

STRIVE

Report Series No.37

Pilot Programme for Establishing a Regional Eco-Business Recognition Mark

STRIVE

Environmental Protection
Agency Programme

2007-2013

Environmental Protection Agency

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EPA STRIVE Programme 2007–2013

**Pilot Programme for Establishing a Regional
Eco-Business Recognition Mark**

(2006-UE-MS-48)

STRIVE Report

Prepared for the Environmental Protection Agency

by

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The EPA STRIVE Programme addresses the need for research in Ireland to inform policymakers and other stakeholders on a range of questions in relation to environmental protection. These reports are intended as contributions to the necessary debate on the protection of the environment.

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Macrooom E

Macrooom E is an eco-industrial park and enterprise centre that is strongly committed to supporting economic development in the Lee Valley Region and to promoting environmental good practice. It is the ambition that the E Business Park and E Centre will provide a supportive environment for companies to grow, generating industry and employment in the Lee Valley Region.

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Executive Summary

1 Objective

This pilot for establishing a regional eco-business recognition mark, funded under the Environmental Research Technological Development and Innovation Programme 2000–2006, set out to examine the effectiveness and efficiency of applying a combination of training, networking and use of a locality-related performance recognition mark to enhance the environmental and economic performance of small- to medium-sized enterprises (SMEs).

SMEs are thought to have a substantial collective impact on the environment. The SME sector has been identified as problematic in terms of environmental issues and tends to lag behind its larger counterparts in terms of environmental activeness and performance, and therefore requires assistance to improve this area of its business operations.¹ Promotion of certified environmental management systems is often undertaken as a route to improving environmental performance, but this has generally been unsuccessful with SMEs.² Therefore, this project examined the possibility of adapting a successful and well-established Austrian environmental recognition mark model and applying it in an Irish context. The long-term expectation of such a transferable award programme is the improvement of the local sustainability, environmental awareness and economic performance of SMEs.

The main basis of this research project was to pilot a *self-help programme* for business in a defined area, and to establish whether this model has potential for use across the SME sector. The use of a locally recognised award as a driver for fostering community spirit, environmental networking and improved

business efficiencies was also an important aspect of the research.

The area involved in this research, Macroom town and hinterland, was chosen due to it being a typical provincial Irish town. The format of the model applied was based on the well-established ÖkoBusinessPlan Vienna programme that has been functioning well since 1998. This programme is a business support model developed by the local authority to enhance environmental and economic performance, through the medium of limited consultancy and workshop-based training. Importantly, its continued success is driven by an awards scheme that sustains interest from participating businesses.

2 Summary of the Methodology

The following are the main steps of the methodology used during this programme:

- Identify the area and potential businesses for inclusion in the programme.
- Examine other similar awards, how they approach this work, the support materials and tools and the standards that they use. Also, develop a nationally recognisable logo for the promotion of good environmental practice in the SME sector.
- Based on this research, develop a transparent and replicable environmental awards programme that has continual improvement as an underlying tenet.
- Apply this model in the chosen area over a 2-year period. This time frame allows for two groups of participants as well as for the evolution of the methods employed based on constant feedback from the people involved. Such feedback is an essential element in the diffusion of innovation.
- The Eco Business Ireland Award programme so developed involved training workshops, back-up support, on-site assistance, a review audit and an awards ceremony.

1. Hallinan, P., 2003. *The SME Battle against Environmental Performance*. 16th Annual Conference of the Small Enterprise Association of Australia and New Zealand.

2. Hillary, R., 2004. Environmental management systems and the smaller enterprises. *Journal of Cleaner Production* 12: 561–569.

- Finally, the programme was reviewed from the perspective of the participants and the external managers to reveal both the good and the unsuccessful elements of such an awards scheme.

3 Main Findings

From the work done and the feedback from those involved, the following main conclusions and recommendations can be made:

1. The 'conventional' environmental management methodology, based on continual improvement cycles, extensive documentation and quantification, has been shown to be inappropriate for micro- service-oriented enterprises. This methodology works well for the larger (say >20 employee) operations.
2. A more appropriate methodology, based on a checklist approach, has been identified. The key components to be addressed by this methodology have been identified and are presented in the later version of the workbook³. Infrequent increments of improvement occur in very small enterprises. Each of these may be associated with a step change identified in the checklist.
3. This programme was based on an annual award that works for larger businesses that are used to setting annual end dates. A more target-based 'in your own time' style programme would be more appropriate for the micro-enterprises that characterise typical Irish provincial towns.
4. The technical knowledge required for even small changes may be absent from small enterprises, particularly in the service area. However, this should not be a surprise since this knowledge is

often weak in large service operations, e.g. hotels.

5. Direct intervention and explicit advice are required by the majority of micro-enterprises. Such intervention must be highly efficient to be cost-effective and therefore must be targeted at sectors that are known to have high environmental impacts (e.g. hotels, pubs, garages) and are homogeneous so that explicit checklists and, preferably, benchmarks can be rapidly devised.
6. With relation to intervention, the heterogeneity of businesses was an issue. As there was a difference in the scope and size of the participants, the training sessions were, in the main, quite generic. Thus, sector-specific issues that arose were then examined during the on-site visits which resulted in a higher time requirement than initially allocated.
7. The timescale to improvement is affected by social factors, not solely economic ones. Gains may take a long time to realise and perseverance is needed to continue promoting change.
8. Minimum and more advanced criteria have been identified and a scoring system proposed, should an award system be desired.
9. The lessons learned from this project have already been adapted in developing the vintners' guidance in Monaghan County, under the auspices of the Environmental Protection Agency's (EPA's) Local Authority Prevention Demonstration (LAPD) programme and several local authorities are seeking to apply the methodology in the new EPA Local Authority Prevention Network (LAPN) programme. This project has been the proof-of-concept or prototype vehicle from which practical implementations may be deduced.

3. *Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

1 Introduction

This pilot for establishing a regional eco-business recognition mark was funded under the Environmental Research Technological Development and Innovation (ERTDI) Programme 2000–2006. This action research pilot study examined the effectiveness and efficiency of applying a combination of training, networking and use of a locality-related performance recognition mark to enhance the environmental and economic performance of small to medium-sized enterprises (SMEs). The basis of the project was to adapt an established Austrian environmental recognition mark model and apply it in an Irish context, with a view to improving the local sustainability, environmental awareness and economic performance of SMEs.

The main basis of this research project was to pilot a *self-help programme* for business in a defined area, and to establish whether this model has potential for use across the SME sector. In this case, Macroom town and hinterland were chosen due to the typical nature of the town from an Irish context. The format of the model applied was based on the well-established ÖkoBusinessPlan Vienna programme that has been functioning well since 1998. This programme is a business support model developed in Vienna by the local authority to enhance environmental and economic performance, through the medium of limited consultancy and workshop-based training. Importantly, its continued success is driven by an awards scheme that sustains interest from participating businesses. The basis of this Viennese-type model was identified in a study commissioned by Forfás (A&L Goodbody Consulting and the Clean Technology Centre, 2005) and presented by the project proposer as having potential application in Ireland. Therefore, the ÖkoBusinessPlan Vienna model was taken as a blueprint for designing an Irish programme along similar lines. In addition, the Clean Technology Centre's (CTC's) experience in developing the Green Hospitality Award (GHA)¹ recognition mark for Irish hotels was also included in the programme design.

The Macroom area, situated in the Lee Valley of Co. Cork, was chosen for a number of reasons:

- The region has been the subject of previous CTC projects^{2,3} to evaluate the potential and practice of networking in the area and the environmental performance of enterprises.
- The local authorities and enterprise support agencies have already undertaken environmentally related initiatives and are favourably disposed to and capable of developing the approach.
- It has a diversity of businesses typical of small Irish rural towns.
- The make-up of the area is typical of towns in Ireland – it is a market town with a centre square and mart.
- It has an eco-park in development which promotes green business to its members and other businesses in the area.
- It is formally establishing a waste exchange and training network that would provide a foundation for this project.

The choice of Macroom immediately set this Irish model on a different course than that used in Austria. Vienna is a city of over 1.6 million people with over 35,000 SMEs. While a similar model could have been applied to Dublin and possibly Cork, the idea behind this model was to design something that could be applied and replicated across Ireland in rural towns which are represented by a wide variety of diverse

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1. Green Hospitality Award, CTC and Hospitality Solutions Consulting Ltd, funded by the National Waste Prevention Programme, EPA, 2008–2011.
 2. European Commission Project EVG1-CT-1999-00003: Evaluation of Networking and Innovation Diffusion as Mechanisms for Sustainable Production (INNET), 2000–2002.
 3. Higher Education Authority, Zero Emissions and Waste (ZEW), Programme for Research in Third-Level Institutes, 2002–2004.

SME-type businesses. In such areas the majority of participants will be smaller businesses with a number of medium businesses also present.

While typically the term SME refers to small businesses employing under 50 people, in the Irish context of the provincial town small generally refers to family-run businesses often employing no more than 5–10 people. Thus, Macroom was an ideal choice to test such a model at the micro-scale (Fig. 1.1).

1.1 Study Objectives

This project was commissioned by the EPA, and funded under the ERTDI 2000–2006 programme, as part of a medium-scale research programme aimed at studying the urban environment in Ireland and how to improve it in a concerted and sustainable manner.

The main objectives of this project were to:

1. Develop a recognition mark applicable to business environmental performance in a defined region, using a localised version of the ÖkoBusinessPlan Vienna approach.

2. Pilot the approach using a capacity-building model to allow businesses to help themselves.
3. Perform a gap analysis to identify tools that may be applied to businesses and to the network in the locality to facilitate and promote environmental sustainability.
4. Develop a data set of improvements according to a generally applicable classification system.
5. Provide public access for other businesses to the data set via the Internet.

1.2 Project Structure

This action-based research was performed, in the main, according to the distinct work packages as set out in the project tender. As with any research project, some work packages evolved into larger aspects of the work while others changed due to limitations/requirements that became evident while implementing the programme. The main work packages were:

- **Work Package 1:** Initial recruitment of companies and local promotion of the scheme;



Figure 1.1. Macroom town square on market day.

- **Work Package 2:** Local business analysis and local network evaluation;
- **Work Package 3:** Development of support materials, training and on-site assistance;
- **Work Package 4:** Development of the recognition mark, the different award levels and the minimum criteria associated with each award level;
- **Work Package 5:** Improvement database compilation and refinement of the programme support materials; and
- **Work Package 6:** Evaluation and recommendations.

2 Initial Local Work

While any local initiative must consider the needs and wants of the individual groups, the key action is to bring them together under one umbrella, moving in the same direction – i.e. that of local sustainability. The bringing together of these groups is a longer-term goal; it would be very difficult to achieve this on a short-term basis. With this in mind, the recruitment of local business and the establishment of an informal network were undertaken at the outset.

2.1 Local Networks

Within the Macroom area there are a number of existing formal and informal networks. It was initially hoped that some of these could be utilised to enhance the Eco Business Ireland Award. The major stakeholders identified are shown in Fig. 2.1.

It was hoped that this programme would initiate a sense of local participation amongst the various groups and generate a sense of trust and identity that is essential in such recognition programmes. The training sessions did provide the basis for an informal

network in the area and this facilitated an exchange of ideas and information between the participants. There was some synergy stimulation between the members on waste management and energy efficiencies (e.g. combined cardboard waste management, some internal reuse, internal consultation on similar efficiency initiatives – mainly in the form of improved lighting upgrade, etc.).

