA can be conducted. These should be based on the principles for sustainable development already established by COMHAR.<sup>108</sup>

Ireland now has considerable experience with project-level EIA. However, the literature suggests that project-based methods have very limited application for plans and programmes. In transposing the SEA directive, the government should seek an upstream transfer of EIA philosophy, rather than methodology. The resulting procedures should combine the procedural strengths of the directive with a level of flexibility appropriate to a range of SEA assessments. The directive stipulates, as a minimum requirement, that the **SEA should consider the likely evolution of the environment without implementation of the proposal. The requirement to address other alternatives should be considerably strengthened in transposing the directive.**

Evidence from evaluations of EIA and SEA practice world-wide firmly indicates that quality and effectiveness of assessment are related to the experience of the practitioners and the involvement of multi-disciplinary teams. There is also agreement on the benefits of external expert guidance and review. It is recommended that **SEA (whether formalised or voluntary) should be conducted by multi-disciplinary teams** within or between the organisation(s) **concerned in conjunction with external expert guidance.** Finally the SEA report should be subjected to an external review process.

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<sup>108</sup> COMHAR 2001.

## PART 5: RECOMMENDATIONS:

Recommendations for improving the operation of the current eco-audit of the NDP 2000-2006 are presented first. There is no requirement for applying the SEA directive to the current NDP, so that the onus on the current process is that it be effective in protecting the environment, and be seen to be so. Secondly, recommendations are made on the adaptation of eco-auditing in the context of the introduction of SEA.

### 5.1 Recommendations for eco-auditing of NDP 2000-2006

The following questions need to be addressed – these relate to the tasks that have not received sufficient attention in the eco-audit process so far. How will the eventual evaluation of the environmental consequences of the NDP be achieved? And, in the cases where there is potential impact, how will the requirement for consideration of alternative policy options be met? The Mid-Term Review of the NDP will be a good time to make adjustments that address these requirements of the eco-audit process, specified in the Guidelines.

1) The requirement to evaluate the environmental consequences of the NDP needs assistance. Reactivation of definitive Guidelines should be considered (inserting the word “potential” before the word “effect” on the checklist) and **any potential effects other than insignificant ones ought to be candidates for assessment.**

2) Assessment of effects needs to be able to call on expertise and it would seem appropriate that this come from the body that is already charged with recording environmental quality, the EPA. The terms of reference of the **future Centre of Excellence**, scheduled to be established in the EPA, include the development of information systems, making the Centre the ideal body to provide this help. In the meantime, before the Centre is established, **an interim forum is required**, consisting of the Managing Authorities and relevant implementing bodies on the one hand, and on the other hand EPA personnel who have expertise in the data area.

3) The forum would be properly resourced and it would function until the establishment of the Centre. There would be a seamless transition when the Centre takes up the reins. The SEA directive stipulates that SEA will be applied in future and (among other things) that SEA should consider the likely evolution of the environment without implementation of the proposal (the “without” case). The Centre should be in a position to be able to undertake or to outsource such analysis.

4) It is recommended that the function of the forum be to set up appropriate indicators that would be relevant for **measuring the environmental effects of investments** under the NDP, where appropriate. The competence of the forum would include:

- a) the provision of support and assistance in the understanding of data definitions and of the underlying environmental processes. Appropriate breakdown by geographical area would be attempted by the forum.
- b) the production of indicators that would ideally include those that measure outcomes, i.e., the Pressure, State or Impact indicators from the **DPSIR framework** (Driving forces, Pressures, State, Impact, Response). Positive as well as negative outcomes ought to be measured, the positive ones providing managerial information also.

5) The requirement for the consideration of alternative policy options, by its nature, has to allow for application of various disciplines, as appropriate. The alternative options, or rather the adjustments that suggested themselves in the course of this evaluation (Appendix 6) were usually of a regulatory and economic nature, though other types of expertise are likely to be needed also.

6) With respect to environmental protection and compliance, an adjustment that would be worth investigating now is how to ensure that recommendations made in Environmental Impact Assessments (EIA) are fulfilled. This would apply in particular to the question of ensuring that ongoing monitoring and maintenance are performed.

## **5.2 Recommendations for adapting the eco-audit to SEA**

1) An appropriate forum be convened to develop an official standardised terminology giving the Irish interpretation of concepts of *sustainable development* and *sustainability*, together with the associated objectives and criteria. The future Centre of Excellence may have a role in this respect. A basis for the standardised terminology has already been provided by COMHAR. Having achieved an agreed terminology, apparent synonyms should be avoided because their meaning can be ambiguous and might be misconstrued.

2) That a comparable standardised terminology be adopted in relation to procedures for the assessment of plans and programmes (and, hopefully, policies as well).

3) That the experience gained during the Eco-audit should be capitalised upon and the momentum maintained by initiating a full policy pilot SEA now. It is recommended that this be conducted on the national transport policy, since this is an area for which there is likely to be appropriate baseline data.

4) That the provisions for SEA in the Planning and Development Act 2000 be fleshed out through Statutory Instrument without delay, and that appropriate training be provided to the relevant local authority staff.

5) That a unit be established in an appropriate government department or agency to be given responsibility for co-ordinating SEA for all planning activities. This body would provide expertise, where necessary, to other government agencies and provide an institutional memory for SEA. In the short term, this body should obtain guidance from independent experts in SEA, and its activities should be intermittently reviewed in the same way.

6) Transposition of the SEA directive should definitely not be delayed beyond the deadline in July 2004. The manner of transposition should allow for feedback from the assessment of projects, programmes or plans to influence the respective higher planning level.

7) That transposition should be accompanied by the development of clear explanatory regulations, and that ample training be provided to the relevant planners in order to bring the provisions into effect.

8) That transposition of the SEA directive should not be a case of formally adopting the English language text. Irish transposition should go beyond the requirements of the directive,

and incorporate stronger consideration of social and economic aspects in order to develop a tool for full sustainability assessment of plans and programmes.

9) That a form of policy assessment be developed, preferably in parallel with the transposition of the SEA directive. As argued in Section 3.2 and further argued in Section 4.2, it is suggested that the Dutch E-test (especially after forthcoming revisions including revisions on mandatory reporting) should be investigated as a model.

10) That measures for public involvement be strengthened to provide appropriate participation at each stage of the planning and assessment hierarchy.



# APPENDIX 1

## Eco-Audit of Policies

### GUIDELINES

#### 1 Introduction

1.1. As provided for in the Action Programme for the Millennium the policies identified in para 2 below will be subject to eco-audit in accordance with the guidelines.

1.2. The objective of the eco-audit of policies is to ensure that the environmental impacts of policies are identified as early as possible and that action is taken where appropriate to eliminate or mitigate any potential adverse impacts identified. Eco-audit will require the assessment of the environmental impacts of policies with particular reference to the effects on air, water, land, habitats, flora and fauna, natural resources and to the production of waste.

#### 2 Policies to be eco-audited

2.1. Eco-audit will be applied initially

(a) to new policies and to existing policies (including the financial aspects) which are being substantially modified in the following sectors:

- agriculture
- energy
- transport
- industry
- tourism
- forestry
- marine and natural resources and

(b) to national development plans.

2.2. As it will only be necessary to conduct an eco-audit in respect of policy/policy changes likely to have substantial environmental impacts the checklist in the Annex may be used as a means of identifying those policies to be subject to eco-audit. An eco-audit should be carried out when significant environmental effects are likely in respect of any areas listed, when environmental effects of some significance are expected in 2 or more areas or when more detailed investigations are required to determine whether the effects are significant.

2.3. It is a matter for individual Departments and, where appropriate, their associated agencies to decide, in line with these Eco-audit Guidelines, whether or not a policy should be subject to eco-audit. Consultations should be undertaken with other Departments, e.g. the Department of the Environment and Local Government and Department of Arts, Heritage, Gaeltacht and the Islands, where appropriate.

2.4. The eco-audit of a policy will be without prejudice to the requirement that projects

implemented under a policy comply with relevant planning and environmental and land use planning legislation.

### **3. Content of eco-audit**

3.1. In addition to the issues addressed as part of general policy development and appraisal (policy aims and objectives, costs etc) an eco-audit will address the following:

- the significant positive or negative environmental impacts, whether direct or indirect; in identifying these impacts the eco-audit will, in particular quantify in so far as possible the environmental effects listed in the Annex and their significance for the state of the environment, nationally and in a transboundary/global context;
- the alternative policy options considered;
- description of measures to eliminate/mitigate any harmful environmental impacts likely to arise;
- identification of environmental policies, standards and licensing requirements with which policy and/or projects implemented under policy will comply; and
- provision for assessment of impact following implementation.

3.2. The need for further guidelines on the contents of eco-audits of policies will be kept under review in the light of experience.

### **4. Reporting of eco-audits**

4.1. The conclusions of the eco-audit should be, as appropriate,

- summarised in memoranda to Government on policy/legislative proposals
- included in explanatory memoranda to Bills
- included in policy statements.

<b>Effect of Policy on</b>	<b>Significant</b>	<b>Of some significance</b>	<b>Insignificant</b>	<b>None</b>
<b>Water Quality &amp; Quantity</b> <ul style="list-style-type: none"> <li>• Water Quality</li> <li>• Polluting discharges to surface, ground or marine waters</li> <li>• water quantity</li> </ul>				
<b>Air Quality</b> <ul style="list-style-type: none"> <li>• Air Quality (Local)</li> <li>• Air Quality (Transboundary)</li> <li>• Polluting discharges to atmosphere</li> <li>• Emissions of greenhouse gases</li> </ul>				
<b>Biodiversity</b> <ul style="list-style-type: none"> <li>• Quality of area of habitats</li> <li>• Populations or range of species</li> <li>• Protected areas</li> <li>• Threatened or protected species</li> </ul>				
<b>Land Use</b> <ul style="list-style-type: none"> <li>• Land use patterns</li> <li>• Landscape</li> </ul>				
<b>Resource Conservation</b> <ul style="list-style-type: none"> <li>• Energy use</li> <li>• Waste Recovery</li> <li>• Natural resource/ material use</li> <li>• Extraction or use of non-renewable resources</li> </ul>				
<b>Waste</b> <ul style="list-style-type: none"> <li>• Waste Production</li> <li>• Disposal</li> </ul>				
<b>Architectural and Archaeological Heritage</b> <ul style="list-style-type: none"> <li>• Buildings and structures of architectural or historic importance</li> <li>• Archaeological sites, monuments and artefacts</li> </ul>				
<b>Health &amp; Welfare of Population</b> <ul style="list-style-type: none"> <li>• Noise levels</li> <li>• Security &amp; Safety of the public</li> </ul>				
<b>Dangerous Substances</b> <ul style="list-style-type: none"> <li>• Use of Dangerous Substances</li> <li>• Risk of accidents during the transport, use and manufacture of dangerous substances</li> </ul>				

## APPENDIX 2

### Evaluation of Eco-Auditing in the context of the National Development Plan 2000-2006

#### INTERVIEW PROTOCOL

##### for Managing Authorities, Measure leaders and persons undertaking eco-audits

Thank you for granting us this interview.

We have been commissioned by the NDP/CSF Evaluation Unit to:

- Review and assess the progress made in the use of eco-audits
- Comment on their role in the overall programming process
- Comment on the outputs and outcomes, including any programme adjustments
- Review relevant methodologies used elsewhere
- Draw conclusions and recommendations on steps to promote eco-auditing and any further processes and methodologies to facilitate achievement of environmental objectives, as part of the 2003 mid-term review and over the longer term.

Operational Programme: ....

Measure: ....

Person(s) interviewed: ....

Date: ....

After we have looked through the main measures that you deal with, we wish to address the following questions:

- Q. 1. Before discussing the detail, could you please outline what you see as the main objective(s) of the eco-audit process and how these can be achieved? Did you receive an operating definition of sustainability to be used as a benchmark?
- Q. 2. Next, we need to know how the eco-audit checklists and any ensuing eco-audits were undertaken. First of all, what instructions and guidance did you operate under and what were the main tasks?
- Q. 3. Was the process undertaken according to the instructions and guidance and how difficult or straightforward did you find the tasks?
- Q. 4. What resources were allocated for -  
Data collection  
Consultation  
Analysis  
Reaching conclusions
- Q. 5. Who were consulted?

- Q. 6. Please comment on the adequacy or otherwise of the resources that you could avail of including -  
Time to familiarise yourselves with the topic  
Data availability (including baseline data specific to the OP/measure)  
Time for consultation  
Adequacy of expertise and analysis  
Adequacy of time overall
- Q. 7. What degree of integration was there with the programme design and did/will your eco-audit influence the outcome? Was the programme changed in any way as a result of findings from the audit process?
- Q. 8. Please describe/comment on the appraisal techniques for incorporating potential environmental effects into the evaluation of spending.
- Q. 9. How is it envisaged that the audit process will be maintained and feedbacks used?
- Q. 10. Please comment on the monitoring and the quality of the feedback that emerged (or is expected to emerge) from the audits?
- Q. 11. Will it be possible to itemise *ex post* the actual environmental impacts of the OP/measure?
- Q. 12. Did other eligibility criteria apply (were Environmental Impact Assessments required, IDA environmental conditions, local planning consents, and others, please name)?
- Q. 13. What if any changes to the eco-audit procedure are envisaged or desired?
- 

Thank you very much for sparing your time. If there is other information that you would like to provide, we would be pleased if you would contact us.