2.2 Steering Committee

In response to the need for a local input into the programme, a steering committee was established early in the programme. The objective in this was to bring together some of the identified stakeholders in order to provide oversight in the programme's development and evolution. In the first year the steering group consisted of the following:

- EPA – two people, one from the Green Business section in Wexford and one locally from the Iniscarra offices;

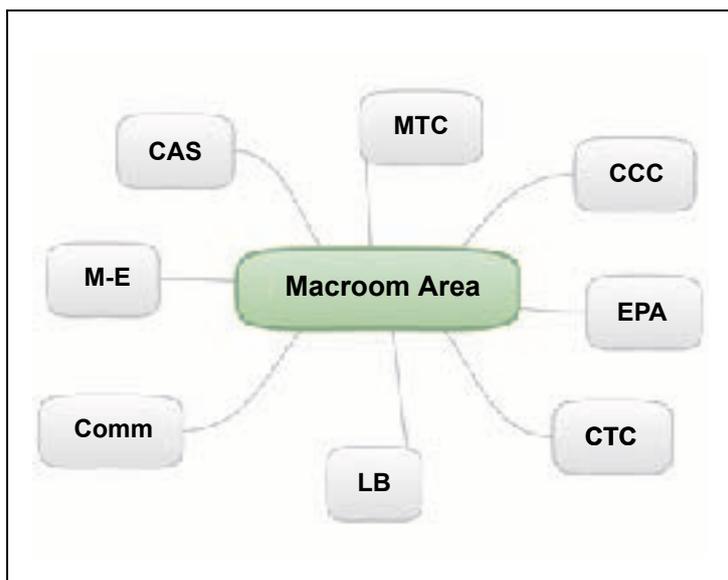


Figure 2.1. Representation of the individual groups currently working in the Macroom area. Comm, local community; CAS, Civic Amenity Site; CCC, Cork County Council; MTC, Macroom Town Council; M-E, Macroom E; LB, local business, CTC, Clean Technology Centre; EPA: Environmental Protection Agency.

- Cork County Council – one person from the Environment section;
- Macroom E – two representatives;
- CTC – two representatives; and
- Local business – one representative (in the first year, the head of environment from a local manufacturing company; in the second year, one of the Eco Business Ireland Award participants from Year 1).

The steering committee provided a good forum for teasing out ideas and examining different approaches in the context of the locality.

2.3 Initial Recruitment of Companies

A detailed assessment of Macroom town and its hinterland was carried out by members of the study team to determine the geographical area to be included in the project.

Macroom (Irish: Maigh Chromtha) is a small market town, lying in a valley, on the River Sullane, a tributary of the River Lee, between Cork and Killarney. It could be described as a typical rural town with a dominant main street and central square, a live animal mart and a town market, which results in strong links between the town and the surrounding rural agricultural area.

A radius of 25 kilometres was decided upon in order to incorporate the rural areas that would associate themselves with Macroom. Beyond this distance, the unique aspect of 'localness' could be lost as affiliations with other 'competing' towns with similar businesses and make-ups to Macroom would have occurred. This had the potential to dilute the effectiveness of the local area brand that was deemed to be an important factor for its local success.

This connection with the rural hinterland was one of the determining factors when deciding on the limits of the area within which businesses were to be chosen for the programme.

2.4 Business Recruitment

The project team put much thought into the recruitment of the companies for this pilot programme. Whether to make this a sector-specific programme or whether to

open the workshops to all sectors so that learning could take place across industry sectors was considered. It was agreed that, as the regional nature of the project was of the utmost importance, efforts would focus within a 25-kilometre radius of Macroom Town. There was some interest from businesses outside this area and they were accommodated in the pilot where the travel distance was not too great. By restricting the geographical area for selection, it was also felt that this would allow networking between the businesses based in the local community, which would foster ongoing relationships and communication after the programme finished.

Macroom and the Lee Valley region have been making endeavours towards becoming a 'Green Town' or Eco-Town for a number of years and it was felt that this type of environmental programme for businesses could raise the profile of the town and increase its economic and tourist potential (as both a good place to visit and to work). The ambition was to target businesses particularly located on the Main Street of Macroom so that, once the business had successfully completed the training programme, it would display both the E Mark and its plaque showing the award on its premises.

It was envisaged that displaying the programme's mark and award plaque would be a marketing tool for the business and that it would also raise awareness of the programme and the endeavours of the town to become an Eco-Town.

In terms of recruitment then, the project team used the following criteria for targeting businesses:

1. Regionally based, i.e. within a 25-km radius of Macroom Town;
2. Visibility of business to others – particularly Main Street, Macroom;
3. Interest in participating in the programme; and
4. Not manufacturing specific, i.e. any business could apply once it complied with Points 1–3.

Macroom E has been in operation since 2004 and so would be known by a good number of local businesses and would have community support for its objectives in

the community. These contacts were used in recruiting businesses for the programme, along with press releases, mailshots and brochure distribution, as detailed later under promotional activities.

Interested businesses were asked to contact the Macroom E Centre with any questions and to discuss getting involved in the programme. When businesses had more technical questions at this stage, Macroom E asked CTC to follow up with the businesses.

From discussions with the local participants it was learned that the main motivation for becoming involved in the programme seemed to be twofold in nature:

1. Businesses felt that by participating in the programme they were contributing in some way to the development of the town and that they were getting behind the agenda of making Macroom an Eco-Town; and
2. That it would lower their operational costs – waste, water, energy, etc.

2.5 Local Business Evaluation

In general, the businesses based in the Macroom area are predominantly service based, with a scattering of small industry. Macroom was previously a much more industrialised area with a number of large industries (GSI, Nevilles, Ship Co. Ltd, etc.). However, during the 1990s and early in this decade, these businesses closed. Consequently there were only a limited number

of production-based companies available to target in the area.

Small-scale service-based businesses are not well served by many existing environmentally driven business-focused schemes (e.g. ISO 14001), which are more suited to production companies.

A database of the majority of companies in the area was compiled by Macroom E, which included information on the number of employees, contact details and business specifics. Those companies with a larger number of employees, for which it is believed the study would be most beneficial, were identified as being potentially key actors due to their scope for application and consequently for disseminating their findings. Figure 2.2 summarises the breakdown of various business sizes in the target area. A more detailed evaluation is shown in Appendix 1 of the Supplementary Information⁴.

This business demographic may be considered as typical of rural Ireland with the concentration of large industries being closer to the main cities and ports. A more detailed examination of the micro-sized businesses that are most common in the Macroom area showed that they were, in general, service-based businesses with a strong familial basis. The majority of environmental award schemes for businesses adhere

4. *Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

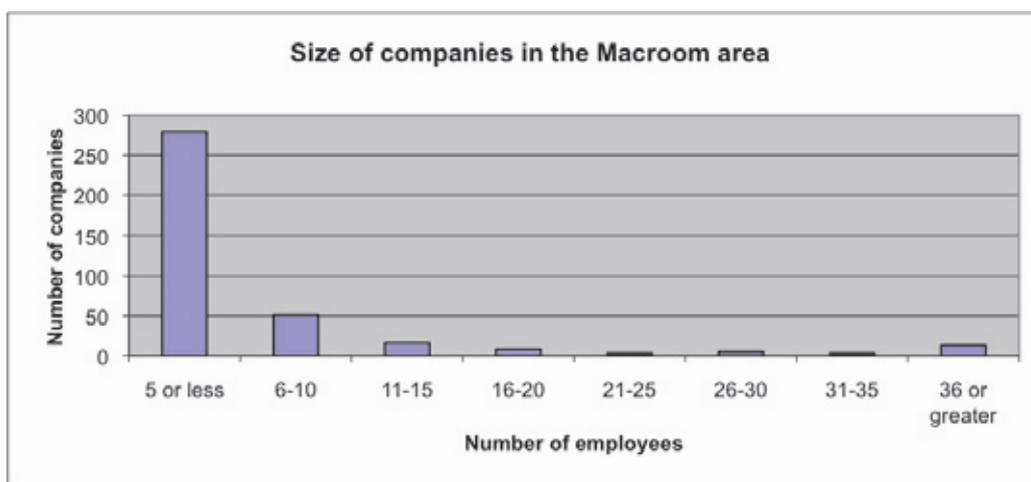


Figure 2.2. Distribution of businesses, based on number of employees, in the target area.

to the continual improvement cycle. In this model, continual self-assessment and examination of performance is paramount and this pilot was an investigation into the appropriateness of such award schemes for the micro-sized businesses that are so fundamental in the non-urban/rural make-up in Ireland.

2.6 Marketing and Promotion

As an initial promotional step to advertise the project, a mailshot was organised and approximately 400 businesses around the Macroom and Lee Valley area were sent a letter (Appendix 2 of the Supplementary Information⁵) describing the project, along with a brochure (Appendix 3 of the Supplementary Information⁵). This letter also served as an invitation to attend the launch of the project and it included a fax-back sheet as a means for businesses to register their interest in participating in the first programme. Local officials were invited to attend the launch, as well as members of the local press (*Evening Echo*, *The Corkman*). Prior to the launch, Maeve Bowen, Manager of Macroom-E, wrote a press piece, which was featured in *The Corkman* (Appendix 4 of the Supplementary Information⁵), further promoting the event and the project.

2.7 Launch

The project was officially launched on 1 December 2006 and was attended by several officials, among them the then Minister of State at the Department of the Environment, Heritage and Local Government, Batt O’Keeffe, as well as the then Mayor of Cork County, John O’Shea, and the then Mayor of Macroom, Cllr Connie Foley. The launch aimed at formally introducing the programme to the public and at giving local businesses a chance to learn more about it and to register interest in participating in it.

Following the launch, three articles appeared in local papers, giving further exposure to the programme and informing businesses on how to register for it. Following the registration of 12 companies, the first programme started in early 2007.

5. *Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

2.8 Brochures and Other Promotional Items

The brochure was designed in-house by Macroom E, in an effort to keep costs down. It was printed professionally and was distributed via mailshot to all relevant locations. A sample of part of this brochure is shown in Fig. 2.3 with the actual brochure shown in Appendix 3 of the Supplementary Information⁵.

In addition, a banner was commissioned by Macroom E and it is located in the reception area of the E Centre. It has also been used at training courses, public launches, etc. It immediately attracts attention and promotes the brand and the programme very efficiently.

2.9 Businesses Selection

During the business selection process, and in discussions with the steering group, the importance of the local visibility of the award was deemed to be highly significant.

Consequently, when it came to business selection for the first phase, a concerted effort was made to include businesses from the Main Street. This was a factor in a number of small retail businesses from the Main Street being included.

The selection process had to also consider business size and the ability of the businesses to network locally. The list of companies that participated during the two years is shown in Table 2.1.

2.10 Local Liaison

The programme was co-ordinated and marketed from Macroom E. This gave businesses a local contact point. The programme was very much seen as being a Macroom E initiative which was focused on improving business performance and also working towards developing the economic well-being of the region by raising the area’s profile. Macroom E assisted businesses where appropriate and coursework was returned to Macroom E. This very much made the focus of the programme ‘local’, which was the ambition. The Town Hall was selected as the appropriate venue for the awards ceremony and this was open to all to attend. This made the event central to the community.



Figure 2.3. Eco Business Ireland Award promotional brochure for Year 2.

Table 2.1. Businesses that took part in the Eco Business Ireland Award training sessions in 2008 and 2009.