## APPENDIX 3

### Interview List

OP	Name	Consultation took place	Questionnaire sent
<b>Economic and social Infrastructure</b>	<b>Managing Authority. Department of Transport</b>	<b>Yes</b>	<b>Yes</b>
<i>Of which:</i> National roads	NRA	Yes	Yes
Public transport	Department of Public Enterprise		
Environmental infrastructure	Dept Environment and L.G	Yes	Yes
Coastal protection	Department Communications and Natural Resources		
Sustainable energy	Department of Public Enterprise		Yes
Housing	Dept Environment and L.G	Yes	Yes
Health facilities	Dept Health and Children		
<b>Productive Sector</b>	Dept Enterprise Trade and Employment	Yes	Yes
<i>Of which:</i> Measure 3.4 Sea Fisheries	Dept of Communications and Natural Resources IDA Environment Unit, Enterprise Ireland Coford	Yes	Yes
<b>Employment and Human Resources Development</b>	DETE		Yes
<b>BMW Regional</b>	BMW Regional Assembly	Yes	Yes
SE Regional	SE Regional Assembly	Yes	Yes
<i>Of which:</i> Aquaculture	Dept Comm + Nat Res.		Yes
<b>CAP Rural Development Plan</b>	Dept Agriculture	Yes	Yes
	Teagasc	Yes	Yes
<b><u>OTHER</u></b>	European Commission An Taisce EPA FIE Comhar	Document sent Yes Yes	Yes Yes Yes
Procedures and Guidelines:	Department of Environment and L.G Environmental Network of Govt Depts	Yes	



## ESI OP: Public Transport Priority

### IMPACTS

	Significant	Of some Significance	Insignificant	None
<b>Water Quality &amp; Quantity</b>				
Water Quality				
Polluting discharges to surface ground or marine waters			-	✓
Water quantity				✓
<b>Air Quality</b>				
Air Quality (Local)	+			
Air Quality (Transboundary)	+			
Polluting discharges to atmosphere	+			
Emissions of greenhouse gases	+			
<b>Biodiversity</b>				
Quality of area of habitats				✓
Populations or range of species				✓
Protected areas				✓
Threatened or protected species				✓
<b>Land Use</b>				
Land use patterns	+			
Landscape	+			
<b>Resource Conservation</b>				
Energy use	+			
Waste Recovery				✓
Natural resource/material use				✓
Extraction or use of non-renewable resources				✓
<b>Waste</b>				
Waste Production				✓
Disposal				✓
<b>Architectural and Archaeological Heritage</b>				
Buildings and structures of architectural or historic importance				✓
Archaeological sites, monuments and artefacts				✓
<b>Health &amp; Welfare of Population</b>				
Noise levels	+			
Security & Safety of the public	+			
<b>Dangerous Substances</b>				
Use of Dangerous Substances				✓
Risk of accidents during the transport, use and manufacture of dangerous substances		+		

+ = Positive

- = Negative

O = Neutral



## ESI OP: Environmental Infrastructure Priority

### IMPACTS

	Significant	Of some Significance	Insignificant	None
<b>Water Quality &amp; Quantity</b>				
Water Quality	+			
Polluting discharges to surface ground or marine waters	+			
Water quantity	+			
<b>Air Quality</b>				
Air Quality (Local)				✓
Air Quality (Transboundary)				✓
Polluting discharges to atmosphere				✓
Emissions of greenhouse gases				✓
<b>Biodiversity</b>				
Quality of area of habitats	+			
Populations or range of species				✓
Protected areas				✓
Threatened or protected species				✓
<b>Land Use</b>				
Land use patterns	+			
Landscape			O	
<b>Resource Conservation</b>				
Energy use			O	
Waste Recovery		+		
Natural resource/material use			-	
Extraction or use of non-renewable resources			-	
<b>Waste</b>				
Waste Production	O			
Disposal	+			
<b>Architectural and Archaeological Heritage</b>				
Buildings and structures of architectural or historic importance				✓
Archaeological sites, monuments and artefacts		O		
<b>Health &amp; Welfare of Population</b>				
Noise levels				
Security & Safety of the public	+			✓
<b>Dangerous Substances</b>				
Use of Dangerous Substances				✓
Risk of accidents during the transport, use and manufacture of dangerous substances				✓

+ = Positive  
 - = Negative  
 O = Neutral

## ESI OP: Sustainable Energy Priority

### IMPACTS

	Significant	Of some Significance	Insignificant	None
<b>Water Quality &amp; Quantity</b>				
Water Quality				✓
Polluting discharges to surface ground or marine waters				✓
Water quantity				✓
<b>Air Quality</b>				
Air Quality (Local)	+			
Air Quality (Transboundary)	+			
Polluting discharges to atmosphere	+			
Emissions of greenhouse gases	+			
<b>Biodiversity</b>				
Quality of area of habitats				✓
Populations or range of species				✓
Protected areas				✓
Threatened or protected species				✓
<b>Land Use</b>				
Land use patterns			O	
Landscape		O		
<b>Resource Conservation</b>				
Energy use	+			
Waste Recovery				✓
Natural resource/material use		+		
Extraction or use of non-renewable resources		+		
<b>Waste</b>				
Waste Production				✓
Disposal				✓
<b>Architectural and Archaeological Heritage</b>				
Buildings and structures of architectural or historic importance				✓
Archaeological sites, monuments and artefacts			O	
<b>Health &amp; Welfare of Population</b>				
Noise levels			O	
Security & Safety of the public				✓
<b>Dangerous Substances</b>				
Use of Dangerous Substances				✓
Risk of accidents during the transport, use and manufacture of dangerous substances				✓

+ = Positive

- = Negative

O = Neutral

## ESI OP: Housing Priority

### IMPACTS

	Significant	Of some Significance	Insignificant	None
<b>Water Quality &amp; Quantity</b> Water Quality Polluting discharges to surface ground or marine waters Water quantity			O -	✓
<b>Air Quality</b> Air Quality (Local) Air Quality (Transboundary) Polluting discharges to atmosphere Emissions of greenhouse gases		-	- O -	
<b>Biodiversity</b> Quality of area of habitats Populations or range of species Protected areas Threatened or protected species				✓ ✓ ✓ ✓
<b>Land Use</b> Land use patterns Landscape	+ -			
<b>Resource Conservation</b> Energy use Waste Recovery Natural resource/material use Extraction or use of non-renewable resources		- - - -		
<b>Waste</b> Waste Production Disposal		- -		
<b>Architectural and Archaeological Heritage</b> Buildings and structures of architectural or historic importance Archaeological sites, monuments and artefacts			O O	
<b>Health &amp; Welfare of Population</b> Noise levels Security & Safety of the public			O +	
<b>Dangerous Substances</b> Use of Dangerous Substances Risk of accidents during the transport, use and manufacture of dangerous substances				✓ ✓

+ = Positive  
- = Negative  
O = Neutral

## ESI OP: Health Facilities Sub-Programme

### IMPACTS

	Significant	Of some Significance	Insignificant	None
<b>Water Quality &amp; Quantity</b>				
Water Quality				✓
Polluting discharges to surface ground or marine waters				✓
Water quantity				✓
<b>Air Quality</b>				
Air Quality (Local)				✓
Air Quality (Transboundary)				✓
Polluting discharges to atmosphere				✓
Emissions of greenhouse gases				✓
<b>Biodiversity</b>				
Quality of area of habitats				✓
Populations or range of species				✓
Protected areas				✓
Threatened or protected species				✓
<b>Land Use</b>				
Land use patterns		+		
Landscape		-		
<b>Resource Conservation</b>				
Energy use		-		
Waste Recovery		O		
Natural resource/material use			-	
Extraction or use of non-renewable resources			-	
<b>Waste</b>				
Waste Production		-		
Disposal		-		
<b>Architectural and Archaeological Heritage</b>				
Buildings and structures of architectural or historic importance				✓
Archaeological sites, monuments and artefacts				✓
<b>Health &amp; Welfare of Population</b>				
Noise levels				
Security & Safety of the public	+			✓
<b>Dangerous Substances</b>				
Use of Dangerous Substances		-		
Risk of accidents during the transport, use and manufacture of dangerous substances			O	

+ = Positive

- = Negative

O = Neutral

## BMW OP: LOCAL INFRASTRUCTURE PRIORITY

### IMPACT

	Significant	Of some Significance	Insignificant	None
<b>Water Quality &amp; Quantity</b>				
Water Quality		+		
Polluting discharges to surface ground or marine waters		+		
Water quantity		+		
<b>Air Quality</b>				
Air Quality (Local)		-	O	
Air Quality (Transboundary)			O	
Polluting discharges to atmosphere			O	
Emissions of greenhouse gases			O	
<b>Biodiversity</b>				
Quality of area of habitats		+		
Populations or range of species			O	
Protected areas		+		
Threatened or protected species		+		
<b>Land Use</b>				
Land use patterns			+	
Landscape			+	
<b>Resource Conservation</b>				
Energy use			O	
Waste Recovery		+		
Natural resource/material use			+	
Extraction or use of non-renewable resources			O	
<b>Waste</b>				
Waste Production		+		
Disposal		+		
<b>Architectural and Archaeological Heritage</b>				
Buildings and structures of architectural or historic importance		+		
Archaeological sites, monuments and artefacts		+		
<b>Health &amp; Welfare of Population</b>				
Noise levels				✓
Security & Safety of the public				✓
<b>Dangerous Substances</b>				
Use of Dangerous Substances				✓
Risk of accidents during the transport, use and manufacture of dangerous substances				✓

+ = Positive

- = Negative

O = Neutral

## BMW OP: LOCAL ENTERPRISE DEVELOPMENT PRIORITY

### IMPACT

	Significant	Of some Significance	Insignificant	None
<b>Water Quality &amp; Quantity</b>				
Water Quality			-	
Polluting discharges to surface ground or marine waters			O	
Water quantity			-	
<b>Air Quality</b>				
Air Quality (Local)			O	
Air Quality (Transboundary)			O	
Polluting discharges to atmosphere			O	
Emissions of greenhouse gases			O	
<b>Biodiversity</b>				
Quality of area of habitats			O	
Populations or range of species			O	
Protected areas			O	
Threatened or protected species			O	
<b>Land Use</b>				
Land use patterns			O	
Landscape			O	
<b>Resource Conservation</b>				
Energy use			-	
Waste Recovery			O	
Natural resource/material use			-	
Extraction or use of non-renewable resources			-	
<b>Waste</b>				
Waste Production			O	
Disposal			O	
<b>Architectural and Archaeological Heritage</b>				
Buildings and structures of architectural or historic importance			+	
Archaeological sites, monuments and artefacts			+	
<b>Health &amp; Welfare of Population</b>				
Noise levels			O	
Security & Safety of the public			O	
<b>Dangerous Substances</b>				
Use of Dangerous Substances				✓
Risk of accidents during the transport, use and manufacture of dangerous substances				✓

+ = Positive  
 - = Negative  
 O = Neutral

**BMW OP: AGRICULTURE AND RURAL DEVELOPMENT PRIORITY**

**IMPACT**

	<b>Significant</b>	<b>Of some Significance</b>	<b>Insignificant</b>	<b>None</b>
<b>Water Quality &amp; Quantity</b> Water Quality Polluting discharges to surface ground or marine waters Water quantity		+ +		✓
<b>Air Quality</b> Air Quality (Local) Air Quality (Transboundary) Polluting discharges to atmosphere Emissions of greenhouse gases			O O + +	
<b>Biodiversity</b> Quality of area of habitats Populations or range of species Protected areas Threatened or protected species			+ O + O	
<b>Land Use</b> Land use patterns Landscape		+	O	
<b>Resource Conservation</b> Energy use Waste Recovery Natural resource/material use Extraction or use of non-renewable resources			O O O O	
<b>Waste</b> Waste Production Disposal			O +	
<b>Architectural and Archaeological Heritage</b> Buildings and structures of architectural or historic importance Archaeological sites, monuments and artefacts			O O	
<b>Health &amp; Welfare of Population</b> Noise levels Security & Safety of the public			O O	
<b>Dangerous Substances</b> Use of Dangerous Substances Risk of accidents during the transport, use and manufacture of dangerous substances				✓ ✓

+ = Positive  
- = Negative  
O = Neutral

**BMW OP: SOCIAL INCLUSION AND CHILDCARE PRIORITY**

**IMPACT**

	<b>Significant</b>	<b>Of some Significance</b>	<b>Insignificant</b>	<b>None</b>
<b>Water Quality &amp; Quantity</b>				
Water Quality			O	
Polluting discharges to surface ground or marine waters			O	
Water quantity			O	
<b>Air Quality</b>				
Air Quality (Local)			O	
Air Quality (Transboundary)			O	
Polluting discharges to atmosphere			O	
Emissions of greenhouse gases			O	
<b>Biodiversity</b>				
Quality of area of habitats			O	
Populations or range of species			O	
Protected areas			O	
Threatened or protected species			O	
<b>Land Use</b>				
Land use patterns			O	
Landscape			O	
<b>Resource Conservation</b>				
Energy use			O	
Waste Recovery			O	
Natural resource/material use			O	
Extraction or use of non-renewable resources			O	
<b>Waste</b>				
Waste Production			O	
Disposal			O	
<b>Architectural and Archaeological Heritage</b>				
Buildings and structures of architectural or historic importance			+	
Archaeological sites, monuments and artefacts			+	
<b>Health &amp; Welfare of Population</b>				
Noise levels				
Security & Safety of the public			+	
<b>Dangerous Substances</b>				
Use of Dangerous Substances				✓
Risk of accidents during the transport, use and manufacture of dangerous substances				✓

+ = Positive  
 - = Negative  
 O = Neutral



## APPENDIX 5

### Acronyms and Glossary

DELG	Department of the Environment and Local Government
DPSIR framework	DPSIR stands for: Driving forces - Pressure - State - Impact - Response. Based on the concept of cause and effect and reflecting interaction between socio-economic and environmental systems, the framework forms a logical way to structure environmental information. The causal chain is (i) from <i>developments</i> in society and the economy (ii) through to the environmental <i>pressures</i> deriving from them and (iii) the effects that these pressures have on the <i>state</i> of the environment and (iv) the resulting <i>impacts</i> on human health and biodiversity. Finally there are (v) society's <i>responses</i> that are designed to curtail pressures or minimise impacts
DRDNI	Department of Regional Development, Northern Ireland
EA (1)	Environmental Assessment, a generic name for different forms of Impact Assessment.
EA (2)	Environmental Assessment, the official name for the formalised UK version of EIA.
Eco-audit (1)	A general term for essentially retrospective procedures identifying and evaluating the environmental consequences of development actions including policies, plans, programmes, projects and company activities.
Eco-audit (2)	Specifically, the official name of the procedure used for evaluating the NDP 2000-2006
ESD	Ecologically sustainable development, terminology underlining the concept that sustainable development must be linked to ecology and the environment. Legally enshrined in Australasia.
EIA (1)	Environmental Impact Assessment, a procedure for identifying and evaluating the environmental consequences of a proposed course of development action. This is normally a predictive technique.
EIA (2)	Environmental Impact Assessment (as formalised in most jurisdictions) a procedure for identifying and evaluating the environmental consequences of proposed projects.
EMAS	Eco-Management and Audit Scheme, the EU accredited Environmental Management System for company level activities.

EMS	Environmental Management System, a form of quality assurance system developed at company level to address aspects of environmental performance. These can be informal or accredited to specific standards, and are an operational requirement for IPC Licensing.
Environmental Appraisal	Official term for the semi-formalised UK process of SEA for county development plans and regional planning guidance.
Environment(al) Proofing	Generally, a synonym for an eco-audit.
'E-Test'	Environmental-test, the official name of the Dutch system of SEA for policies.
Ex-ante evaluation of Plans	Translation of the official name for the French prototype for SEA of plans.
GIS	Geographical Information Systems, a computer-based form of overlay mapping through which multiple sets of data can be visually correlated and interrogated.
Green Accounting	The preparation of a form of financial accounts which specifically highlight the environmental costs and balances of actions.
Guidelines	Specifically, the guidelines developed to assist in giving effect to the current eco-audit and contained in 'Eco-Audit of policies, Guidelines' (Appendix 1 to this report).
Heritage Appraisal	Specifically, a system based on the UK environmental appraisal procedures, developed by the Heritage Council for considering the effects of development plans on aspects of the national heritage.
IAIA	International Association for Impact Assessment, Fargo, North Dakota, USA.
Integrated Assessment (1)	Integrating multiple forms of assessment into a single coherent process.
Integrated Assessment (2)	Integrating the assessment procedure into the evolving development of the proposal in question.
Integrated Assessment (3)	A thorough integration of concepts of sustainability into decision-making.
Integrated Vision	A form of SEA.
ISO 14001	The International Standards Organisation accredited Environmental Management System for company level activities.

NEPA	The US National Environmental Policy Act, 1969 which first formalised the concept of impact assessment.
NGO	Non-Governmental Organisation.
Planning hierarchy	The successive levels of planning, starting with <i>policies</i> which are realised through <i>plans</i> and <i>programmes</i> for action and result in physical <i>project</i> developments.
Programatic Assessment	The term for Impact Assessments above the project level conducted under the US National Environmental Policy Act (NEPA).
Scoping	Procedure for determining the depth and breadth of investigation for a project that has been selected for assessment.
Screening	Procedure(s) for determining which proposals should be subjected to the assessment process in question.
SEA	Strategic Environmental Assessment, a procedure for identifying and evaluating the environmental consequences of policies, plans, programmes. Where formalised, policy assessment is usually excluded or subject to a different procedure.
SEIA	Strategic Environmental Impact Assessment, the Dutch SEA procedure for the assessment of plans and programmes.
Strategic (as in SEA)	Having a set of principles and objectives that shape the visions and development intentions of the proposal in question, and against which the assessment can be conducted.
Sustainability	An ideal state in which development actions have no net negative impact on the environment.
Sustainability Appraisal	Official term for the semi-formalised UK process for the sustainability assessment of county development plans, regional planning guidance, and regional economic strategies.
Sustainability Assessment	A generic term for a form of SEA which specifically incorporates social, economic and environmental evaluation in order to address sustainability issues.
Sustainable Development	Development which occurs within the general carrying capacity of the environment, and any net negative effects of which are balanced against the developmental gains.
SIA	Sustainability Impact Assessment, an increasingly popular name for Sustainability Assessment, but one which can be confused with the EIA sub-discipline of SIA (Social Impact Assessment).

Tiered EIA or SEA

The application of environmental assessment techniques to two or more successive levels within a related area of the planning hierarchy.

## APPENDIX 6: ENVIRONMENTAL PROOFING & COMPLIANCE

### 6.1 CAP Rural Development Plan

#### 6.1.1 Procedures and Process for Considering Environmental Effects in Relation to Agriculture

Irish agriculture and forestry occupy over 70 per cent of the land area of the country. It is recognised that their impact on the physical environment is, therefore, very great. It is considered that much of this impact is positive. For example, the rural landscape, which is widely admired and is a valuable tourist resource, is to a large extent a by-product of our agricultural systems. However, there is also concern about the negative impacts which agriculture, like other economic activities, can have.

*The National Strategy for Sustainable Development* published in 1997, (Sustainable Development: A Strategy for Ireland), recognised that integrating the environment needed to be brought centre stage in economic and sectoral performance and it defined an agenda to reinforce and deepen environmental integration. This included specific objectives and measures to be included in a series of action programmes for sustainable agriculture, forestry, use of marine resources, energy policy, industrial development, transport and tourism.

In relation to agriculture, there has been a significant policy response to addressing many of the commitments made in the *National Strategy*, viz. a reduction in application rates of fertilisers, introduction of nutrient management planning and reduction in stocking densities in overgrazed areas. In addition, the introduction of the Rural Environment Protection Scheme (REPS)<sup>109</sup> and the Scheme for the Control of Farm Pollution (CFP)<sup>110</sup> have made a major contribution to achieving sustainable development. By end 1999, 45,000 farmers had joined REPS and 14,000 farmers had provided storage capacity for animal waste, fodder or had housed animals under the CFP scheme.

However, the CAP Rural Development Plan recognises that much more work needs to be done.

#### *Nitrates Directive (EU Council Directive 97/767/EEC)*

The Nitrates Directive has the objectives of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution. Nitrates are a health hazard in waters, which are used as sources of drinking water. Nitrates are also nutrients, which contribute to eutrophication of waters (although in the Irish context phosphorus is identified as the main limiting factor in this regard in inland waters). The Directive requires the:

- Establishment of a code of practice, to be implemented on a voluntary basis by farmers, to protect waters from pollution by nitrates;
- Identification of waters polluted by nitrates from agricultural sources;

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<sup>109</sup> This was introduced in 1994 as part of the 1992 CAP Reform.

<sup>110</sup> This was implemented under the Operational Programme for Agriculture, Rural Development and Forestry, 1994-1999, (OPARDF)

- Identification of the land areas contributing to the pollution and the designation of these lands as Nitrate Vulnerable Zones (NVZs);
- Establishment of compulsory action programmes in relation to designated NVZs within one year of designation: a primary consideration is the management of manures and fertilisers, and
- Implementation of action programmes within four years of their establishment.

The Directive has not yet been implemented and awaits a Government decision as to how it will be transposed into Irish law.

In 1996, a Code of Practice to Protect Waters from Pollution by Nitrates was issued jointly by the Department of Agriculture and Food and the Department of the Environment. This book contains advice and recommendations for farmers as to:

- Storage of organic fertilisers;
- Standards and specifications for construction of storage facilities;
- When to apply, organic and chemical fertilisers to land;
- Appropriate rates of application of fertilisers, and
- Precautions to be taken to avoid causing water pollution.

*Monitoring:* At the request of the Department of the Environment and Local Government, local authorities in 1992/1993 and again in 1997/1998 carried out an extensive programme of monitoring of surface freshwaters and groundwater. The results of the 1997/1998 monitoring indicated elevated nitrate levels in certain waters, which warranted further investigation.

*Expert Panel:* In light of these findings, an Expert Panel was established which carried out a comprehensive evaluation of the results in the context of the Nitrates Directive. The panel comprised representatives from the following organisations:

- Department of Agriculture, Food and Rural Development
- Department of the Environment and Local Government
- Environmental Protection Agency, and
- Geological Survey of Ireland.

The panel recommended that certain groundwaters be identified as affected waters in the context of the Nitrates Directive. Decisions are pending as to whether there will be designation of specific NVZs, or the requirement of Good Farming Practice as a legal requirement over the whole State.

#### *Natura 2000*

Natural Heritage Areas (NHAs) are the proposed national framework to provide protection for areas of both wildlife and geological importance in Ireland. All other nature conservation designations overlap with NHAs. The NHA network are areas initially identified following ecological survey in the 1970's as Areas of Scientific Interest (ASIs) from a wildlife conservation perspective. In the early 1990s, the ASIs were re-surveyed to ascertain which, if any, retained their special wildlife interest and these were advertised as proposed NHAs. NHAs, which will cover approximately 850,000 hectares was given a legal basis by way of the Wildlife (Amendment) Act 2000.

The conservation of biodiversity in Ireland has been strengthened and expanded by EU law. The EU Habitats Directive (92/43/EEC) requires Member States to designate and participate in the EU *Natura 2000* Network of sites for the conservation of species and habitats, which are of EU importance. This network will consist of Special Areas of Conservation (SACs) established under the Habitats Directive together with Special Protection Areas (SPAs) established under the EU Birds Directive (79/409/EEC). The SACs deal with non-bird habitats and species, and the SPAs with bird species and habitats (particularly wetlands).

Both the Birds and the Habitats Directives have been transposed into national law by way of Regulations. However, the European Communities (Natural Habitats) Regulations 1997, introduced following detailed negotiations with farming and conservation organisations, are more significant as they provide not only for the designation of SACs but also for the protection measures that apply to SPAs as well as SACs.

SPA designations began in 1985 and, by 1997, there were 109 SPAs covering 230,000 hectares. Based on the extensive survey of NHAs conducted from 1992-1994, candidate SACs that met the scientific criteria set out in the Habitats Directive were identified. SACs are being introduced by Duchas, the Heritage Service of the Department of the Environment & Local Government with public advertising of proposed sites and notification to landowners of prohibited actions. Proposed candidate Special Areas of Conservation are shown at Annex 4 of the Plan. Ireland has publicly advertised 363 proposed candidate Special Areas of Conservation, 264 of which have been formally transmitted to the European Commission. The remaining sites are undergoing a system of appeal. The Irish Authorities believe that the long term viability of the *Natura 2000* Network is dependent on securing the co-operation of landowners, and land right holders, whose lands are included in the Network. Accordingly, sites are not transmitted until all outstanding appeals have been processed.

There is a commitment to formally transmit the Irish *Natura 2000* sites to the European Commission by 7 January 2001 to conform with the deadline set down in the Community Support Framework for Ireland, 2000-2006, agreed with the Commission on 7 July 2000. The CSF document also gives a clear and irrevocable commitment to guarantee consistency of its programmes with the protection of sites as provided under *Natura 2000*. These commitments are equally binding in relation to measures under the *CAP Rural Development Plan*. In the interim, the European Communities (Natural Habitats) Regulations, 1997 provide full protection to the relevant sites from their date of public advertisement. Duchas Conservation Rangers regularly monitor activities taking place in candidate SACs transmitted to the Commission and in proposed candidate SACs that have been publicly, advertised and have yet to be transmitted. All SACs and SPAs are visited a minimum of twice a year, the larger sites being monitored on an ongoing basis.

The agri-environment scheme REPS and, particularly, Measure A thereof is a measure which facilitates the implementation of the conservation of *Natura 2000* sites, thus assisting the implementation of the EU Habitats and Birds Directives in Ireland. Farmers with land in SACs and SPAs who are participating in REPS must farm their land in accordance with an approved agri-environmental plan which specifies the restrictions and other conditions necessary to protect the ecology of the site. In this way such areas are protected from deterioration during the course of participation in REPS.<sup>111</sup>

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<sup>111</sup> Details of the conditions applying to such areas are set out in Chapter 4 and penalties for non-compliance are set out in Chapter 5 of the *CAP Rural Development Plan*.