Year	Business name	Description	No. of employees
2008	Twomey Butchers	Small retail: local butcher and vegetable shop	12
	Mary's Toymaster	Small retail: toy shop and other general goods	5
	Quinlan Craft & Design	Small retail: crafts, design and art	4
	O'Donovan Engineering Co. Ltd	Industry: metal fabrication for the agri-sector	50
	McCarthy Newsagents	Small retail: newsagents and general goods	5
	John A. Wood Ltd	Industry: construction material production	430
	O'Mahony Walsh Corrigan Murray Ltd	Office: insurance and auctioneering business	5
	Radon Ireland	Industry: small producer of radon barriers	12
	Macroom Town Council	Office: public office	10
	Coillte	Office: public office	8
	Ted Kelleher First Aid & Hygiene Supplies Ltd	Warehouse supplier of first-aid and cleaning materials	3
	Macroom E	Office: management of eco-park site and light industrial units	3
	2009	Matt Murphy's Pharmacy	Small retail: pharmacy
Macroom Town Council		Office: public office	10
Macroom Motors		Small retail: car sales and garage repair	30
Cornucopia Health Food		Small retail: health-food and alternative medicines shop	3
Ecocel Ltd		Industry: insulation manufacture and installation	5
Alida Systems		Industry: electronics components assembly and production	25
Dacus Dental		Industry: dental product manufacture and distribution	6
Solaris		Construction: solar-panel supply and installation	4
Eco Construction/Radon		Construction: radon barriers and renewables supply	12

3 Research on National and International Small- to Medium-Sized Enterprise Award Schemes

In developing the various elements of this programme (workbook, questionnaires, electronic tables, training materials, etc.), a detailed examination was conducted of the various schemes nationally and internationally that are based on similar principles. These different systems are outlined in Table 3.1.

Obviously the ÖkoBusinessPlan Vienna was a very important reference point but elements of the GHA (Ireland) and the Acorn SME programme in the UK were also considered. CTC's involvement in the GHA scheme provided good insight into the various elements of this programme. In addition, a site visit to Vienna was organised to examine its system and the day-to-day management that has made it such a success. A detailed summary of the Viennese programme is given below as well as an overview of the elements from the other two main programmes that were considered during development of the Eco Business Ireland Award.

3.1 ÖkoBusinessPlan Vienna

The ÖkoBusinessPlan Vienna may be described as a set of five 'facilitated self-help' modules for business. It is 'facilitated' in that advice is provided by subsidised consultants and overall networking and project management are supplied by the Environment Department of the City of Vienna, but 'self-help' in that most of the time commitment and improvements are directly undertaken (without subsidy under this scheme) by the businesses themselves. Funding is applied to subsidise the cost of consultants, rather than the companies. In 2004, the level of subsidy was, on average, less than €10,000 per company. The funding for the plan has been provided by the City of Vienna, other Austrian agencies and the INTERREG programme.

3.1.1 Programme

The aim of the plan is to promote improved performance within companies with benefits to the environment and the economy. With the exception of

one of the modules (ÖkoTourism), the focus is on achieving an incremental improvement in performance rather than on the absolute standard of performance. The aim of the city is to address companies with the most scope for improvement. Hence, it may be easier initially for a poorly performing company to participate, since it has many opportunities to improve, while a company that has already achieved a very high standard may find it more difficult, economically or technically, to improve still further. The objectives of the plan, as expressed by the city, are to:

- Reduce adverse environmental impacts of economic activity through integrated environmental protection strategies;
- Improve the competitive position of Viennese businesses through more efficient use of resources (making full use of innovative potentials and cost-saving opportunities), sustaining employment over the medium term;
- Strengthen the advisory component in the relationship between the city administration and private-sector enterprises;
- Contribute to the sustainable development of the City of Vienna;
- Support the exchange of information, nationally and internationally, with city administrations and enterprises running similar programmes;
- Extend and support environmental protection efforts both nationally and internationally; and
- Contribute to decoupling economic growth from resource consumption and environmental damage.

Between 1998 and 2004, a total of 466 companies have participated. In 2004, approximately one million euro were spent on the plan and 48 new and 55 repeat companies fully participated. However, this significantly understates the number of companies

Table 3.1. Overview of the main schemes examined as research for the eco-business programme.

Programme	Description	Specifics
ÖkoProfit – Vienna, Austria¹	<ul style="list-style-type: none"> • Different categories: ÖkoBonus, ÖkoProfit, ÖkoTourism and a climate change programme • ÖkoBonus is oriented to the smaller company, ÖkoProfit to the larger • Five-step modulated improvement programme • Facilitated self-help programme • Driven by consultants who are funded to enlist companies and assist them in the programme • A cost–benefit analysis of each company’s potential improvements is initial step 	<ul style="list-style-type: none"> • Plan addresses waste prevention and waste management, climate protection and energy efficiency • Oriented to small (<50 employee) companies • Participating companies receive 8 days of workshops plus 4 days consultancy • ‘Certification’ or ‘logo award’ by the City of Vienna • Aims to address companies with most scope for improvement • Easier initially for a poorly performing company to participate
Eco-Lighthouse – Norway²	<ul style="list-style-type: none"> • Three-year plan for reducing resource consumption and environmental impact • Based on audits, criteria for local, industry-specific environmental certification schemes were developed 	<ul style="list-style-type: none"> • Internal control system • Working environment • Waste – reduction and separation • Energy consumption • Water consumption • Transportation • Pollution • Purchasing/Choice of materials
Project Acorn – UK³	<ul style="list-style-type: none"> • Set up in response to low uptake of environmental management systems (EMSs) by UK small- to medium-sized enterprises (SMEs) • Model based on a staged approach which removed these traditional barriers in SMEs and gave recognition for their achievement at each stage. Has links to BS 8555 	<ul style="list-style-type: none"> • Website as a free SME resource • Examples of good practice • Ready-made templates and worksheets to monitor progress • Suggested environmental performance indicators for different business sectors • Links to other resources on legislation • Participating ‘fast-track’ companies also received training workshops and on-site consultancy support • Opportunity for larger companies to engage and mentor their supply chain SMEs
Green Mark – UK⁴	<ul style="list-style-type: none"> • Award scheme that enables SME businesses from any industry to demonstrate their ongoing environmental improvement 	<ul style="list-style-type: none"> • Three levels • All participants enter the scheme at Level 1 where companies must demonstrate that they are taking responsibility for their environmental impacts • To keep the Green Mark and move on to Level 2, companies must show that they have continued to make environmental improvements • Companies can aim to reach Level 3 if they can prove that they demonstrate clear, ethical and environmental best practice
Wastewi\$e – Hong Kong⁵	<ul style="list-style-type: none"> • Designed to aid Hong Kong businesses in adopting measures to reduce the amount of waste generated within their establishments or generated through their services and/or products • Recognises the waste reduction efforts of those companies 	<ul style="list-style-type: none"> • Recognition of and publicity concerning waste reduction achievements • Cost savings • Increased productivity and competitiveness • Obtaining technical assistance regarding waste-reduction practices • Preparation for the Polluter Pays Principle • Improving the community and the environment • Use of prestigious Wastewi\$e logo

Table 3.1 contd.

Programme	Description	Specifics
Green Hospitality Award⁶	<ul style="list-style-type: none"> Established to assist the hotel sector in Ireland in its environmental management, it initially considered the main environmental areas individually. Has evolved into a holistic EMS-based system 	<ul style="list-style-type: none"> Run based on external training and internal assistance Each participant works through a workbook towards a number of specific criteria There are four levels of award based on relative and actual performance Is now in line with all EU Flower requirements Participants are promoted as Green Hotels through various fora

¹ÖkoProfit/ÖkoBusinessPlan Certification for Vienna (<http://www.oekostadt.graz.at/cms/ziel/1939183/DE/>).
²Eco-Lighthouse Program <http://www.eco-lighthouse.com/>.
³The BS 8555 SME Acorn Workbook, Institute of Environmental Management and Assessment (IEMA), 2003.
⁴Green Mark – good behaviour is good business, The London Environment Centre.
⁵Wastewi\$e Scheme Guidebook. Hong Kong Productivity Council, Environmental Management Division (December 1999).
⁶Green Hospitality Award, CTC and Hospitality Solutions Consulting Ltd, funded by the National Waste Prevention Programme, EPA, 2008–2011.

engaged and very slightly underestimates the cost. ÖkoBonus and ÖkoProfit lead to certification or a logo award by the City of Vienna alone. The plan addresses waste prevention and waste management, climate protection and energy efficiency and is oriented to small (<50 employee) companies. Participating companies receive 8 days of workshops plus 4 days consultancy. Any further consultancy days are paid for by the companies themselves. The companies estimate that a total commitment of 45 person-days is required on average. Peer learning, i.e. company-to-company transfer of good practice, is favoured by the emphasis on workshop training.

Initially, companies are recruited by consultants, who assess the potential gains and feasibility (economic, environmental, technical) and suitability of the individual modules for the business. Approximately one-third of companies progress to participation in one of the modules; however, those participating in the check stage have also benefited. Hence, nearly 300 companies were engaged in 2004. Companies prepare improvement plans, undertake projects and submit a report. The voluntary Advisory and Judging Board evaluates the reports for ÖkoBonus and ÖkoProfit submissions and decides if the improvement is sufficient to merit award of the logo. Improvement measures are extracted from company reports and are publicly available in a web-based database, but anonymous and without quantification. This benefits other companies.

The individual level of company funding is well within existing support schemes. Ongoing publicity costs (at about 20% of programme costs) are high and programme management costs would be proportionately higher with a smaller number of companies. A single programme covering Ireland would not experience the necessary network features. A number of regional programmes, e.g. Dublin, South-East, Shannon, Cork, West, etc., would be appropriate, though raising management costs further. These regional programmes should integrate local agencies (industrial development supporters, local authorities, business alliances), and could possibly attract local sponsorship from waste management or financial companies.

ÖkoBusinessPlan Vienna quality assurance has been achieved by standardisation of consultants' practices and general good management by the plan administrators. It would be necessary to ensure this best practice is replicated. The plan emphasises improvements rather than status. Some combination might be more effective in the smaller pool of Irish companies.

3.1.2 Vienna visit

A delegation from Cork went to Vienna in December 2006 to meet the relevant authorities and consultancy groups driving and sustaining this programme. This group comprised two CTC representatives (Noel Duffy and Mairead Creedon), Macroom E (Maeve Bowen) and Cork County Council (Noel O'Driscoll and Cllr John O'Shea, County Mayor).

CTC members were greeted by Mr Thomas Hruschka (of ÖkoProfit) on Tuesday 12 December, whereupon they were provided with a detailed agenda. An initial site visit was to programme member Gartnerei Wellinger (market garden). Backerei Felzl, another programme member was visited on Wednesday 13th. These site visits provided an opportunity to get information from programme members on the advantages and disadvantages of the programme.

On 13 December, staff members met with Ulli Sima, Councillor for Environmental Protection for Vienna. Noel Duffy, Maeve Bowen and Mairead Creedon attended the ÖkoBonus Commission where the decision process for awarding of the programme was viewed. Later the group attended the award dinner and were able to discuss the programme with members, past and present.

Even though the working of the programme established in Macroom was to be different to the Viennese version, the visit was a very worthwhile exercise for those who were involved in the programme.

3.2 Green Hospitality Award

The Green Hospitality Award is a step-by-step environmental management programme specifically designed for the hospitality industry. The award itself has evolved since it started in just one local authority area as a pilot programme into the current nationally recognised award. Initially the programme was to consider waste, water and energy over a 3-year period before evolving into a comprehensive environmental management system (EMS) that reflects Irish practice, concerns and initiatives. The award is now the standard for environmental management within the hospitality sector in Ireland with approximately:

- 180 members;
- 8,000 guest rooms;
- 200+ food outlets; and
- 6,000 staff involved in green teams and programme implementation in 2008.

In 2008, the EPA commenced funding the Green Hospitality Award, formerly the Green Fáilte Award,

through its Green Business Initiative. Research by the programme has shown that the average Irish hotel needs to perform considerably better in European terms of control of energy, water and waste management but is in fact performing up to 67% worse than the world average! The award is granted based on performance in EMSs, waste management, water management and energy management. GHA scheme participants are audited by independent auditors who examine the performance of the hospitality business on an annual basis. These audits ensure that the hospitality business is meeting its requirements and is acting responsibly with respect to the environment.