### *Measures to Combat Overgrazing*

In order to eliminate a problem of overgrazing of sheep on commonage areas – a result of subsidy schemes - the Commission approved a new Supplementary Measure A, in 1993 under the Rural Environment Protection Scheme (REPS). This aimed to compensate farmers in those areas for following an agri-environmental plan, which would reduce sheep numbers to sustainable stocking densities and which would have special conditions to allow for the regeneration of degraded areas. The plans would conform with framework plans to be drawn up for each commonage.

A training programme was put in place for over 100 REPS planners and environmentalists who would undertake the task of preparing commonage framework plans. A detailed manual for the production of commonage framework plans in upland and peatland habitats was also prepared. The preparation of the manual and the training of planners and environmentalists proved to be a major time-consuming exercise. Commonage framework plans were drawn up in 10 pilot areas and the results of these pilots were then assessed by the Departments involved. Work on the preparation of the detailed commonage framework plans commenced in January 1999, priority being given to preparing plans for commonages in the six western counties where overgrazing had been identified as the most serious.

When the scale of the task of preparing the individual commonage framework plans was fully realised, Ireland decided that since it was inevitable that detailed framework plans would not become available until 2000, some measure would have to be taken to address the main issue in relation to cross compliance on commonages i.e. the overgrazing problem in commonage areas in the six western counties. Any such cross compliance measure would have to be put in place before the application period for 1999 Sheep headage and Ewe Premium which ran from 8 December 1998 until 8 January 1999. Ireland decided to draw up an interim national framework plan for all commonages.

This interim commonage framework plan incorporated all of the environmental measures in the agri-environment programme already agreed with the Commission. In addition, the interim plan required an immediate 30 per cent reduction in sheep numbers in all commonages in the six western counties. Some 5,000 farmers with commonage land in the counties concerned were identified and informed of the arrangements. Of the 5,000 farmers identified some 1,500 were already participating in REPS. The meat factories agreed to dispose of the sheep and some 140,000 sheep were permanently removed from these commonages. Payment of 1999 and 2000 sheep headage to the farmers concerned was limited to the number applied, subject to an overall ceiling of 70 per cent entitlement and a maximum of 200 sheep (in the case of sheep headage). Similar provisions applied in the case of entitlement to Ewe Premium in 1999 and 2000.

Full cross-compliance was introduced with effect from 2001. It is a condition of the 2001 schemes that farmers with commonage land must be participating in an approved REPS plan (including Measure A) or a National Plan, or have applied to participate in such a scheme before payment can be made under the Ewe Premium, Suckler Cow or Disadvantaged Areas' Compensatory Allowance Schemes. The success of the measures taken to combat overgrazing can be seen in that sheep numbers qualifying for headage in the 6 western counties fell by 10.35 per cent between 1998 and 1999 compared to 7.2 per cent in the entire REPS.



### *6.1.2 Procedures and Process for Considering Environmental Effects in Relation to Forestry*

International concern for the protection of the environment and an awareness of the importance of forests in this context has been increasing in recent years. The world's forests play an essential role in life and economic development, in the protection of ecosystems, freshwater, biodiversity and genetic material, and in climate balance. Their protection, management and sustainable development has, therefore, become an international issue.

Historical events have left Ireland with small areas of indigenous forest, much of which is now protected by conservation measures. About 1,200 hectares of semi-natural forests are protected in national parks and nature reserves. In addition, the Natural Heritage Areas (NHAs) listed by the National Parks and Wildlife Service include other important woodland ecosystems

As the forestry programme is based on planted forests and still relies to a great extent on the afforestation of previously unplanted areas, the changes in local environments, which this alternative land use involves, are the major environmental concerns of the forestry programme. It is a specific provision of the Government's current programme that forestry development must be compatible with the protection of the environment. Planting in areas, which are protected or qualify for protection under EC Directives 79/409 and 92/43 on the Protection of Wild Birds and the Protection of Habitats is possible only with the agreement of Duchas, the statutory, body with responsibility for such areas.

#### *Sustainable Forest Management*

The long-term strategy for forestry in Ireland commits the sector to expanding the forest estate within the principles of Sustainable Forest Management. This implies maintaining the environmental, social and economic value of forestry without damage to the environment.

In order to ensure that these goals are achieved, forest development and management takes place in the context of a *National Forestry Standard*. This standard is structured around a suite of Environmental Guidelines, a Code of Best Forest Practice and amended legislation, supported by effective monitoring. The National Forestry Standard, the Environment Guidelines and the Code of Best Forest Practice became available from the Forest Service from July, 2000.

#### *National Forestry Standard*

This includes criteria, indicators and measures for sustainable forest management based on those set out by the Third Ministerial Conference for the protection of Forests in Europe at Lisbon 1998. Broadly they relate to:

- Maintenance and enforcement of forest resources
- Maintenance of ecosystem health and vitality
- Maintenance and encouragement of productive functions
- Maintenance, conservation and enhancement of biodiversity
- Maintenance and enhancement of protection
- Maintenance of other socio-economic and cultural functions.

Indicators express how these criteria are being met in terms of changes in area, categories of forest and other habitat, timber growth, health, development of controls and planning processes.

#### *The Code of Best Forest Practice*

The Code identifies the three basic values of Sustainable Forest Management, namely: environmental, economic, social and relates them to the performance of forest operations. Each forest operation is identified as follows by:

- Objectives;
- Key factors;
- Operation description;
- Potential adverse impacts;
- Best practice;
- Useful references in relation to each operation are given.

#### *Forest Consent System*

This system was introduced under the European Communities (Environmental Impact Assessment) (Amendment) Regulations, 2001 (S.I. 538 of 2001). The new system which incorporates EIA, was introduced as part of a package of measures agreed with the European Commission in response to the European Court of Justice ruling that Ireland had not made proper provision for the environmental assessment of forestry.

#### *Forestry Guidelines*

Entitlement to aid under the afforestation measure is conditional on compliance with the archaeology, biodiversity, water-quality and landscape guidelines.

1. *Archaeology*: These revised guidelines deal with:

- Law
- Planning procedures
- Sources of records of known archaeological sites
- Impacts of the forestry cycle
- Type of sites
- Contacts needed in the process
- Importance is placed on identifying archaeological sites and protecting them
- Impacts of planting, drainage, harvesting (including thinning) are described
- Site types are described and illustrated

This extends to more recent monuments such as post modern and relatively modern structures such as old farmhouses and town-land boundaries.

2. *Biodiversity*: This new set of guidelines recognises the importance placed world wide on biodiversity in its many contexts. They give the background arising from the UN Convention in Biodiversity 1993 and the subsequent developments of sustainable forest management. They deal with the three conceptual levels:

- Ecosystem diversity
- Species diversity and
- Genetic diversity

Irish forests are described in terms of diversity parameters. Management issues and planning are categorised, such as:

- Landscape
- Site suitability
- Species provenance
- Structure and age
- Dead material in forests
- Open spaces
- Water
- Water areas
- Troublesome species.

3. *Forestry & Water Quality*: The Forestry and Fisheries Guidelines have been revised, widened and updated. The basis of these guidelines is the "catchment" and their classification in water quality management, underpinning this is adequate consultation. Sensitive areas are identified, Riparian and Buffer Zones defined, and their management described.

Forestry operations described with specific reference to the water issue. Recommendations are made with regard to:

- Cultivation
- Drainage
- Fertilisation and storage
- Use of chemicals, herbicides and fuels
- Road making, bridges and culverts
- Harvesting
- Recommendations on survey, mapping and identification are made.

4. *Harvesting*: New guidelines on harvesting focus specifically on this operation. They outline the impacts on:

- Water
- Forest soils
- Landscape
- Historic sites
- Forest health
- Conservation

They describe the impacts, with technical information as to how these occur.

5. *Landscape*: Revised landscape guidelines present forest landscape design in response to landscape character. Objectives of landscape design are introduced with a description of landscape character based approach. Design criteria such as extent, disposition, crop generation and composition of forests are described and typical forestry development scenarios including small parcel and ladder style developments as well as larger areas. Approaches to roads, views, water-bodies and courses are described along with texture and colour aspects of forest blocks.

- Four forest design types are described
- Rolling moorland
- Rolling fertile farmland mosaic
- Drumlins
- Mountain and farmland interface.

The forest cycle is outlined in terms of operations from site preparation through establishment and management to harvest as it impacts on landscape along with guidelines to mitigate, or prevent adverse impacts and to create improvements. These relate to each forest design type.

The use of machinery and the construction of roads and water crossing can affect water quality. Felling coupe size and pattern will be of significance on the landscape. Forest soils are vulnerable to wheel impact and crop removals. Historic sites require careful planning of operations. Forest health and conservation are also vulnerable to machine activities and felling practices.

The guidelines also describe the statutory control of felling. An important section is devoted to harvest thinning and operating guidelines. Strategic, tactical and operational approaches are described. Operating guidelines include felling, extraction, roading, servicing and site restoration.

## 6.2 Economic and Social Infrastructure OP

The NDP identified infrastructure deficits, especially in transport, environmental services and housing, as one of the principal challenges that needed to be overcome if Ireland's recent economic and social progress was to be maintained. An investment programme in economic and social infrastructure was, accordingly, identified by the NDP as a key element of the strategy. This Programme elaborates on the NDP by outlining an integrated package of investments in national infrastructure, including roads, public transport, water and waste water infrastructure, coastal protection, energy conservation and alternative energy supplies, housing and health facilities over the period to 2006.

The Programme provides for a total infrastructure investment of Euro 22.35 billion (at 1999 prices) in six Priorities - national roads, public transport, environmental infrastructure, sustainable energy, housing and health facilities.

### *6.2.1 Procedures and Process for Considering Environmental Effects National Roads Priority*

#### *Archaeology*

A Code of Practice concerning the management of the archaeological implications of the national road development programme was agreed between the Department of Arts, Heritage, Gaeltacht and the Islands and the National Roads Authority in July, 2000. The Code provides that the Authority will appoint a number of project archaeologists to oversee the smooth running of the archaeological elements of road projects. Interviews were held for the project archaeologists and local authorities have appointed or are in the process of appointing 14 archaeologists. A further project archaeologist was appointed to the Authority's Dublin office in February 2001.

The Code will improve the manner in which archaeology related works are carried out and managed. It will assist the carrying out of development in a sustainable way, ensuring that archaeological heritage is identified and preserved, while at the same time meeting specific targets for completion of major road schemes. This points to the need for adequate time and resources for the EIA.

#### *Project Management Guidelines and Environmental Impact Assessment*

The procedures followed by the National Roads Authority and local authorities in the planning, design and implementation of road schemes are specified in the Roads Act, 1993, and the National Roads Project Management Guidelines.

The Roads Act, 1993, requires the preparation of an Environmental Impact Statement for certain types of road schemes and following a period of public consultation, submission of the EIS to An Bord Pleanála for consideration.

Public consultation is catered for at a number of stages in the planning process and, as a matter of practice, is engaged in much earlier than required under the Roads Act. These are set out in the Authority's National Road Project Management Guidelines.

#### *Identification of Constraints*

During the early stages of the planning of a national road project, information is gathered in relation to the various constraints that exist with the potential to affect the design and location of the scheme. These include physical, legal and environmental constraints, among others. A

large-scale map of the study area is displayed at public information sessions, which will indicate broad-band route corridor options considered to be generally feasible.

The purpose of the public information sessions is to involve the public at the early stages of the planning process, to inform them of the procedures involved, and to offer an opportunity to the local authority to learn about issues of local concern, which will be taken into account as the planning process proceeds.

Following this initial period of public consultation, surveys are carried out to identify the potential constraints in greater detail. Based on this and the issues raised at the public consultation, a Constraints Study Report is prepared and submitted to the Authority. The report summarises the major constraints to be addressed to ensure the scheme can proceed in a timely manner and in compliance with all applicable statutory considerations.

#### *Evaluation of Route Options*

The initial assessment work is used to refine the broad corridor alternatives to a small number of route options. These are subject to technical evaluation with the aim of recommending a particular solution.

The route selection process involves:

- Traffic surveys;
- Identification and investigation of corridor options;
- Impacts on land holding severance;
- Broad assessment of environmental impacts of each option;
- Preparation of a budget/cost estimate.

The identification of the environmental impacts of the various options will include, among other things, assessment of potential impacts on local communities and homes, archaeology, flora and fauna, surface water and groundwater, and socio-economic impacts.

The various route options are evaluated based on the criteria outlined above and a Draft Route Selection Report is prepared. This usually includes a matrix in respect of routes showing the evaluation of environmental impacts and the other assessment criteria for determination of the most appropriate route option. The Draft Report is submitted to the local authority and the public for comment. The final Route Selection Report recommends a particular solution to the road need and is presented to the National Roads Authority.

#### *Preliminary Design and Statutory Procedures*

A preliminary design of the scheme is prepared and land-acquisition requirements are determined. If required, (and in many cases, even when it is not required) an Environmental Impact Statement is prepared and submitted to An Bord Pleanála with the CPO/Motorway Scheme. The preparation of the EIS is carried out in parallel with the preliminary design, and as impacts are identified the necessary changes can be incorporated into the scheme design to avoid or mitigate significant effects.

The EIS will identify, among other things:

- Human environment;
- Habitats and ecology;
- Landscape and visual;
- Archaeology;
- Air quality;
- Noise.

- Water quality, fisheries, and groundwater; and
- Agricultural severance.

In situations where a formal EIS is not required, studies will be conducted so as to better inform the route selection process and environmental mitigation measures.

#### *Research Projects*

Under the Environmental Research, Technical Development and Innovation (RTDI) sub-measure of the Operational Programme for the Productive Sector, 2000-2006, the Authority is supporting research projects relating to the environmental impact of road schemes. The projects concerned are:

- *Study of Environmental Impacts and Parameters for Inclusion in the Economic Evaluation of Road Schemes*

The objective of this research project is to review current practice and make recommendations as to the feasibility of attributing monetary values to environmental impacts in the cost benefit analysis of road improvement schemes. This project is near to completion.

The study will address the following:

- Identify appropriate environment parameters and impacts for inclusion in cost benefit analysis in respect of major road improvement projects;
  - Assign appropriate monetary values to such parameters and impacts;
  - Identify best practice in other countries in relation to incorporating environmental costs into cost benefit analysis, and
  - Assess the adequacy of the existing environmental data sources in Ireland to facilitate the assignment and incorporation of environmental costs in the cost benefit analysis together with recommendations for future data collection requirements, where appropriate.
- *Scope of Transport Impacts on the Environment*

This project will carry out a review of available information relating to the environmental impacts of the transport sector. This study is near to completion.

The study will address the following issues:

- Undertake a review of the recent international literature on the environmental impacts of the transport sector and on the integration of environmental considerations into transport planning and operations;
- Examine the present state of knowledge on these issues in Ireland, identifying important available information as well as the gaps in knowledge;
- Review published reports and papers and available unpublished material to determine the environmental significance of the transport sector in Ireland, in particular, information of relevance to strategic environmental assessment of the sector;
- Consult with all relevant organisations and prepare an inventory of on-going studies relevant to the impacts of transport on the environment in Ireland;
- Identify issues not covered or not significantly addressed in past and on-going research and monitoring, and

- Recommend essential research aimed at the integration of environmental considerations more fully into the transport sector and the opportunities presented by new technologies for undertaking such research.

Other research projects included in the RTDI which are of interest to the NRA are:

- *Air Quality - Transport Impacts and Monitoring Networks*

This is a large-scale integrated air quality research project, the aim of which is to provide information which will assist in devising strategies to meet the requirements of the EU Framework Directive on Ambient Air Quality Management and Assessment and its daughter directives.

- Research under the following four areas will be carried out:
  - Nature and origin of PM<sub>10</sub> and smaller particulate matter in urban air;
  - Designation of monitoring networks;
  - Validation of air pollution dispersion modelling for the road transport sector under Irish conditions, and
  - Determination of emission factors from various transport vehicles under 'idle' conditions.
- *Assessment of the Impacts of Highway Drainage on the Aquatic Environment*

The objective of the project is to examine the performance and environmental impact of current road drainage systems and practices on the aquatic environment in Ireland.

Issues to be considered will include:

- Increased runoff intensity. This may increase flood flows in smaller rivers and streams which may be considered a problem where there is already a history of, or significant risk of, flooding of property;
- Adverse water quality impacts can occur in rivers and streams receiving road drainage associated with dissolved and suspended matter washed from road surfaces. The quality of surface water runoff from roadways varies enormously with antecedent conditions, with the initial runoff following a dry spell (first flush) potentially containing significantly greater pollutant loads, compared with later flows;
- The effect of road drainage sediments on riverine and other habitats, and
- The contamination of groundwaters by infiltrating road drainage.

It will be important to address the issue of insuring adequate monitoring and maintenance of road drainage facilities.

- *Environmental Quality Objectives-Noise (Relatively Quiet Areas)*

The European Commission Draft Directive on Environmental Noise aims to reduce the harmful effects on human health due to environmental noise exposure, and take actions to reduce noise where necessary and to maintain environmental noise quality where it is good. The Environmental Protection Agency is considering how this objective may be applied in a national context.



The project will involve:

- Investigation of the current position in Ireland with regard to legislative provisions and protocols governing environmental noise and the specific protection of relatively quiet areas in the open country;
  - Examine all environmental quality standards relating to environmental noise contained in such legislation, with particular attention being given to perceived gaps in the coverage by such standards, and
  - Propose comprehensive environmental quality objectives for environmental noise where such objectives have not already been embodied in current or imminent EU legislation.
- 
- *Other Research Initiatives*

In addition to supporting research activities under the Environmental RTDI Submeasure, the Authority commissioned Enterprise Ireland to undertake a baseline assessment of ambient air quality in Nenagh Town pre and post the opening of the new Nenagh By-Pass (July, 2000). The study was based on a 10 week monitoring programme of those pollutants produced predominantly by vehicular traffic, i.e. nitrogen oxides, fine particulates and non-methane volatile organic compounds. The study concluded that there was a definite improvement in ambient air quality in Nenagh resulting from the opening of the By-Pass.

While the monitoring recorded no significant difference in the hourly NO<sub>x</sub> concentrations pre and post opening of the By-Pass, the hourly mean concentration of NO for the pre opening period was approximately 35 per cent greater than the post opening mean concentration. This is all the more significant given that 95 per cent of total NO<sub>x</sub> emitted directly from traffic comprises NO. In relation to non-methane volatile organic compounds, a 38 per cent reduction was observed in both the mean hourly and daily concentrations in the monitoring period post opening of the By-Pass. Concentrations of fine particulate matter did not follow the trend in NO and NMVOC. The study suggests that concentrations of this pollutant may be significantly influenced by dust from a local commercial source deposited on the road surface.

Enterprise Ireland was also commissioned to conduct a survey of noise levels in Nenagh pre and post opening of the By-Pass. Noise measurements were made at a number of locations in the town in June and October 2000. Sound levels are measured in units called decibels (dB). Environmental noise levels are usually assessed in terms of A-weighted decibels, the dB(A), with the A-weighting approximating to the response of the human ear. A doubling or halving in road traffic equates to a change in noise levels of 3 dB(A).

Noise measurements made on what was previously the main road through Nenagh indicate a significant reduction in levels after the opening of the By-Pass. The most significant reduction appears to be due to the early morning heavy commercial vehicles using the new section of the Dublin-Limerick route.

A comparison between the pre and post By-Pass measurement results at four locations showed reductions of between 1 and 4 dB(A), and an increase of 1 dB(A) at one of the locations. The increase at this location is due to the fact that it is not on the main N7 route and probably carries mostly town traffic.

### *Environmental Indicators & Monitoring in Relation to National Roads Priority*

The following environmental indicators are contained in the National Roads Priority:

- Traffic on each transport node, including traffic volumes, in National Primary Routes;
- Associated emissions by node (subject to availability of data); and
- Land-take implications, if any, for SACs, along with details of population centres benefiting from the removal of though traffic associated with the national roads development programme.

The Progress Report relating to 2000 contains information on these indicators. Subsequent Progress Reports for the first half of 2001 and the year 2001 do not appear to contain information on these indicators.

Progress Reports provide commentary as regards the environmental assessment framework and research projects described above.

### *Public Transport Priority*

The Public Transport Priority is being implemented through two measures, the DTI Public Transport and Traffic Management Measure and the National Public Transport Services Measure.

Under the DTI Public Transport and Traffic Management Measure, the development strategy for public transport in the Greater Dublin Area will focus investment on:

- Development of the light rail network (LUAS)
- Implementation of a short-term development programme for suburban rail designed to exploit much more fully the potential of the network
- Preparation and commencement of a longer-term suburban rail development strategy
- Developing, extending and increasing the capacity of the bus network
- Promotion of greater transport integration
- Traffic management measures.

The development strategy for national public transport services focuses on:

- Mainline rail, including railway safety, improvements and renewal and upgrading of track
- Improvements in public transport services outside the Greater Dublin Area and improving accessibility, to public transport services for mobility-impaired and disabled people.

The total planned investment in the DTI Public Transport Services Measure over the period 2000-2006 is Euro 2.073 billion, (£1.633 billion). The total planned investment under the National Public Transport Measure over the period 2000-2006 is Euro 978 million, (£710 million). Of this, Euro 479 million will be spent in the BMW Region and Euro 500 million in the S&E Region.

There is no doubt that the investment in public transport will have the kind of environmental effects envisaged in the pilot eco-audit checklist.

Transport is acknowledged in all developed countries as one of the most difficult challenges to achieving more sustainable development. Society's requirement for mobility of people and

goods has been growing and this trend has been accelerated by the increasing integration of EU and global markets.

Air quality in Ireland is generally good according to current ambient air quality measurements. However, transport is a significant source of some pollutants, particularly in heavily trafficked urban areas. The trends for emissions from individual vehicles for most pollutants are downwards as fuel technology and technology for removing pollutants from exhaust emissions, continue to improve. However, the increasing numbers of vehicles on the road and increasing vehicle miles travelled are outweighing the technological improvements in some respects.

New standards for ambient air quality relating to a range of pollutants, including NO<sub>x</sub> and PM<sub>10</sub>, are due to come into operation at EU level over the coming years. Proposals for standards are also expected in respect of CO, benzene, lead and polyaromatic hydrocarbons, which are transport related emissions. Where existing standards are being revised, the new standards will be significantly more onerous than at present.

The major growth in the transport sector, particularly the passenger car sector, has counteracted reductions in NO<sub>x</sub> emissions from the power generation and industrial sectors which were achieved during the last decade.

Of all sectors, the transport sector is expected to show the greatest increase in emissions over the next decade, predominantly emissions of CO<sub>2</sub>. Estimates of CO<sub>2</sub> emissions for 2000 show an increase of 31.9 per cent, or 28.9 per cent, when counted on a net basis. In 1990, the transport sector contributed approximately 15.7 per cent of Ireland's CO<sub>2</sub> emissions and 9.5 per cent of emissions in the basket of six greenhouse gases.

Within the transport sector, there has been a dramatic increase in private transport ownership and usage, resulting in a substantial growth in traffic over the past number of years. While fuel and emissions efficiencies within each class of car are increasing, there have been trends towards purchase of larger vehicles, reducing the overall fuel efficiency of the fleet. As a result, transport sector greenhouse gases are set to grow further both in absolute terms and as a proportion of total greenhouse gas emissions.

A broadly based package of integrated and mutually reinforcing measures will be required to tackle greenhouse gas emissions in the transport sector. In broad terms, the challenge for all pollutants from the transport sector will have to be met through a combination of the following:

- The active encouragement of more efficient road vehicles, having regard to EU voluntary agreements with vehicle manufacturers on CO<sub>2</sub> emissions, standards for other vehicle emissions, and standards for fuel quality under the EU Auto Oil Programme.
- The promotion of beneficial modal shifts to public transport to reduce the dependence on the private car, particularly in urban areas
- Integrated demand management, i.e. through policies such as economic instruments and land use planning to reduce or moderate the demand for mobility or to cater for it more rationally.

Of the total planned Operational Programme investment in roads and public transport, 31 per cent will be spent on public transport measures, mainly in urban areas. This compares to 9 per cent and 24 per cent of the roads and public transport total on the 1989-1993 and 1994-1999

programmes respectively. This substantial increase in investment will facilitate major improvements in public transport infrastructure and rolling stock. These improvements will be complemented by traffic management measures designed to promote a beneficial modal shift particularly in urban areas.

Hence, the overall environmental impact of the National Roads and Public Transport Priorities is expected to be positive. The programme is consistent with the objectives and strategy outlined in the Sustainable Development Strategy.

However, the impact/result indicators contained in the OP i.e. journey times and passenger numbers do not directly facilitate environmental assessment.

### *6.2.2 Procedures and Process for Considering Environmental Effects: Environmental Infrastructure Priority*

#### *Waste Water*

This Measure will involve the provision of waste-water collection, treatment and disposal systems including the extension and upgrading of existing sewerage infrastructure. Local authorities have been requested to prepare sludge management plans on the basis of guidance and a model plan issued to them. Capital funding will be provided to ensure that a modern sludge treatment infrastructure is put in place. Continued investment will be made to eliminate, as far as possible, serious pollution of rivers, to reverse and minimise levels of slight and moderate pollution, and to reverse and minimise the eutrophication of lakes. Eighty-six schemes will require funding over the NDP period to achieve compliance with the UWWT Directive. Further schemes will be prioritised taking account of their anticipated contribution to the objectives of the Priority.

Catchment monitoring and management projects have been implemented for Loughs Derg and Ree, Lough Leane and for the rivers Boyne, Liffey and Suir. Funding will be provided for the completion of these initiatives and for the identification of other important catchments. Additional investment is also planned to monitor the effects of the implementation of waste-water infrastructure and other pollution abatement measures. This catchment-based approach is in line with the planned EU Framework Directive on Water Policy, which will require the management of water resources at river basin level, and complements the requirements of the UWWT Directive.

It is planned that extended catchment maintenance and management projects will be implemented to help meet the needs of the Directive. The first such project has been put in place in the South East encompassing an area that includes the catchments of the rivers Slaney, Barrow, Nore and Suir and adjacent transitional and coastal waters.