The reduction in costs experienced by members is between €5,000 and €100,000 in the first year, after full implementation of the programme. Most of these savings are associated with low- or no-cost systems and practices being put in place in each property. The GHA scheme requires continual improvement and a real commitment to the environment. If the hospitality business fails to continually improve, meet with the standards or does not act responsibly, the GHA can be withdrawn. All successful award winners receive a certificate for display within their premises and are licensed to use the logo on their stationery and with their publicity. Special category prizes are given, where applicable, to hospitality businesses that the Green Hospitality Award Certification Board believes demonstrate exceptional commitment and success in implementing the standards required.

The GHA is a multi-staged accreditation scheme which allows hospitality businesses to commence implementing best-practice environmental management at their own pace and at a speed that complements their business profile, whilst encouraging them to implement continuous improvement.

The award offers five levels of membership:

1. **Member** – the business has joined the programme and has commenced the implementation of an EMS;
2. **Bronze** – the business has achieved the implementation of an EMS, benchmarked its business in terms of waste, water and energy management and is compliant with legislative

requirements;

3. **Silver** – the business has moved beyond the basics and has developed its environmental management programme in all areas;
4. **Gold** – the business is implementing general best practice across all areas of the operation; and
5. **Platinum** – the business is demonstrating world-class environmental management and is poised to go to the highest levels available – EU Flower, ISO 14001, Eco-Management and Audit Scheme (EMAS), etc.

All of these categories are judged in a similar manner to the EU Flower with a series of mandatory requirements coupled with a scoring system based on a variety of optional requirements. The expectation is that the majority of the businesses who join this initiative will aspire to achieve the Gold Standard. All businesses also receive an on-site visit and a review of their operation which assists them in identifying the targets they should be aiming for.

3.3 Acorn SME Handbook

This publication provides a user-friendly instruction document for SMEs. It is aimed at those that wish to make a start on the road towards an EMS by using the implementation process outlined in BS 8555 *Environmental Management Systems — Guidance to the phased implementation of an environmental management system including the use of environmental performance*.

BS 8555 breaks down the implementation of an EMS into six phases. The sixth step, which is optional, prepares businesses for either accredited certification to ISO 14001 or registration to the EU's EMAS. The phases of BS 8555 are:

- **Phase 1** Commitment and establishing the baseline;
- **Phase 2** Identifying and ensuring compliance with legal and other requirements;
- **Phase 3** Developing objectives, targets and programmes;

- **Phase 4** Implementation and operation of the EMS;
- **Phase 5** Checking, audit and review; and
- **Phase 6** EMS acknowledgement.

The Acorn workbook was designed to introduce Phase 1 of BS 8555, passing on practical guidance to help businesses get their EMSs off the ground. Planning EMS implementation is made easy and straightforward by simply following the SME workbook stages which lay the foundations of a meaningful EMS. The aims of the programme are to aid businesses to take the first steps towards:

- Increasing the efficiency and effectiveness of their business;
- Understanding and managing their environmental impacts;
- Getting recognition for customers of their environmental credentials;
- Achieving the international standard ISO 14001; and
- Registering for the EU EMAS.

The structure of the workbook breaks EMS implementation down into a series of defined, manageable stages based on the phases detailed above. These can be tackled incrementally through to eventual ISO 14001 certification. Each phase is subdivided into a series of stages, and each stage is subdivided into a range of tasks for completion. This three-tier approach breaks the implementation down into an easy-to-use, step-by-step methodology, which is ideal for SMEs with limited resources.

The workbook supports the various phases, describing why and how the requirements should be addressed. A series of top tips have been included, along with case studies to give a practical insight, describing how companies who have successfully used BS 8555 have interpreted the requirements. Each stage contains signposts to further reference material detailing environmental best-practice case studies available from external sources.

Each stage defines its own achievement criteria, a set of requirements used by third-party auditors to assess effective EMS implementation; therefore, all the implementation effort is directed to support these criteria. There is also some guidance alongside each achievement criterion to provide examples of typical outputs that would satisfy the requirement.

3.4 Summary of Research

While much of the programme design and format was outlined in the proposal, the specifics were designed

around research into other national and international awards, as well as feedback from the participants.

A key issue was the design of the programme – it was to be a ‘self-help’ or ‘hand-up’ format rather than a ‘handout’.

Therefore, only a limited amount of time was set aside to visit and engage with the participants even though the consultants and local managers were always available by phone or email. Detailed in Table 3.2 are the key elements of the pilot and the rationale that went into their design.

Table 3.2. Summary of research findings on other environmental award programmes.

Programme element	Description
Consultancy	Specific support is essential as many micro-sized businesses do not have the know-how to access the information relating to their specific needs. Much of the consultancy role involves encouragement and promotion of the benefits of waste prevention.
Local support	The local aspect of awards is very important and in this case Macroom E was the local support portal. The notion of local solutions for local problems is one that was considered vital for this pilot.
Training	Training has the dual purpose of education and also networking. For small businesses, half-day training in the middle of the week is most convenient. The training was designed to be interactive rather than classroom styled.
Workbook	The workbook is the most important resource as the participants use this as the vehicle for both designing their improvement options and also ensuring that they fulfil the mandatory requirements. It is an educational guide on best practice.
Criteria	Many of the awards have specific requirements that must be attained depending on what the participants want from involvement. These criteria are based on the standards to be achieved and in many cases are determined by local factors deemed especially important. They are used for third-party verification.
On-site visits	In the Green Hospitality Award scheme, it is estimated that 1.5 days are given to each participant in the first year. In Vienna, participants get 4 days each, though this also includes support consultancy. The on-site time is essential to any programme as this interfacing provides the site-specific support required by businesses.
Review audit	For an award's credibility, the standards must be transparent, realistic, achievable and verified independently by someone who has not been involved in the training or back-up consultancy. Quality assurance and standardisation are imperative in this regard.
Awards ceremony	The issuing of awards is an important part of the process – it obviously gives the businesses the public credit they deserve but more importantly gives the people working within the businesses their due credit for the successful implementation of the programme.

4 Eco Business Ireland Programme

Based on the research outlined in the previous section, outlined work proposals contained in the successful tender, and discussions with the steering committee, a number of key programme elements were defined. These were:

- Programme outline;
- Workbook, including top-tips checklist;
- Training workshops;
- On-site visits; and
- Review audit.

4.1 Programme Outline

The timetable for the first year is given in Fig. 4.1. The main elements of the programme were as follows:

1. February – first training session and workbook introduction;
2. March – first red bar – work to be done on data gathering in conjunction with CTC during site visits;
3. April – second meeting. Sharing of experiences, helping with common problems in network format and identifying improvement options;
4. May and June – prepare improvement options and second site visit by CTC (red bars) to assist with option generation and other issues;
5. June and July – develop and apply internal work plan;
6. August – pre-review check, and further CTC assistance on-site;
7. September – review and criteria examination by third party;
8. October – adjust where needed after review;
9. November – final evaluation by CTC and award status determination; and

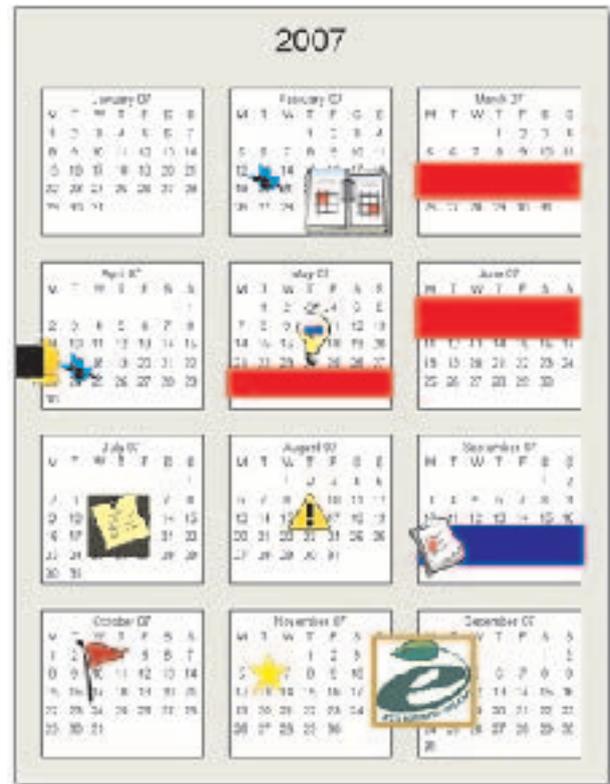


Figure 4.1. Timetable for the first year's programme.

10. December – Awards Ceremony.

This timetable was based on the programme being contained in a 1-year window. As it turned out, this proved to be very difficult to achieve, due to a number of issues:

- **Getting access to the relevant people** – the small nature of the businesses often meant that there was only one person involved, so if this person was absent then CTC had to wait for him/her.
- **Limited funds** – the site visits were very important as, for many, this was where they appeared to really learn. There were only two site visits budgeted for, though most sites were visited on more occasions – there was a lot more hand holding than initially planned.

- **A combination of the above** – due to limited travel funding, CTC tried to consolidate travel so that a couple of sites were visited each time – co-ordinating this was often tricky.
- **Gathering of information** – this became a very onerous task and a lot of time was spent by the participants and CTC in this regard. This put the programme timetable back.

Where possible, realistic time frames were allowed between the various tasks. During these interim periods, the participants were contacted regularly by phone to provide assistance where needed.

4.2 Workbook

Each of the referenced programmes had a workbook that was used as an information resource for the participants as well as a guide to completing the tasks required of that programme. The workbooks varied in complexity, tasks assigned and level of detail – both in descriptive text and in requirements made of the participants.

The stated objective of the Eco Business Ireland Award programme is to enable individual businesses to assess their environmental performance and to recognise the economic and environmental benefits that come from good environmental management. The workbook (shown in full in Appendix 5 of the Supplementary Information⁶) developed for this pilot aimed to guide businesses through the process of gathering the relevant information from their business and to apply it to make improvements in the way they run their business. The workbook was essentially designed as a cyclical environmental improvement resource that was based on the main elements of an EMS – these are shown in Fig. 4.2 and outlined in Table 4.1.

While EMSs can be quite burdensome (both in time and accounting requirements), the aim of this workbook was to streamline the major requirements and reduce the paperwork involved. The main principle

6. Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information available at <http://erc.epa.ie/safer/reports>.

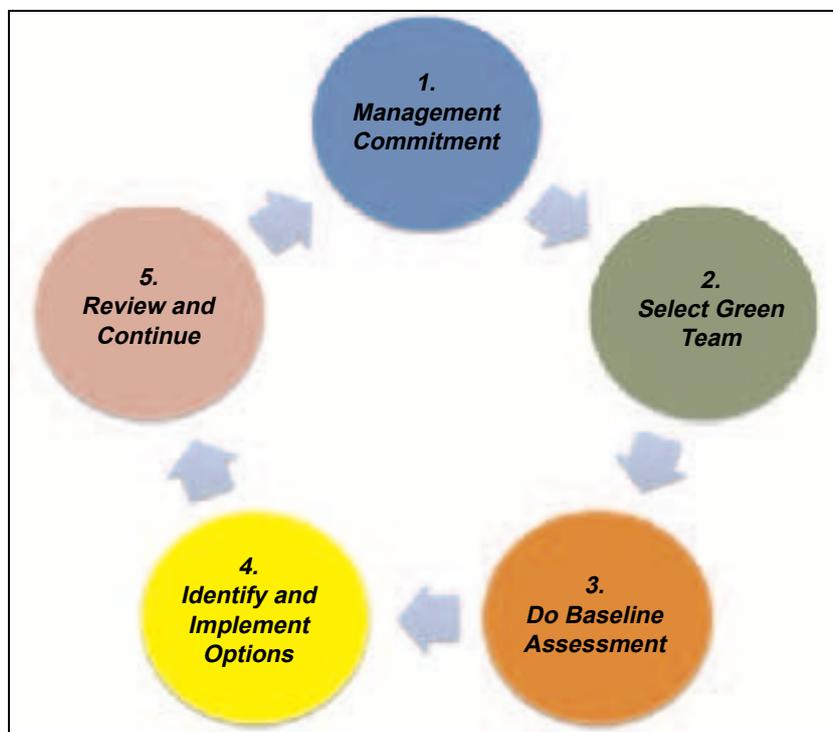


Figure 4.2. Continual environmental management system improvement cycle – see Table 4.1 for step details.