The following environmental impact indicators in respect of waste-water treatment are contained in the OP.

Length of river classified as unpolluted ( per cent)

Baseline	67
Mid Term	72
Final	80

Area of lake classified as unpolluted ( per cent)

Baseline	65
Mid Term	75
Final	88

While impact indicators of the type given here are to be welcomed, targets in respect of the other classes may be more appropriate depending on the circumstances.

The Progress Report for the year 2001 notes that: the EPA Report on *Water Quality in Ireland 1998-2000* confirmed an increase in the length of unpolluted river channel for the first time since national surveys commenced in the 1970s. It shows an increase from 67 per cent in the 1995-1997 period to 70 per cent in the 1998-2000 period. And improvements are recorded in the length of river channel where pollution is 'slight' (17 per cent down from 18 per cent), 'moderate' (12.4 per cent down from 14 per cent) and 'serious' (0.8 per cent previously 0.9 per cent). The improvement is attributed to the wide range of catchment-management measures applied, particularly in the large projects promoted by the Department of the Environment and Local Government.

93 per cent of the 957 sq. km surface area of the 304 lakes surveyed (64 per cent, of lake surface in the State) was assessed as unpolluted. Unpolluted lake surface area increased by 28 per cent since the previous review. A large majority, (86 per cent), of the 314 lakes surveyed were classified as satisfactory. A reduction in chlorophyll levels in Loughs Ree and Derg which changed them from slightly polluted to unpolluted is partly due to the implementation of a major programme of remedial measures, including phosphorus removal at 17 waste water treatment works serving the principal urban areas in the catchment.

#### *Water Supply*

Investment is intended to meet water supply deficiencies by the provision of additional capacity and to complement activities being undertaken as part of the other measures set out in the Environmental Infrastructure Priority. The investment will also ensure that public water supplies continue to achieve a high level of compliance with the requirements of the DW Directive.

A number of water supply projects that will meet these objectives are being progressed through planning stage and will be advanced to construction as quickly as possible. Further projects will be identified under the Water Services Investment Priority and advanced. The results of the National Water Study, and work being undertaken by local authorities to assess their water services needs will assist in the identification of appropriate actions, including investment in treatment and supply capacity which will be considered for funding under this Measure.

The following impact indicators are contained in the OP:

Compliance of public water schemes with DW Directive ( per cent)

Baseline	92
Mid-term	94
Final	100

The adoption of the *Water Pricing Framework* reported in the Progress Report for the first half of 2001, represents an important step towards improving allocation of water resources. In

addition the *EU Water Framework Directive* entered into force in December 2000 and also will serve as a major impetus to improved water management.

The Progress Report for 2001 notes that the EPA Report on *Drinking Water Quality for 2000* was published in December 2001. The Report concludes that the overall quality of drinking water in Ireland is generally high with an overall compliance rate of 94 per cent, with prescribed standards. This is in line with the target for Mid Term.

#### *Water Management & Rehabilitation*

Conservation measures are a key to sustainable use of water resources. The delivery of additional water supply capacity through leakage control and better management is a viable alternative to new capital infrastructure. Hence this Measure is likely to yield positive environmental effects.

#### *Sustainable Energy*

In principle the measures contained in this Priority, namely energy conservation and promotion of alternative/renewable energy have desirable environmental effects. However, at end 2001 both measures were running 18 months behind schedule.

#### *Sustainable Housing*

Environmental appraisal to secure sustainability in respect of housing development is provided through a number of channels principally legislative and regulatory.

The *Planning and Development Act, 2000* (No. 30 of 2000). - This legislation now requires a sustainable development ethos in respect of spatial planning. In particular this is reflected through the requirements for development plans to plan more effectively and strategically for more sustainable development patterns, for example, in a way that minimises transport and energy consumption, makes more efficient use of land resources, protects amenities and the natural and built environment.

Decisions on permission for individual projects will have to be in accordance with the proper planning and sustainable development of the area and the development plan. This Act was brought into force in stages, with the final commencement on 11 March 2002.

*Part L* (conservation of Fuel and Energy) of the national *Building Regulations* requires buildings to be designed and constructed as to secure, insofar as is reasonably practicable, the conservation of fuel and energy. A supporting Technical Guidance Document specifies the insulation levels and other measures that would achieve compliance with this requirement. The required standard was updated in 1997.

In September 2001 consultation documents on the revision of Part L of the Building Regulations on conservation of fuel were issued. These envisage moving to improved standards in a single step, by the currently proposed operative date of 1 July 2002, rather than on a phased basis in 2002 and 2005, as originally proposed. The new standards are estimated to reduce the requirements for space and water heating by 23 per cent, resulting in a lowered requirement of 33 per cent, depending on the type and size of the dwelling. In the context of a requirement for 50,000 houses per annum to 2010, bringing forward the date of implementation means that the greatest proportion of these new houses will benefit from the improved standards.

On current patterns of fuel use, a reduction of 300,000 tonnes CO<sub>2</sub> per annum for 2012 will be delivered by this measure, more than meeting the target reduction of 250,000 tonnes CO<sub>2</sub> set in the *Climate Change Strategy*.

*Home Energy Rating:* A number of voluntary methods of Home Energy ratings are currently applied in Ireland. A version of Home Energy Rating called Heat Energy Rating is currently an optional method of showing compliance with building regulations. The Irish Energy Centre is undertaking the development of a national Home Energy Rating programme.

*Regeneration of Housing Areas:* The regeneration programmes have a positive impact on greenhouse gas emissions, as all new units are built to current standards and refurbished existing units are brought to a higher standard than heretofore.

In Dublin major redevelopment works to inner city flat complexes are underway, at a total cost of over Euro130m spread over a five-year period 1999-2003. In total almost 900 new and replacement units and over 260 refurbished units will be provided.

The Area Regeneration Programme underway in Dublin, upgrading high-density older housing complexes, includes window replacement, the installation of central heating and roof replacement. Since 1997 new windows have been installed in over 2,000 dwellings, central heating installed in over 5,500 dwellings and roof replacement has been completed on 12 flat complexes.

Phase 1 of the Glen project in Cork City, estimated to cost over Euro 50m, includes the demolition of one block of flats, the refurbishment of the remaining 12 blocks and the construction of almost 50 new houses.

The local authority Remedial Works Scheme continues to upgrade, renovate and redevelop publicly owned housing stock, with 15,000 dwellings refurbished since the scheme began. The extent of works carried out to dwellings varies from project to project. Where an extensive programme of refurbishment works is carried out, measures are taken to improve thermal insulation in accordance with the Building Regulations.

### **6.3 Human Resources Development OP**

The Employment & Human Resources Development OP addresses the labour market and human capital needs of the Irish economy for the period 2000-2006. The programme is devised within the context of the National Development Plan 2000-2006, with the Community Support Framework for Ireland 2000-2006 and with the European employment process.

The Operational Programme has as one of its stated objectives to contribute to the protection and improvement of the environment. It will do so by integrating environmental considerations in the interest of sustainable development, in particular by promoting awareness of environmental issues and by taking account of the various requirements in this field set out in the Community Support Framework.

The present Operational Programme combines a range of actions implemented under a variety of operational programmes over the previous period. It is to be noted that the existing environment-supporting activities from the 1994-1999 OP are to be maintained. In addition, there are new areas of effort - notably: a group of life-long learning measures where the precise scope for environmental activity remains to be established. In principle life-long learning should provide scope for a range of approaches across the typology classification above but the particular focus for the measures proposed on second chance education and on basic literacy and numeracy may well narrow the actual scope to types 1 or 2. Explicit social economy measures are another new feature, which are expected to result in type 4 (if not also types 5 & 6) support.

An *ex ante* Pilot eco-audit, based on the foregoing considerations concluded that 34 of the 51 measures or sub-measures in the OP should have the capacity to yield positive environmental dividends.

The Managing Authority will seek to establish environmental indicators and targets with the implementing bodies. The Authority will also seek to use any desk research results, which may be produced at the CSF level, in this context. It is proposed that these will be incorporated into the list of priority indicators, which will be used in Annual Reports and in reporting to the Monitoring Committee.



## 6.4 Productive Sector OP

The productive sector is the driver of economic growth and delivers jobs and wealth. The objective of the Productive Sector Operational Programme is to promote this role by enhancing Ireland's business environment and infrastructure. Total expenditure under this OP is projected at close on €5.7 billion (at 1999 prices) and consists of four Priorities. The two main Priorities, absorbing 90 per cent of support, are RTDI (Research, Technological Development and Innovation) and Industry (consisting of Indigenous and Foreign Direct Investment). A Marketing Priority covers marketing directed at indigenous industry, the food and seafood sectors and tourism. The final Priority is devoted to development of the sea fisheries. A fifth item promotes development of local activities on a north / south basis, many of which have environmental implications or bestow environmental benefits, but there is no eco-audit checklist or reference to it in the Programme Complement so we do not cover it here.

By way of introduction, the OP's activities under the eco-audit process consisted of assembling information about protection measures from the implementing bodies and reporting on them in an "Environmental Assessment" (Appendix II of the OP). This one is probably the most detailed of all the OPs' environmental assessments. Four eco-audit checklists were filled in, reproduced here in Appendix 4.

### *6.4.1 Procedures and Process for Considering Environmental Effects: The Operational Programme*

Section 1.9.1 (p. 22 of the OP) looks at the environment under the heading of "Horizontal Issues", summarising clearly the measures and legal requirements that are in place and new measures that are expected to be undertaken. These measures indicate that safeguarding and enhancing the environment are mostly already in hand. Main examples of safeguards in place and new measures that are described are as follows.

- Existing requirements include the Building Regulations that will apply to building within the RTDI Priority and to other capital projects. Some detail on the Building Regulations has already been given under Housing in the section on the Economic and Social Infrastructure OP, above.
- In relation to RTDI and agriculture, some of the proposed activities consist of research that seeks to assess environmental implications, including quantifying emissions and identifying strategies to reduce them. Such research should be beneficial to the environment by its nature.
- With regard to Marine RTDI, the Marine Institute is to ensure that supported activities fully comply with the principle of sustainable resource development
- Proposals relating to indigenous industry that are put before Enterprise Ireland are audited by their Environment Unit and FDI projects are additionally scrutinised for type and technology. The activities of Enterprise Ireland are discussed in more detail under the Industry heading below.
- All manufacturing projects must receive planning permission from the Local Authority or An Bord Pleanála, significant ones have to complete an Environmental Impact Statement either under EIA regulations or to comply with IPC or Waste Management Licensing requirements of the EPA.
- Industrial regionalisation will be consistent with the National Spatial Strategy currently being developed.

The above examples inevitably lead to the questions: to what extent are existing measures that are in place adequate, or implemented adequately, to protect the environment? Are there measures that were flagged as forthcoming but have not occurred yet, and what effect has this delay had on projects?

The “Environmental Assessment” given in Appendix II of the OP elaborates on the contents of projects and gives more detail on the protective measures that are in place. The Environmental Assessment does not hold out much promise of indicators of environmental performance, however. This can be seen from the summary given here, which covers each Priority in turn.

### *RTDI*

All measures in the RTDI (Research, Technological Development and Innovation) Priority are to be assessed by the relevant units, e.g. Teagasc in the case of Agriculture RTDI, the Environment Unit in Enterprise Ireland in the case of Industry RTDI (about which more is given under the Industry heading below). Furthermore many of the RTDI projects are expected to have a positive environmental impact by their nature. In the education sector RTDI, environmental education and awareness-raising are important components of some programmes. Capital projects will as a matter of course comply fully with regulations and in some cases will be exploring aspects of sustainability in their building design. RTDI in agriculture concerns research in three main areas, which are rural viability, rural environment and competitive and sustainable agriculture, the last two having a strong environmental focus. The environmental RTDI programme is intended to focus on gaps and to link with previous and other related work on the environment. The marine RTDI is grounded in sustainable development in so far as the areas covered include research vessel capacity, laboratory upgrade and they focus on monitoring, management advice and so forth. The forestry RTDI aims to improve knowledge about biodiversity of forests, about biological as opposed to chemical controls, carbon sequestration, and the effects of afforestation on water quality through erosion, siltation, eutrophication and through interception of pollutants in the air.

### *Industry*

When industrial projects are proposed they are screened and where relevant assessed and visited by the Environment Unit of Enterprise Ireland, which draws up environmental conditions that must be signed by the company before grant release. Companies may be re-visited and grants withheld [checking if this has happened]. The Environment Unit has long experience and has a track record of constructive analyses of industrial environmental issues. The assessment of foreign direct investment, which is dealt with by IDA Ireland, is fully integrated with the system of the Environment Unit of Enterprise Ireland, and does not require separate description.

Enterprise Ireland’s environmental auditing<sup>112</sup> is carried out at two levels – sectoral and project level.

### *Sector level*

Where a sector plan is being formulated for a particular sector, the Environment Unit of Enterprise Ireland audit the plan in the context of its potential environmental implications. The conditions necessary to protect the environment are identified leading to modifications in the plan. Where possible negative implications are identified, an appropriate control strategy

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<sup>112</sup> This description was supplied by Enterprise Ireland

is formulated including guidance on:

- Site selection
- Cleaner Production
- Control technologies
- Training
- Environmental management

Examples of recent auditing of sector plans include the beef strategy and fish processing.

#### *Project level*

At project level, proposals for support are screened for possible environmental implications under each heading of the eco-audit checklist. Where a project is flagged to be of 'significant' or 'of some significance' to the environment, it is passed to the Environment Unit of Enterprise Ireland for environmental assessment.

1. The assessment normally involves a site inspection (for an existing facility or a Greenfield site);
2. It involves an assessment of the company's emissions and legislative compliance such as compliance with the EIA and IPPC directives (planning permission, emission licences etc.);
3. The Environment Unit draw up environmental conditions which the company must sign before grant release. Conditions identified may include site suitability, adequate emission controls, adequate infrastructure and suitable receiving environment;
4. Companies may be re-visited for inspection, compliance and verification purposes;
5. If a company is not compliant with the conditions set out and agreed, some or all of the grant will be withheld until a definite programme of improvement is put in place.

Under this Priority, Enterprise Ireland promoted dedicated initiatives under the title Positive Action. These initiatives improve environmental performance, rather than simply protect the environment, and consist of:

- Environmental Management System (EMS) grant scheme  
Aimed at promoting the installation EMS in SMEs
- Environmental Audit and Waste Minimisation Grant Scheme  
Aimed at promoting cleaner production and best environmental practice in SMEs
- Environmentally Superior Products – Demonstration Grant Scheme  
Aimed at winning business through developing environmentally friendly products.

When asked about the resources needed for undertaking the above tasks, Enterprise Ireland explained that this was their core work and that they have a dedicated staff of 3 or 4 full-time scientists and engineers. The eco-audit procedure for the NDP was for them not a new task but rather a new framework.

On the question of how do they ensure that the process is maintained, they explained that this happens automatically because companies have to engage with them as a requirement of the

Local Authorities or the EPA. Follow ups might be a weakness in so far as Enterprise Ireland do not always have the resources, but they usually do find compliance when they return two years later. Indeed they thought that there may be instances of overkill in requirements of some small firms, where it would be interesting to see if the measures required did “not entail excessive costs”.

### *Marketing*

The direct environmental effects of this activity would be minor. The indirect effects are broadly covered by considering the production processes of the products being marketed. These are covered under the relevant sections.

A pilot initiative on Tourism and the Environment aims to demonstrate how particular problems affecting tourism and the environment might be dealt with. Issues such as peak time charging for environmental services to tourist accommodation and the problems relating to the built heritage, mentioned in the introduction, would be worthy of consideration and investigation.

### *Sea Fisheries Development*

Modernisation, renewal of fleet and purchase of safety equipment, and also innovation and sustainability measures, are the main substance of this Priority. Criteria for projects involving fleet modernisation include diversification of effort into under-exploited species. Innovation and sustainability measures concentrate on diversification, provision of fisheries data and conservation initiatives. Installation of nets that allow fewer juvenile fish to be caught and measures to help sustain lobster stocks are some of the important positive features.

### *Managing Authority perspective*

From the perspective of the Managing Authority, the eco-audit process was a completely new task and seen in that light its undertaking represented substantial progress. The tasks required were demanding of staff that were already stretched. They were inexperienced in the area and were up against constraints on time. Ideally they would have liked to talk to more people in order to make sound judgements on the information provided by no less than eight departments and 14 agencies reporting to them. It was felt that while a lot of information was available it required an expert to be able to judge it adequately.

The fact that the OP is so diverse is a hindrance because expertise has to be so wide. It is hard to have a feel for the validity and worth of, for example, certain monitoring systems if one has not had time to become familiar with them. The Managing Authority was echoing sentiments that might be expected in situations where judgements had to be made without a background of experience. Taken in conjunction with the detail and breadth of content of the Environmental Appraisal, these sentiments indicate that the implications and responsibility of the task were taken seriously.

### *6.4.2 Procedures and Process for Considering Environmental Effects: The Programme Complement*

Descriptions were given above of the eco-audit process at the stage of formulating the OP. At the risk of appearing repetitive, it is now useful to consider the manner in which environmental protection is subsequently dealt with in the overall programming process, by checking the further information that appears in the Programme Complement. This document gives among other things the details of the Measures in the OP and the Implementing Bodies.

After giving the administrative details and so forth, the Programme Complement provides a short statement under the heading “Environment Proofing” that describes the effects of the Measure on the environment and the indicators for monitoring the environmental results. In the summary that follows, each priority is again taken in turn.

### *RTDI*

Where RTDI in education is concerned, the very obvious environmental benefits of research that is environmental in theme and the manner in which education in general is thought to impact favourably on the environment<sup>113</sup> are again noted in several instances. It is not considered possible to provide relevant indicators though it might have been worth recognising that for any measure that involves purchase of equipment, the type of equipment purchased and the decision criteria can have sizeable and long-term implications for energy use, for example. Not only can the efficiency of the equipment itself be important, but also the equipment-using routines of staff as well as the existence or otherwise of inter-departmental costing/charging routines can make a difference.<sup>114</sup> Indicators on equipment efficiency might be worth considering if this is not already taken care of in the regulations.

In one of the sub-measures, the RTDI Competitiveness Scheme, it is stated that a technical assessor would examine possible environmental impacts and recommend action. The following description of how applications are assessed was again provided by Enterprise Ireland.

“The application is assessed by a Commercial Assessor and by a Technical Assessor. The approving Committee is presented with assessments of the project which incorporate comments on the thirteen criteria, including the technical feasibility of the project, the track record of the company in R& D and on the basis of environmental criteria. In relation to the environmental clearance the technical assessor is required to ascertain;

- If there is a possibility that the given project could have a negative impact on the environment.
- If the company should be required to submit an environmental clearance certificate with their claim
- And the applicant must indicate if there are any environmental issues which will slow down the claims process.”

It is possible that the statement on environment proofing in some cases understates the potential for good results, for example Collaboration in an International Context could raise environmental awareness. An instance might be exposure to advanced practices abroad for dealing with solid waste.

Under Agriculture RTDI an eco-audit checklist is to be provided under each project and this has been completed.

The scarcity and absence of environmental indicators is noted and those that appear are often necessarily of the “Response” kind. An example under RTDI Forestry is the indicator which expresses expenditure on environment-related research as a proportion of overall expenditure on forest R & D. Indicators in the Programme Complement relating to the all-important

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<sup>113</sup> It would be possible to throw some light on this relationship, using data held by the ESRI.

<sup>114</sup> As discussed in relation to Third Level Education in the BARRIERS project (O'Malley *et al.* 2002).

“State” of the environment, or “Pressures”, do not appear here. The statement relating to the Industry Priority: Food Agricultural products Measure (page 130), that “an environmental indicator or target is not appropriate in the case of this measure” may not be strictly true. The measure includes capital support for investment in processing of agricultural products and the before and after impacts on the environment may well be measurable. There have been examples from elsewhere in the past, such as the sale of washed vegetables, where the *net* impact of the methods chosen produced bad side effects including more chemicals, packaging and the like. The measurement of such impacts should be attempted. In practice however, there is the problem that baseline data at such a level of detail is not available, though the direction of impact would be measurable. In other cases, which aim to improve the environmental quality, the statistics on the programme itself by its nature can be, and is, regarded as an environmental indicator. This will be discussed further later.

### *Industry*

The Industry Priority - Seafood Processing states under “Environment Proofing” that there will be full compliance with environmental requirements and that the introduction of more modern and environmentally friendly technologies will alleviate environmental impacts. As a near-on 50 per cent growth in processed output over the period 1998 to 2006 is envisaged alongside development of some large-scale processing units, it is important that appropriate technologies and practices and adequate tracking of the outcome be in hand. This is emphasised by the statement in Enterprise Ireland’s *Strategic Environmental Assessment of the Irish Fish Processing Industry* by Kelly *et al.* published in 2000 that, in contrast to other food processing sectors, little effort had been made at control management of environmental emissions. However, by virtue of its predominately coastal location, the sector has not been a source of significant water pollution nationally, though pollution incidents have been recorded.

The Enterprise Ireland report states that waste water discharges from the fish processing industry are regulated through licensing by the local authority, which sets emission limits. Disposal of solid wastes is regulated by various licences and permits. The EPA (amendment) Bill is to be published at the end of 2002, which brings in IPPC (Integrated Pollution, Prevention and Control) licensing. The report reckons that IPPC licensing will apply to about ten per cent of fish processing companies, that is to companies involved with “animal raw materials” with production capacity of over 75 tonnes of output (item 6.4b). It is not clear that the report’s recommendations for the industry, concerning siting, technology, waste treatment and training are being implemented at present, though environmental regulation will automatically tighten with time.

The statement in relation to Foreign Direct Investment (FDI) - Employment Grants, and also in relation to Capital Grants, notes that the sectors targeted along with the limitation to “gateway” locations both work in the direction of reduced environmental impact. The indicator proposed is the number of projects checked for environmental compliance, which is again a kind of “Response” indicator. A worthwhile development might be indicators of pollutants and discharges of various sorts expressed per job or related to value added, as piloted in a recent project for EUROSTAT (2001) [discussed later]. One of the difficulties encountered in that study was the lack of concordance between emissions data and economic data collected by the CSO, so that it proves difficult to take the environment out of its “peripheral” corner. According to the Programme Complement the criteria for selecting projects that should be awarded grants include appraisal “by an economic model, which measures the benefits against costs”. A step towards including the relevant environmental

costs, if this is not taken care of already by the model, might be to incorporate the pollutants and discharges in the model - and also the costs - both the financial costs incurred by services such as waste water treatment as well as working assumptions about environmental costs, of greenhouse gas emission permits for example.

The only proposed environmental impact indicators for industry are rather scanty and of the “Response” type. The indicators are the number of IPC licences, which on their own would not give much information as to the actual quality of the environment or improvement to it, and the numbers of registrations and certifications for EMAS and ISO 14001. However the indicators do ensure that the projects themselves stand up to scrutiny.

### *Marketing*

The environmental indicator for Marketing targeted at SMEs is also of the “Response” kind. It gives the number of environmental audits undertaken (page 175), and is the most relevant in the circumstances. Perhaps something similar could be achieved with the Food Sector Marketing Measure, as it is noted that a positive contribution to the environment will be a plus in the selection of projects. Information recorded through the selection process, may be amenable to assembly into an indicator. The indicators under Seafood marketing are output measures which show that the value of fish exports, processing output and aquaculture output are expected to grow by 34, 46 and 112 per cent respectively. It is remarkable then to read the statement relating to Seafood Marketing under Environment Proofing as a mere “Not applicable”. As this measure consists of an indirect subsidy to an activity that is a focus of attention concerning its environmental effects, upstream and downstream, it would be preferable that there be some indicator. Ultimately some form of accreditation should be applied, as in the timber industry for example, to reassure one that the fish product “comes from stocks that are sustainably managed”.

The statement in relation to the Tourism Marketing Measure affirms that Ireland is “not promoted as a mass tourist destination” and that sustainable tourism is developed by spatial and temporal dispersal. On the other hand if there are not very careful safeguards on spatial dispersion against the ‘nibble nibble effect’ of small, continuous encroachments on remote and semi-wilderness areas, for example, then Ireland could be losing assets. Furthermore remote and semi-wilderness areas are becoming increasingly unique assets.<sup>115</sup> This is presumably an aspect that the Spatial Strategy will address. In addition environmental infrastructure costs also play a role, and realistic charging for infrastructure and environmental services, its existence or absence, could be added to the indicators. For example “extent of full cost recovery” of environmental services would be an important indicator of (benign) pressure. Full cost would also include environmental costs, under full implementation of the Water Framework Directive.

### *Sea Fisheries Development*

In relation to Sea Fisheries Development, the decommissioning of boats and their scrapping have to be undertaken subject to methods approved by the Department of Communications and Natural Resources and BIM. The Supporting Measures for Fisheries Development include the introduction of improved fishing gear in order to reduce the volume of undersized and non-target species taken, which is a strongly positive environmental measure. Handling technology, conservation and improved commercial approach are also targeted. The

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<sup>115</sup> For example, a recent study by Balmford (2002) shows that preserving wilderness is worth more to humans than the farm or building land that could replace them. “We’ve been cooking the books for a long time by leaving out the worth of nature” Constanza (1997).

environmental indicator, again and probably necessarily of the “Response” kind, is “Percentage of fleet using recognised on-board quality assurance schemes” (page 196). The percentage is foreseen to rise from a baseline of 0 per cent to a final target of 20 per cent. The low percentages may reflect the possibility that a low share of the fleet will be availing of this measure, rather than reflect a low environmental aspiration. It is hoped that the supported increased landings of non-quota species refers to species that are fished within biologically sustainable criteria, that are verifiable.

The environmental selection criteria for deciding which applications should receive support under the measures target people or groups whose incomes are already dependent on the relevant stocks and who will be diversifying. The measures also target projects that improve the quality and price of the product, expressed in unit value of landings. This environmental selection criterion is environmental in type particularly if the trade-off is increased value in place of quantity. The measure supporting collection of basic data has environmental selection criteria that are presumably intended to screen out concentration on relatively insignificant fisheries and that focus on depleted stocks, and also on where the data would hold out the prospect of having a significant impact on the stock.