Table 4.1. Details of main elements of an environmental management system improvement cycle.

Element	Description
1. Management Commitment	Getting management commitment is essential as any work will require some resources and these must be available from the start.
2. Select Green Team	The people responsible for the tasks must be identified from the start. A team of a few people helps share the workload and also gives different perspectives. For smaller businesses it may be just one person.
3. Do Baseline Assessment	Most businesses record costs but don't look at actual resource use – electricity costs or kilowatt-hours used. This assessment gathers all relevant data and provides a baseline from which to monitor and target improvements.
4. Identify and Implement Options	With the relevant information gathered, a business can compare itself with others and identify areas for improvement. Many improvements are low/no cost while others require greater investment.
5. Review and Continue	Once improvements have been implemented, it is important to compare the effects with the baseline assessment and quantify the benefits. From here the process starts again.

governing the start of this programme is that *you can't manage what you don't measure*. Hence, much of the initial efforts were spent in gathering what is known as the baseline information. This consisted of basic utility and waste bills for a calendar year and should be used by a business to measure any improvements made. In addition, it was clearly conveyed to the participants that this programme was about helping businesses to help themselves. While consultation and assistance would be made available, to be truly successful it was up to each business to drive it itself.

Taking the workbooks from the referenced award schemes as a guide, and incorporating the cyclical improvement elements associated with an EMS, the workbook was divided into the following main sections.

(a) Internal assessment through questionnaires

These aimed to provide a snapshot view of how the business is seen internally. This is an important first step as it helps identify the areas that are of most significance from an environmental perspective. It also allows the businesses to consider, many for the first time, the fact that their operation has an environmental impact. The main questionnaire, which contains up to 10 questions on nine different topics, is designed to highlight areas of potential improvement as well as evaluating the business performance under the following specific areas:

- Purchasing;

- Product design;
- Production/Process;
- Material use;
- Energy;
- Water;
- Emissions;
- Waste management; and
- Distribution/Packaging.

Much of this questionnaire was aimed at production businesses and, as such, was found not to be relevant for the types of businesses engaged in the pilot. In the second year, the questionnaire was refined to consider the areas listed below:

- Energy;
- Water;
- Waste management;
- Distribution/Packaging/Purchasing; and
- Production/Process/Material use.

Additionally, the questions were reviewed and geared more towards retail units.

(b) Basic company information

Information on each business is gathered. This includes a business profile and a site and process map where appropriate. This is important information for the external consultants to have prior to visiting each location. The maps are of particular importance as they have the potential to identify areas/processes where issues occur. In addition all major service points are identified. This can be an interesting exercise for some sites as this is often overlooked, especially in sites that have evolved over the years. This section also includes the nomination of green team members. Ideally, a number of people are assigned to the team, thereby distributing the tasks between the various members. However, in this pilot, due to the size of the majority of businesses, in most cases there was only one person assigned. This obviously is a barrier in thorough application of the programme ideals but is recognised as a challenge for small businesses. Environmental legislation is also considered in this section. First and foremost, all participants must be legally compliant. Two questionnaires were designed to assess participant compliance in both the retail and industrial sectors. These were based on the most up-to-date legislative requirements and were filled out after the first training session.

(c) Environmental policy

An environmental policy is an important internal commitment to do things right and is a requirement of this programme. Such policies are fundamental for international standards, such as ISO 14001 and EMAS, and are also elements in each of the reviewed programmes. A policy sets down on paper what the goals of the business are and in its public display sets out what staff and customers can expect. Also, this section covers communication and training. These are key elements for successful internal participation within a business and the communication of successes is essential in this regard. However, it was noted that this was difficult for some of the smaller SMEs where this was, in general, an alien practice.

(d) Operational information

The important data from businesses are gathered for a 12-month period at least, as this time frame allows for seasonal fluctuations and provides a more realistic baseline. Information relating to waste, energy and

water is collected. This is used to generate useful indicators that assist businesses in identifying improvement options. A more detailed account of the Excel spreadsheet used for this is given in Section 4.2.1. Again, this was a difficult task for the smaller businesses but an important emphasis of the programme was on continual measurement and management.

(e) Useful links

This section identifies some of the most helpful resources available for Irish companies when considering environmental improvements.

(f) Best practice and top tips

This section outlines best practice procedures with regard to waste, energy and water management. In addition, there are lists of the top tips for each area – these are designed as a starting point for businesses when considering improvement options. The table of contents of the first year's workbook (2007) is listed below.

1. First Internal Assessment

- a. Smiley diagram
- b. Questionnaire

2. Basic Company Information

- a. Contact details, etc.
- b. Team leader and members
- c. Brief business profile
- d. Site map – eco-map or process flow diagram or both
- e. Legislative questionnaire

3. Communication and Information

- a. Environmental policy
- b. Internal education and training

4. Basic Operational Information

- a. Main products/services
- b. Main input materials
- c. Main wastes and emissions
- d. Main hazardous wastes
- e. Water use – quantitative data on use and information on major sources of use

- f. Energy use – quantitative data on use and information on major sources of use

5. Minimum Criteria Checklist

6. Final Internal Assessment

- a. Smiley diagram
- b. Questionnaire

4.2.1 Excel spreadsheet

The workbook was laid out in specifically defined units to facilitate working towards satisfying the minimum criteria. As an add-on, an Excel spreadsheet was provided for recording all site-related environmental information. This was supplied in paper format in the workbook but was designed for computer use. This relates to the generic design whereby all potential information sources were covered, though in all cases the spreadsheet was reduced to the specific on-site requirements of each site.

The spreadsheet was broken into six main tabs:

- 1. **Energy** – records energy consumption under a variety of headings. Also records costs and

aggregates all data. In addition, all energy use is converted to kilowatt-hours (kWh) to give a total energy use (see Fig. 4.3);

- 2. **Waste** – provides for mixed, recycled, reused and composted wastes. It also can be used to generate relevant ratios, e.g. percentage of total waste generated that is recycled;
- 3. **Water** – records all water data – municipal supply, own well supply and discharged volumes;
- 4. **Raw Materials** – provides for recording volumes of raw materials, packaging, office supplies and auxiliaries;
- 5. **Production** – relevant output goods can be recorded in this sheet; and
- 6. **Summary** – collates the relevant information from each of the primary information sheets into an overall yearly summary.

Each of the sheets provides space for information for 12 months, as well as a large number of data entries under different categories. For example, the energy

Environmental Indicators - ENERGY													
Company:	[Blank]												
Consumption	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year to
Electricity													
Electricity Day (kWh)													0.0
Electricity Night (kWh)													0.0
Electricity Cost (€)													0.0
Electricity/Unit	#C6D2	#D6D2	#E6D2	#F6D2	#G6D2	#H6D2	#I6D2	#J6D2	#K6D2	#L6D2	#M6D2	#N6D2	#O6D2
Liquid Fuels													
Petrol (L)													0.0
Petrol cost €													0.0
Diesel (L)													0.0
Diesel cost €													0.0
Light Fuel Oil (L)													0.0
Gasoil cost €													0.0
Kerosene (L)													0.0
Kerosene cost €													0.0
Heavy Fuel Oil (L)													0.0
Feed oil cost €													0.0
Liquid Fuel/Unit	#C6D2	#D6D2	#E6D2	#F6D2	#G6D2	#H6D2	#I6D2	#J6D2	#K6D2	#L6D2	#M6D2	#N6D2	#O6D2
Other Energy - Specify													
Cost €													0.0
Total Energy													
	Quantity used	Natural Unit	Conversion Factor	Converted Value (kWh)									
Electricity	0	Kilowatt hours	1	0									
Petrol	0	Litres	12	0									
Diesel	0	Litres	11	0									
Light Fuel Oil	0	Litres	11	0									
Kerosene	0	Litres	11	0									
Heavy Fuel Oil	0	Litres	12	0									
Other	0			0									
Total Energy				0									

Figure 4.3. Generic energy spreadsheet.

sheet has electricity, solid fuels, liquid fuels and, within each of these, there are other sub-categories (e.g. kWh day units, kWh night units, etc.). Each of the individual sheets can be manipulated to provide site-specific graphs that reflect the consumption patterns of interest. An example of a small retail unit's graph is shown in Fig. 4.4. Such profiles are powerful communicators as they clearly show changes that occur with regard to consumption that may not be as evident when examining just the numbers in a table.

The information stored in each individual sheet feeds into the summary sheet (Fig. 4.5) where the overall annual information of interest is displayed. This summary table provides an overview of all collated data and calculates annual *eco-efficiency indicators*.

Eco-efficiency indicators are essentially used as signposts within a company and should be used to identify areas of inefficiency and therefore trigger dialogue and further investigation. They should not be expected to measure and communicate all aspects and details of environmental performance. Eco-efficiency indicators, when combined with other information, can assist in tracking progress toward environmental performance targets. These indicators should facilitate comparison of performance between companies, across sectors and, over time, within a company.

When generated and used properly, indicators can be of great benefit to companies. Figure 4.6 shows an

example from a food plant which compares annual energy use with production output over time. From the baseline year, improvements in the energy used per unit of production are clearly evident from the indicator line. The benefit of such an improved system is both economic and environmental.

An eco-efficiency indicator measures the environmental performance of an enterprise with respect to selected business activity performance (e.g. turnover, output, input, etc.)

Indicators are used to monitor the relative performance of a business but can also be used to:

- Justify capital investments;
- Identify and prioritise opportunities for improvement;
- Track and ensure continuous improvement;
- Set goals for improvement;
- Provide information for input into corporate strategic decisions;
- Report to external stakeholders; and
- Promote resource stewardship and conservation.

Also, companies see the value of indicators as a tool for benchmarking with similar facilities within a company or for benchmarking with other similar

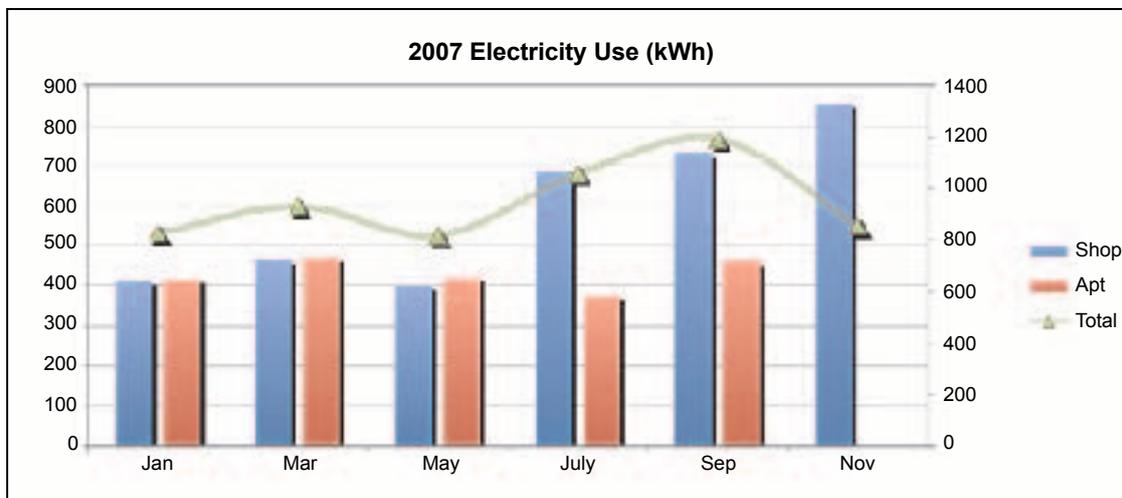


Figure 4.4. Energy use profile for a small retail unit in 2007 (total on right axis).