The upgrade of the whitefish fleet under the measure aimed at Renewal & Modernisation of the Fishing Fleet will improve the safety and efficiency and, with improved disposal systems and so forth, the fleet will become more environmentally benign. Obviously the last attribute is dependent on the sustainability of the fish stocks and independent indicators that indicated the sustainability of stocks would be welcome.

The foregoing summaries of the environmental content of the Programme Complements show that the process performs its role of providing information quite well in the circumstances, though whether it would be able to indicate that the project-specific environment is improving is a moot point. The environmental protection measures that are in place, combined with the Positive Action on the “Environmentally Superior Products Initiatives” and “Environmental Management Systems” and fish processing measures, proposed in the *Strategic Environmental Assessment*, do point to environmental improvements.

Finally, in this assessment of the role of eco-auditing in the Productive Sector, it can be said that the job was conscientiously undertaken such that to our knowledge there have been no projects that escaped scrutiny of their environmental effects.



## 6.5 SE and BMW Regional Operational Programmes

The SE and BMW Regional Operational Programmes entail total expenditures of 5.4 and 4.1 billion Euro, respectively. Each OP has four Priorities. The largest constituting over half in both regions is the Local Infrastructure Priority, dealing with non-national roads, rural water, waste management, urban and village renewal and E-commerce. The Local Enterprise Development Priority is concerned with tourism, micro-enterprises, Regional Innovation Strategies, forestry and port infrastructure, and aquaculture. The Agriculture and Rural Development Priority consists of general structural improvement including farm waste management. Finally, the Social Inclusion and Childcare Priority also includes crime prevention and youth services and so forth.

As part of its eco-audit task, this OP includes a section, of a half to one and a half pages in length, under the heading Environmental Impact for each of the four priorities. In addition each Priority is subjected to an eco-audit checklist in Appendix D of the OP. Next, the Programme Complements give a short paragraph or so describing each Measure's expected impacts on the environment and the Performance Indicators include some indicators that relate to environmental aspects. The BMW Regional OP has written a Progress Report (of 24 April 2002), which includes statements about the expected environmental effects of each Sub-Measure, under the heading Horizontal Issues. The SE Regional OP has written reports for the Environment Coordinating Committee, in October 2001 and autumn of 2002, which describe the selection criteria and integration of environmental considerations, as well as environmental indicators.

With a few exceptions, the bodies that implement the projects under the regional programmes are the same ones that deal with projects under the OPs already described above. It is therefore not considered necessary to delve into much detail about the methods employed to protect the environment under the regional OPs. A summary and a few issues will be selected for discussion here.

### 6.5.1 *Procedures and Process for Considering Environmental Effects*

Many activities in this programme are by their nature beneficial to the environment. Of those that would have potential for damage, the procedures for environmental protection outlined in the other OPs are likely to apply, although the scale is smaller and might be below the threshold requiring an Environmental Impact Assessment, for example. This applies in the case of most road projects that appear in this OP under the Local Infrastructure Priority. The Tourism issues have also been discussed above. In particular the issue of spatial spread in relation to Tourism discussed under the Productive Sector OP also applies here. (Check Jeanne Meldon's point)

In relation to the Fishery Harbours, Gaeltacht Islands and the Aquaculture Measure it is explained that these will have both a positive and a negative impact on the environment. To illustrate the pluses and negatives it is explained that "Further development of remote and peripheral areas will put pressure on local infrastructure. However, it should help stem migration from these areas to urban areas where environmental pressures are greatest." As mentioned before, some of the pressures on local infrastructure can be addressed by resources management. Where aquaculture is concerned it is stated that it "can have damaging effects on the marine environment and on wild fish-stocks, promoters seeking funding will be required to implement best practice in relation to environmental management and studies to

monitor the impact of aquaculture will be undertaken”.

Measures that fall under the Agricultural and Rural Development Priority will be subject to the same requirements for protection of the environment as discussed under the CAP Rural Development Plan. Accordingly, where relevant, the code of good farming practice (GFP) applies, which covers 13 areas of activity where farmers must comply with certain requirements. These cover waste, habitats, nutrient and pesticide use and so forth and are comprehensive.

Some projects in the Social Inclusion and Childcare Priority will have a direct or indirect impact on the built environment and projects will automatically be covered by the same regulatory controls outlined before. Social inclusion measures will help people in disadvantaged areas to participate more fully in community life and promote a positive attitude to their locality, which should indeed be helpful to the broad environment.

#### *Managing Authority perspective*

The Managing Authorities for the two regional programmes, the Southern and Eastern Regional Assembly and the Border Midland and Western Regional Assembly, seem to have found the experience of undertaking the eco-audit a satisfactory one. They felt that they had had the benefit of being able to graft on to other OPs that had projects in the same fields and they could therefore rely on many of the same processes for checking to see that the environment would be protected.

The OP had to be submitted in April 2000 and during the subsequent six months the eco-audit was approved. As has become a familiar description by now, they felt that the major deficiency was the constraint on time. It appears that nothing changed in the OP on foot of the eco-audit, which is not unexpected given that there would not be time. However, some alterations were made on foot of comments made by Comhar and by the EC Directorate General for the Environment. The major consideration was to ensure that no action would be in breach of legislation.

We will look at the role of the eco-audits in the overall programming process by reference to the information role and the possibility of feedbacks, up and down the administrative chain, provided by the indicators. The quality and relevance of the indicators will be commented on.

The Programme Complements for the SE and the BMW Regional OPs give an ex ante environmental evaluation of each measure consisting of a sentence or two mostly describing the protective measures in place. The Performance Indicators given for each sub-measure include environmental indicators where it was possible to obtain them. The implementing body will, according to the Programme Complement, compile a bi-annual report on performance indicators at measure level setting out progress against initial objectives and targets. A few of the major ones and the follow-up in the Progress Reports will be outlined here.

Indicators for the Non-National Roads Measure give km improved/maintained. Where roads are likely to have significant adverse effects they will be subject to EIA. Importantly, the framework for air quality management being developed by the EPA including the use of new mobile quality monitoring units will, over time enable air quality in the regions to be better assessed.

The Indicators for the Rural Water Measure are number of plants, number of persons benefiting and the proportion of plants complying with Drinking Water Regulations. The Progress Report explains that the bulk of resources under the Rural Water Programme should be directed towards improving drinking water owing to the imminence of the deadline of December 2003 for compliance with EU and national legislation. The key effectiveness indicator given in the Progress or subsequent reports is the number of persons benefiting from the new or improved schemes. The number to date in the BMW OP is 28,000, which is a useful indicator.

The Waste Management measure consists of investment in waste recovery and recycling infrastructure as well as hazardous waste landfill capacity. The key effectiveness indicator in the Progress Reports is the weight of biodegradable municipal waste disposed to landfill, other indicators being the percentage of municipal waste disposed to landfill, the percentage recovered and the percentage of packaging waste recovered. There are no figures on the outturn to date as there has been no expenditure but these would be good indicators, especially if broken down into identifiable geographical areas.

The performance indicators of Urban and Village Renewal are quite imaginative. In addition to the number of projects completed there is the number of public buildings improved and the percentage of centres supported that show higher marks in the Tidy Towns competition after completion of projects. For Heritage Conservation, a sub-measure further down the list, the key indicator is number of heritage sites improved. There is another possibility that would be closer to the "state" or "pressure" aspects, which is the proportion of listed buildings (or buildings proposed for listing) safeguarded by the measure, though admittedly this would be a more demanding indicator to derive. It would however show the extent to which the NDP was addressing problems besetting the built heritage mentioned in Part 1 of this report.

Under habitat protection and conservation, consisting of visitor and study centres, the key effectiveness indicator is the number of visitors to new or improved visitor centres. This would give a reasonable idea of the "information" imparted. Information/education are important elements of environmental protection. There is a serious issue here raised by Comhar and it is not clear to what extent it has been given consideration. Many of the less populous unfrequented places happen to be sensitive areas and important habitats. Attraction of added numbers of visitors could be detrimental unless carefully planned. These facilities might especially focus on helping to impart further understanding of nature in early education, early education being also a cost effective long-term investment in habitat protection.

Another issue arises in the case of the Arts and Culture Facilities and the SE Regional OP's National Cultural Collecting Institutions. The indicator is the number of visitors, which is likely to be a very good measure of the success of the project. Where culture facilities are concerned care is needed at the decision tier as to whether the supply side or the demand side of culture (including early cultural education) need most aid. Unbalanced concentration on the supply side is predicted to reduce the price that suppliers/performers can command, an unintended side-effect.

The tourism and recreational angling sub-measure should have a generally positive impact on the environment on foot of the improvement, conservation and expansion of fishery habitats and stocks and so forth. The indicator is the number of Fisheries improved. As with many indicators it would be good if the outcome of the project could be put in context somehow

and could indicate whether such projects ought to be scaled up or down. Environmental improvements can sometimes be measured in terms of, for example, changes in water quality, state of the fish population, and so forth. Value (that is environmental improvements) for investment monies spent would be a helpful environmental measure, as suggested in the *Ex Ante Evaluation of the NDP 2000-2006* . Unfortunately the figures on which to base such indicators would only materialise after a time lag, though they would be worth investigating.

The Woodland sub-measure has indicators that are very pertinent, including grant-aided hectares planted, improved, reconstituted or with facilities, and also carbon dioxide sequestration. The key effectiveness indicator for harvesting needs a note to clarify why the target for environmentally sustainable harvesting systems is that they constitute only 20 per cent of the grant-aided harvesting fleet. (Perhaps it could be calculated as a per cent of grant-aided harvesting fleet used on environmentally sensitive sites.)

The Aquaculture Development Measure has indicators in the Progress Report that give value of aquaculture output for the region and numbers employed. There are no environmental indicators except one that gives the per cent of operators participating in Quality Assurance Schemes. According to the Progress Report, decisions on grant aid were made by the Aquaculture Selection Board during the fourth quarter of 2001, twenty private firms and two public projects having been approved. Instructions for eco-auditing are given in the *Procedures Manual - EU Grant Schemes (OP for BMW RA and OP for SE RA)* (DoMNR, 2002) which calls for quantification of environmental effects. [It has not been possible to review this with the relevant persons.]

Given that the volume of national output from aquaculture is projected to increase from 46,203 tonnes to some 97,023 tonnes between 1999 and 2008, with a contribution of 30.69 million euro from public funds, this activity has the potential for big impacts and has been the focus of some concern. The EUROSTAT study *op. cit.* suggested that aquaculture had relatively high pollution per job and per unit of value added, but two qualifications are needed. The first is that the data were not robust and the second is that the siting of fish-farms in estuaries means that much of the pollution is dispersed. This suggests that further analysis and monitoring are required. Aquaculture is not subject to IPC licensing by the EPA. In its *Millennium Report* the EPA described many difficulties that have been associated with salmon farming, an activity that had seemingly proceeded without adequate information about the carrying capacity of the area and potential consequences.

The Report of the Scottish Executive (2002) describes the areas for concern. These are enrichment by fish-farm nutrients, the long-term effects of medicines and anti-foulants, infective larval sea lice that may be associated with marine salmon farms, the major threat from escaped fish (that interbreed with wild populations leading to loss of genetic variability including loss of naturally selected adaptations), and the potential demand/supply imbalance of industrial fishmeal and fish oils. They conclude that the nutrients issue is probably only a cause for concern in heavily-loaded sea lochs. They state repeatedly, however, that the absence of long-term monitoring makes judgement difficult.

Such problems suggest the need for thorough appraisal and the initial introduction of a few small-scale enterprises, accompanied by monitoring and reporting. Satisfactory evidence that damage is not occurring is needed because the environmental assets at risk are valuable.

The sub-measures promoting farm waste management, improvement of dairy hygiene and animal welfare standards, carcass disposal and so forth are described as able to make a major contribution to the quality of rivers and lakes. The indicators for these sub-measures (some of which could not be implemented owing to foot and mouth disease) do indicate environmental progress, as the measures are of the improving variety. As part of the RTDI studies on eutrophication, the Three Rivers Project indicates what the actual results might be in the relevant areas. More studies are planned, for example in the South East River Basin District Project. These should specifically include the objective of helping overall management to prioritise projects and informing future decisions on investment. Indicators here could call on the detailed results of the EPA's monitoring

The dairy hygiene indicator of bacterial count is pertinent and useful. Indicators for horticulture and potatoes under Alternative Enterprises have numbers of growers in an approved quality scheme. As mentioned Good Farming Practice rules (see above and see the ESI OP) are pervasive and also apply.

The Social Inclusion and Childcare Priority has little or no direct impact on the environment except in broad terms and any building activity would be subject to the usual building regulations and standards.

In sum the indicators described in the Programme Complements and Progress Reports could play an important role in the overall management of the OP, but more in the limited sense of providing a record of what was done. In other words these are largely "response" indicators. This is inevitable and satisfactory in many cases and given the resources. Some are also indicators of compliance with regulations or standards, and as such are an important monitoring tool. However many do not provide the sort of environmental managerial information that would enable decisions for reviewing, scaling and prioritising measures to be made. Where aquaculture is concerned we have not seen indicators described.

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