<u>Year Summary</u>	
<u>Business Name</u>	
<u>Year Under Review</u>	
<u>Space/Area</u>	
Total Square Metres of Serviced Space	
<u>No. of Employees</u>	
<u>Benchmark Statistics</u>	
No. of Products Sold	
Volume/Weight of Products Sold	
Value of Products Sold	
Other ()	
Total	0
Raw Materials – INPUT	
Raw Materials	0
Packaging	0
Office Supplies	0
Auxiliary Materials	0
Total	0
Energy kWh	
Electricity	0
Petrol	0
Diesel	0
Light Fuel Oil	0
Kerosene	0
Other	0
Total kWh Consumed	0
Water m³	
Mains Water Supplied	0
Well Water Supplied	0
Total Water Consumed	0
Waste kg	
Total kg of Waste to Landfill	0
Production – OUTPUT kg	
Summary of Total Product Output	0
Enter Data into the Shaded Areas	
Relevant Indicators	
Indicators are generated by comparing the rate of consumption/production against a standard. The standard can vary from volume of raw material used to no. of products produced or floor area or no. of employees. It differs for each sector and indeed for each business depending on information available and information sought.	
Indicator =	$\frac{\text{Consumption/Production value (e.g. total energy consumed)}}{\text{Standard Value (e.g. space/area)}}$

Figure 4.5. Eco-efficiency summary sheet for environmental data gathering.

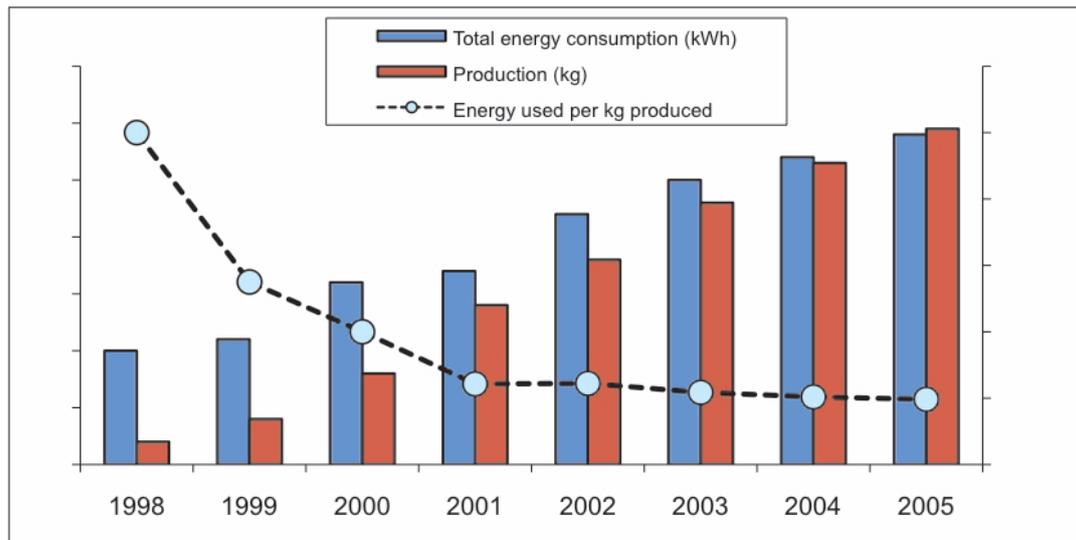


Figure 4.6. Energy intensity indicator within the food sector (source: Natural Resources Canada, 2001).

organisations. However, comparisons of indicators between businesses and business sectors should be made with caution. Businesses in the same sectors may be operating under different economic, political, environmental and natural resource constraints. And, the manufacturing processes in different business sectors are inherently different, resulting in different achievable eco-efficiencies.

One of the issues with indicator use in Ireland is the lack of appropriate benchmarks with which these can be compared. During this pilot, a comprehensive indicator list drawn up by the English agency Action Energy in 2001 was used for energy use – this later became the Carbon Trust. These UK values provide benchmark guidance for a variety of retail-based organisations as well as some light industrial sites. They are given in Appendix 6 of the Supplementary Information⁷.

One of the issues that arose from their use was the fact that the reference organisations – both in terms of size and activity – were not known. Consequently, when comparing these with benchmarks drawn up by the participants, anomalous findings existed. This could well have been due to the lack of accurate raw data on behalf of this programme’s participants. These

benchmarks were a key instrument used for educating participants about the scope of potential improvements.

4.2.2 Workbook – Year 2

In the second year, after feedback from the various participants, the workbook was further refined. This refinement was done in consultation with the steering committee, of which one of the first year participants was now a member. While there was no real issue with the programme requirements, it was the layout and usability that were problematic. To try and make the workbook more user friendly, the presentation was changed and the content rearranged somewhat. The revised content was as follows:

Introduction

Outline of the workbook explained

1. Contact Information

- a. Contact details, etc.
- b. Brief business profile
- c. Green team members

2. First Steps

- a. Environmental aspects questionnaire
- b. Site map – eco-map or process flow diagram or both
- c. Legislative questionnaire

7. Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information available at <http://erc.epa.ie/safer/reports>.

- 3. Improvement Options**
 - a. Environmental options checklist
- 4. Operational Information**
 - a. Main products/services
 - b. Main wastes
 - c. Energy use
 - d. Water use
- 5. Communication and information**
 - a. Environmental policy
 - b. Internal education and training
- 6. Minimum Criteria Checklist**
- 7. Additional Information**
 - a. Useful links
 - b. Best practice guidance notes
- 8. Blank Data Collection Spreadsheet**
- 9. Clear Folder for Bills, etc.**

The second version of the workbook evolved towards a more checklist-oriented design – see Item 3a in workbook contents above – Environmental options checklist. This checklist was essentially the top tips for businesses from the first year but put in a way that questioned whether the business had implemented the option, was considering it, or whether it was applicable or not. In this way improvement options are suggested indirectly. It was hoped that by going through this checklist the businesses would become more aware of the various easy options available under the headings listed below.

- 1. Energy Options**
 - 1.1. Site wide
 - 1.2. Office
 - 1.3. Refrigeration
 - 1.4. Heating
 - 1.5. Compressed air
 - 1.6. Lighting
- 2. Water Options**
 - 2.1. Site wide
 - 2.2. Office
 - 2.3. Cleaning

2.4. Process

3. Waste Options

3.1. Office

3.2. Site/Canteen

3.3. Packaging

3.4. Process

4. Other Options

4.1. Space available for site-specific improvement options not covered to be recorded

This checklist-based format worked well with the participants in the second year and may be a more viable option as an award mechanism for smaller companies. This is discussed in more detail in Chapter 6 (Point 2).

Another change that was made was the addition of graphical ‘signposts’ in the text of the workbook where any of the minimum criteria were referred to (Fig. 4.7). This improved readability and identified those essential elements of the workbook more clearly.



Figure 4.7. Graphical signpost.

4.3 Training Workshops

The training element of this programme had a dual purpose: obviously to train the participants on the programme details but also to foster the local network aspect of the programme. Prior to organising the training sessions, the participants were asked about time availability and appropriateness for training sessions. Many of the participants were from SMEs and as such their time was precious within their businesses. Consequently, two half-day sessions were allotted. The first of these was an introductory session with the workbook distributed and explained, a number of small tasks assigned and some basic environmental training done. The second session went into more

detail from the resource perspective – considering waste, water and energy in detail, as well as developing improvement options for each site.

Table 4.2 highlights the main elements covered in each workshop with brief descriptions of the content as well as feedback and observations.

At the beginning of the first workshop, the participants performed a self-evaluation with regard to their main areas of concern from an environmental perspective.

An overview of the responses of all participants over the 2 years is shown in Table 4.3.

The response by the participants was interesting in that a number of the environmental aspects that would have been envisaged as important were not of major concern. There were a number of points gleaned from this basic analysis:

1. Air and noise were of little concern to the majority, or their impacts were well under control. Where

Table 4.2. Description of the first workshop topics.

Topic	Details	Comments
Introduction	<ul style="list-style-type: none"> • Welcome and introduction • Outline of the purpose of the programme, what inspired it and its ultimate goal – Vienna example 	This introduced all members of the support team as well as each of the participants. Each participant outlined his/her business and individual environmental concerns.
Programme outline	<ul style="list-style-type: none"> • Outline of programme along with time frames, goals associated with each deliverable and the rationale behind goals and targets – see Fig. 4.2 • Explanation of minimum criteria 	Explanation of the rationale behind the programme. Some of the participants pointed out that due to the size of the business some of the elements seemed excessive.
Success stories	<ul style="list-style-type: none"> • Outline of the Green Hospitality Award and a couple of relevant success stories 	Great interest in this – showed the viability in an Irish context – provided much discussion.
Workbook introduction	<ul style="list-style-type: none"> • Overview of the workbook and completion of the smiley diagram with assistance where necessary – essentially the initial assessment of the participants 	Assessment identified energy as the major concern. Initial feedback on the workbook was positive.
Energy	<ul style="list-style-type: none"> • Overview of the what, why and how of energy management • Basic explanation of energy bills and some brief tips 	Highlighted the potential difficulties in the data-gathering process – lack of knowledge of basic acts such as reading bills and meters.
Waste	<ul style="list-style-type: none"> • Brief introduction to the what, why and how of waste management • Explanation of bills, main costs and some brief tips 	Waste did not seem to be an issue. Macroom has an excellent civic amenity site facility and there is great local pride in this resource – it is used extensively so waste appears to be well managed generally.

Table 4.3. The overall areas of environmental concern as identified by the participants.

	Not applicable	Under control	Some assistance	Not in good shape	Overall ¹
Energy		4	10	4	
Solid waste		6	12		
Water	8	2	8		
Environmental policy	2	2	10	2	
Air	8	8		2	
Noise	8	6	2	2	

¹Red = poor; orange = fair; yellow = OK; green = well under control.

there was concern this was with specific sites rather than as a general concern.

2. Environmental policy was noted as moderately important but this transpired to be more related to a lack of appreciation of policies than an overriding concern with their application.
3. Water was of concern but for many it was not applicable. This was related to the fact that metered water charging was not in use in the area at the start of the programme – though it was installed during the ensuing 2 years and water use became more of an issue.
4. Waste management was a concern though in general for retailers in the town it was not an issue due to the local civic amenity site and the provision by the local authority of an excellent recycling service.
5. Energy was the area of most concern across the board. While information was available through national dissemination campaigns, access to local specific information (e.g. What type of bulbs can I retrofit here? Where can I get them? Do I need to change my fittings? etc.) was a major issue. Energy management of significant areas (e.g. refrigeration, compressed air) within the businesses was also deemed important.

While waste had been a major issue for a number of years previously this was, by and large, well under control from the management perspective. In the case of water, it was not really an important issue for the majority. Most businesses were paying rates based on historical factors rather than on consumption so the incentive towards reduction was low. In addition, most of these small businesses used very small quantities of water for typical services (bathroom, canteen). Therefore, the emphasis required from the participants was on energy and, from the external perspective, on measurement and continual monitoring in this regard.

In light of the experiences and feedback from the first workshop (and the subsequent site visits), the second workshop's content was designed to satisfy the main needs of the participants. Much of the second training was aimed at an understanding of the energy system – that being purchase, conversion, distribution, use, heat recovery and disposal. Table 4.4 expands on this. Depending on the particular internal use of an energy source each of the different phases of the energy system provides a potential option for improvement. These different aspects of energy use were a fundamental part of the training sessions as well as of the subsequent on-site visits. Table 4.5 gives the main elements of the second workshop.

This workshop format was followed, more or less, in the second year. Some small changes were made in the second workshop. These were as a consequence

Table 4.4. Description of the energy cycle for three different users.

	Electric lighting	Compressed air drive	Oil boiler
Purchase	<ul style="list-style-type: none"> • Directly from the grid (tariff choice important) 	<ul style="list-style-type: none"> • Directly from the grid (tariff choice important) 	<ul style="list-style-type: none"> • From supplier – recent price increases significant
Conversion	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Use of cool air facilitates compression 	<ul style="list-style-type: none"> • Efficiency of boiler along with regular maintenance important
Distribution	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Air leaks, even small ones, are very costly over time 	<ul style="list-style-type: none"> • Uninsulated pipes a source of significant energy losses
Use	<ul style="list-style-type: none"> • Modern fixtures much more efficient – use of controls often overlooked 	<ul style="list-style-type: none"> • One of the most expensive forms of energy – use prudently 	<ul style="list-style-type: none"> • Cost of using hot water significant – both the heating cost and also that of water to be considered
Heat recovery	<ul style="list-style-type: none"> • Old tungsten lights gave off significant heat but new lights were much better 	<ul style="list-style-type: none"> • Heat recovery from the exhaust gases can be used 	<ul style="list-style-type: none"> • Little heat recovery of process hot water in Ireland – significant area for savings
Disposal	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Blowdown

Table 4.5. Description of the second workshop topics.

Topic	Details	Comments
Review of minimum criteria	<ul style="list-style-type: none"> After participants were visited and had a chance to study the workbook, the minimum criteria were reviewed 	Clarification was needed on a number of criteria elements – especially with regard to the legislative questionnaire. It was found that this provided an invaluable way of disseminating all the relevant legislation that previously was unknown to many of the participants.
Electricity billing	<ul style="list-style-type: none"> Electricity, one of the main overheads of concern, was discussed in detail – there was an emphasis on billing, reading the bills and deciphering the information 	Due to the complicated nature of bills, much time was spent explaining the various tariffs, on-line options, different suppliers and the importance of meter readings. Many of the businesses had many estimated readings so reviewing consumption patterns in this manner did not provide useful information. This is a major hurdle for small- to medium-sized enterprises (SMEs).
Lighting	<ul style="list-style-type: none"> Explanation of all lighting systems and controls available on the market – this was one of the main areas identified during the first site visit as being of particular relevance 	Because of the recent publicity that lighting systems and their relative efficiencies have got, in addition to the difficulty in getting local information, much time was spent in describing these.
Benchmarks	<ul style="list-style-type: none"> Explanation of the importance of benchmarking a businesses performance, both internally and externally 	The lack of benchmarking in Ireland, especially at the SME level, was one of the topics that this research project wanted to investigate. An extensive UK list of energy benchmarks was found and was used as a reference, where indicators were generated.
Workshop	<ul style="list-style-type: none"> Small-group discussions on ways to improve, based on current status and top tips. 	Breakout groups were based on the specific business activities undertaken. By keeping like with like, similarities could be identified in improvement options as well as sharing experiences. This also ensured a fostering of the internal network.

of both requests and also an effort to include participants and their experiences into the programme. One of the 2007 participants presented the successes he had experienced during the programme from both an economic and an organisational perspective. This proved to be most useful as the new participants discussed issues, barriers and other details with him.

4.4 On-Site Visits

On-site consultancy was confined to two half-day visits, and their chronological positioning within the programme is outlined in Fig. 4.8 (the red boxes). The Eco Business Ireland Award programme was designed in a generic manner as the businesses involved came from both the commercial and industrial sectors. The first visit to each business involved a discussion with the relevant staff to introduce the programme and ensure management commitment, a brief walk-through audit and, finally, a discussion about on-site issues and

potential areas for improvement. Each business had its own individual opportunities and issues, though a number of generic opportunities were noted in the commercial sector (e.g. lighting). Also, while the design of the workbook and the Excel spreadsheet was done with generic use in mind, each business required individual refining and tailoring.

The first on-site visit was also used to clarify any issues the businesses had with the programme and its various elements. The requirements of the participants were clarified and at this stage the businesses were asked to gather the relevant information to generate internal benchmarks for their businesses. In addition, each business was given a brief review of the on-site findings with some improvement options and suggestions.

The second training session followed this first on-site visit. This allowed the participants time to come to

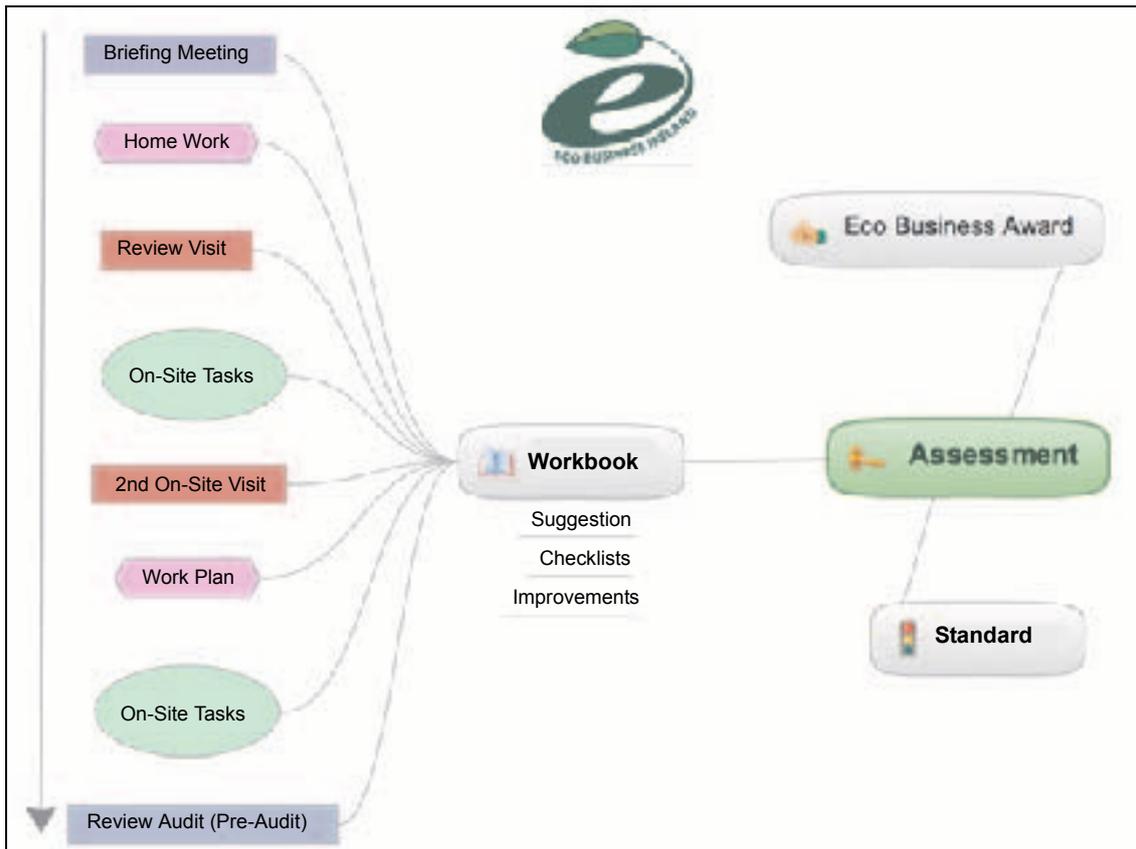


Figure 4.8. The work programme for each participant in the programme.

terms with the programme and gather some of the prerequisite background information.

The second on-site visit was to provide support to the businesses on the plans for improvement that they were drawing up. Most of the businesses developed realistic improvement options but found it difficult to get quantified and accurate information about these options. This second site visit was also used to assist in the development of site-specific metrics where possible.

After the first year it was noted that information on lighting was a regular request. CTC designed and built a lighting display which showed the various lighting options (GLS, CFL and LED) while constantly monitoring their energy consumption. This display is shown in Fig. 4.9 and was found to be a very useful aid for the on-site visits at retail-based enterprises.

The key lessons that came out of the site visits were:

- **Size of businesses:** while the businesses participating are described as SMEs many are actually micro-businesses. For these, the changes that can be made and the extent of possible



Figure 4.9. Lighting display used for on-site visits in Year 2.

savings are limited. The notion of continual improvement does not really apply to such businesses as most can make a few 'large' changes but do not have the scope (financially or physically) to continually improve. The medium-sized businesses do have the scope for continual improvement.

- **More time needed:** the two half-days given to each business were not sufficient, even for small businesses. Most businesses were visited at least four times (though not for half a day each time – closer to 2 h maximum). This was due to their time limitations and the amount of work CTC was willing to do for them. Much of this time was spent explaining basic issues and assisting in understanding bills.
- **Starting from a low awareness level:** while each participant attended the training sessions there was the need for on-site training at most businesses. This was due to the low initial awareness level of some participants. It was a tricky balance to get enough material covered in the training sessions while also dealing with some basic questions that were asked.
- **Back-up and constant contact:** as a follow-on from the previous point, constant telephone support was available to the participants as well as regular contact to ensure work was being done. This was an important aspect for the participants – CTC was often the first point of information when queries arose even though there were support facilities already available (e.g. renewable energy office, SEI, etc.).

4.5 Review Audits

The award scheme is based on a set of minimum criteria that must be satisfied and, once these have been achieved, there are additional criteria that can lead to a higher grade award. The minimum criteria equate to achieving the basic award level and are set out under defined topics. The workbook was designed to ensure that as a business works through it, it will have achieved the minimum criteria by the end. To achieve a higher grade of award there are both additional criteria under the defined headings and

criteria under new headings. Each of the additional criteria has an associated score and when these scores have been evaluated by the external auditor they are collated to generate an overall score which indicates the award level to be given. The minimum and additional criteria are listed in Table 4.6, with explanations about their rationale and the associated scoring where applicable:

- Energy (*minimum and additional criteria*);
- Waste (*minimum and additional criteria*);
- Water (*minimum and additional criteria*);
- Environmental Improvement Programme (*minimum and additional criteria*);
- Team and Leadership (*minimum and additional criteria*);
- Legislative Compliance (*minimum criteria only*);
- Policy (*minimum and additional criteria*);
- Training and Communication (*minimum and additional criteria*);
- Indicator Generation (*additional criteria only*); and
- Transport and Packaging (*additional criteria only*).

The actual criteria sheets used are shown in Appendix 7 of the Supplementary Information⁸.

There are three award levels. Initially these were going to be based on a gold, silver and bronze format – similar to the GHA awards that have been so successful in the hospitality sector in Ireland – but it was decided that, due to the heterogeneous nature of the businesses involved, a different naming system would result in a more inclusive award and one that was more likely to foster a local degree of interest and participation.

The scoring and weighting for the additional criteria are given in Table 4.7. This system was loosely based on the GHA award system, though the weighting system used here was decided by the steering committee.

8. *Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

Table 4.6. Description of the various criteria and the rationale behind them.

Topic	Discussion
Energy	
<i>Minimum criteria</i>	
<ul style="list-style-type: none"> • Do you monitor and record energy use in your business on a regular basis? • Have your main areas/equipment of energy use been identified within your business? • Have all staff been made aware of energy minimisation programmes/campaigns as part of overall training? 	<p>These minimum criteria aim to ensure that energy use is monitored regularly, that the main areas using energy have been identified and that energy conservation has been disseminated to employees.</p>
<i>Additional criteria</i>	
<ul style="list-style-type: none"> • How often do you record and monitor energy use? • Have you quantified the main areas/users of energy in the business this year? • If so, how has this been done? • Do you calculate energy use against a standard that is specific to either your business sector or your specific business? • If so, how often is this done? • Is a regular maintenance schedule in place for the major energy-consuming areas? • Have you investigated the possibility of using alternative energy sources or signed up with an alternative energy supplier? • Have your buildings been evaluated for energy/heat efficiency? • Are energy and heating controls (thermostats, timers) monitored and calibrated on a regular basis? 	<p>These criteria aim to identify and reward businesses that have a regular monitoring and maintenance schedule. In addition the generation of benchmarking data as well as building performance are also rewarded.</p>
Waste	
<i>Minimum criteria</i>	
<ul style="list-style-type: none"> • Do you record the weight/volume of waste sent off-site? • Have the main waste producing areas been identified? • Have waste streams been assessed for the possibility of prevention and/or recycling? • Is all packaging waste segregation undertaken on-site as per legislation? • Are all staff aware of waste segregation procedures? • Are all waste management companies used by your company licensed and do you have up-to-date copies of the licences held? • Are you aware of any hazardous waste streams produced and do you ensure that such waste is managed according to legislation? • Have all staff been made aware of waste minimisation programmes/campaigns as part of overall training? 	<p>The minimum requirements for waste are slightly more onerous than for energy but generally they are based on the same principles – monitoring of volumes, employee education and, in this case, ensuring that waste is segregated at source and that legislative elements are realised.</p>
<i>Additional criteria</i>	
<ul style="list-style-type: none"> • Have the volumes of waste produced by different areas of your business been quantified? • Has the mixed waste been investigated to identify its various components? • Do you calculate waste generation against a standard that is specific to either your business sector or your specific business? • If so how often is this done? • By what means have staff been made aware of waste segregation procedures? 	<p>The additional criteria aim to promote a more thorough examination of waste generation – the where and why of waste generation. This provides options for improved segregation, reuse, recycling and possibly minimisation. The issue of indicator generation is also covered.</p>

Table 4.6 contd.

Topic	Discussion
Water	
<i>Minimum criteria</i>	
<ul style="list-style-type: none"> • If you have a water meter does your facility record the volume and cost of water consumed? • Have your main areas/equipment of water use been identified? • Have all staff been made aware of water minimisation programmes/campaigns as part of overall training? 	<p>Similar to energy and waste in promoting the idea of regular monitoring of use and where this may be occurring on-site. Staff awareness is also a prerequisite.</p>
<i>Additional criteria</i>	
<ul style="list-style-type: none"> • How frequently do you monitor and record water consumption? • If so, how often is this done? • Do you calculate water use against a standard that is specific to either your business sector or your specific business? • Is a water management programme or are control measures in place in your facility? • Have sub-meters been installed on site to facilitate control over water flows? • Is a regular maintenance programme for the water distribution system in place? • Where staff are aware of water saving/control measures, by what means has this awareness been raised? • Are all polluting substances such as hazardous waste prevented from coming into contact with water in your facility? 	<p>The additional criteria promote the notion of source identification and quantification. This in turn leads to indicator use, benchmarking and the maintenance and improvement of the water distribution system.</p>
Environmental Improvement Programme (EIP)	
<i>Minimum criteria</i>	
<ul style="list-style-type: none"> • Do you review your environmental performance on an annual basis? • Have potential improvement options been identified for the year ahead? 	<p>The EIP is a very important aspect of the programme as it outlines the actual improvements that businesses identify as possible. In addition, it requires them to monitor their performance. While this may appear a straightforward requirement it is often quite onerous on smaller businesses.</p>
<i>Additional criteria</i>	
<ul style="list-style-type: none"> • Have you set a series of improvement targets? Please give evidence. • How are environmental improvement targets doing (met, nearly there, a long way off)? 	<p>The additional criteria look for concrete evidence of targets that have been set as well as whether these improvements are being achieved. This aims to reward proactive businesses.</p>
Team and Leadership	
<i>Minimum criteria</i>	
<ul style="list-style-type: none"> • Has a green team that meets regularly been established? • Has a leader been appointed? 	<p>This aims to ensure that the work is spread among a number of employees and that one dedicated person is assigned the co-ordinating role.</p>
<i>Additional criteria</i>	
<ul style="list-style-type: none"> • If you have regular meetings of the team, how often do these meetings take place? 	<p>This aims to reward businesses that are active in their internal work.</p>

Table 4.6. *contd.*

Topic	Discussion
<p>Legislative Compliance</p> <p><i>Minimum criteria</i></p> <ul style="list-style-type: none"> • Have you completed the legislative questionnaire? • Are you in compliance with all elements of the legislation? 	<p>A prerequisite of this programme is that all participants are legally compliant. The questionnaires examine this aspect under a variety of headings. There are additional criteria in this section.</p>
<p>Policy</p> <p><i>Minimum criteria</i></p> <ul style="list-style-type: none"> • Do you have an environmental policy that is signed and dated by top management? • Has the environmental policy been posted prominently internally? <p><i>Additional criteria</i></p> <ul style="list-style-type: none"> • Has the environmental policy been published externally? 	<p>A policy is an important document as it is the management's statement of intent. As such, it must be displayed internally for employee awareness.</p> <p>External display of the policy is a means of public awareness raising about both the programme and also the intentions of the business.</p>
<p>Training and Communication</p> <p><i>Minimum criteria</i></p> <ul style="list-style-type: none"> • Have members of the green team been involved in environmental training? • Have the main elements of the programme been communicated to all staff members? <p><i>Additional criteria</i></p> <ul style="list-style-type: none"> • Have your green initiatives been communicated to customers, suppliers and neighbours? • Have all members of the green team been involved in environmental training? • Are staff and customer/supplier comments or concerns relating to environmental issues documented and acted upon? • What format does staff communication take? 	<p>Communication of the principles of this programme is an essential element. Regardless of the size of the business, internal training of all staff is required.</p> <p>Additional criteria consider the two-way aspect of communication and aim to get the elements of this programme communicated to the actors on either side of the participants in the product life cycle. This extends to suppliers and customers.</p>
<p>Indicator Generation</p> <p><i>Additional criteria</i></p> <ul style="list-style-type: none"> • Do you generate indicators based on the performance of your business relating to business activity? • If so, how often is this done? • How many years of the above information are available/archived by your facility? 	<p>These are additional criteria only and aim to introduce the use of monitoring and targeting into the mindset of the business. This is one of the main aims of the data-gathering process.</p>

Table 4.6. contd.

Topic	Discussion
Transport and Packaging	
Additional criteria	
<ul style="list-style-type: none"> • Is the transport in your business considered when planning the distribution system and/or the travel of your employees? • Is priority given to materials/products that can be supplied locally? • Is a take-back system in place for packaging? • Are packaging materials made from recyclable material or from sustainable sources? • If not, has the above system been investigated for feasibility? • Are goods supplied in reusable, returnable or refillable packaging? • Is a take-back system in place for incoming packaging? • If not, is it a possibility for this to be asked of suppliers? • How is redundant incoming packaging managed? 	<p>Transport and packaging are additional criteria. They aim to promote the use of local suppliers and materials as well as minimising transport through good logistics and internal policies. This section also considers putting the onus back on suppliers of materials.</p>

Table 4.7. Revised criteria scoring system.

Area	Points	Weighted points
Energy	18	20
Waste	12	15
Water	15	15
Environmental Improvement Programme	8	15
Team and Leadership	3	
Policy	2	10
Training and Communication	8	
Indicator Generation	10	15
Transport and Packaging	10	10
Total	86	100

The three different grades of award are:

- **Grade 1. Certificate of Achievement in Environmental Performance** = Minimum criteria plus up to an additional 20 points as scored from the additional criteria;
- **Grade 2. Certificate of Achievement in Environmental Performance with Excellence** = 'Achievement (Grade 1)' plus up to 40 points (between 21 and 60 points); and
- **Grade 3. Certificate of Outstanding Achievement in Environmental Performance** =

'Achievement with Excellence (Grade 2)' plus up to 40 points (from 61 to 100 points).

At the end of the yearly programme a review audit was carried out by an independent auditor. In this case, the auditor was a member of CTC but was not involved previously in the programme. The auditor was IEMA certified and also Irish National Accreditation Body (INAB) accredited. The independence and qualification of the auditor was deemed an essential element to the programme as it ensured that both the programme and the award were transparently assessed by a third party.

Table 4.8 shows an example of the final criteria scores of a company after the auditor's report. While this company achieved an additional score of 25 points, putting it in place for a Grade 2 award, it had not met the minimum criteria as set out in its environmental policy. Where there were such areas of non-compliance with the minimum criteria a business was given an additional 2 weeks to fix these. Once the business provided evidence that it had remedied the non-compliance it was then given its award results.

4.6 The Recognition Mark

In order to promote a local sustainability programme, an easily recognisable recognition mark was designed. Various international schemes, ISO 14001, EMAS, Eco-label, Responsible Care™, etc., exist and a brief desktop review of international local schemes provided an idea for the logo. In addition, the existing ÖkoBusinessPlan Vienna, Green Fáilte Award and the experience of some of the steering group members in establishing the Fuchsia brand were incorporated.

The basics of the logo design was specified by CTC and Macroom E after consultation with the steering group. These were set out for the graphic designer who came up with a number of options. This letter of specification is given in Appendix 8 of the Supplementary Information⁹ along with the various logo designs that were was produced.

4.7 The Awards

The award plaques were made in Macroom by local artisan Rick Austin. Each wooden plaque was hand-painted and personalised with a brass nameplate for each successful business (Fig. 4.10). The aim was that recipients of the award would display it on their premises as a mark that their businesses now operate in as eco-friendly a manner as possible.



Figure 4.10. Locally designed Eco Business Ireland Award.

9. Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information available at <http://erc.epa.ie/safer/reports>.

Table 4.8. Example of a company scoring following the assessment audit in 2008.

Area	Criteria score	
	Minimum criteria met	Additional criteria score
Energy	True	2.2
Waste	True	5.0
Water	True	2.0
Environmental Improvement Programme	True	7.5
Team and Leadership	True	
Legislative Compliance	True	
Policy	False	1.5
Training and Communication	True	
Indicator Generation	–	0.0
Transport and Packaging	–	7.0
Total score		25.2

5 Results

5.1 Company Results

Table 5.1 presents a review of company work done during the programme. It gives an overview of the work conducted by each of the successful participants for both 2007/2008 and 2008/2009.

Table 5.1. Review of company work done during programme.

Name	Comments	Status
2007/2008		
Twomey Butchers	<ul style="list-style-type: none"> • A well-run business with a good policy towards efficiency • Improved lighting, waste management and water management during the programme • Has built a new building for production – currently not doing regular monitoring of resource use there • Has invested in energy-saving equipment, especially for water efficiency • Has reusable packaging in place 	No continuation of data assessment but has energy policy in place for both premises. Reviews water use regularly and is upgrading cleaning systems
O'Donovan Engineering Co. Ltd	<ul style="list-style-type: none"> • Very motivated by the savings made during the first year. These were made in waste management initially (savings of €300/month), followed by improvements in energy use and logistics • Has constant monitoring of resource use • Production increased last year by ~25%, with energy increasing by only 10% • Very good outcome from this programme • See the case study from this project in Appendix 9 of the Supplementary Information¹ 	Continued with complete commitment and now has indicators across the business. These are communicated weekly to employees
John A. Wood Ltd	<ul style="list-style-type: none"> • As part of the national group, the Classis site has initiated IS 393. It found the eco-business method paralleled that of the formal standard and helped in initial training and data assessment • Has made many short-term improvements in both the offices and yard • Has an extensive list of additional options for future years • Significant environmental savings made at this site 	Continued monitoring but in amended format. Has been in touch this year with follow-up requests for information and advice
Macroom E	<ul style="list-style-type: none"> • Has upgraded its heating system to include woodchip and has also changed lighting • Still monitoring energy use but, due to boiler changeover, 2008 information gathering is skewed • Harvesting rainwater and has excellent waste management system in place 	Continued monitoring and improvement
Quinlan Craft & Design	<ul style="list-style-type: none"> • Much more aware of energy use and has begun to change lighting to CFL. Very happy with new lights • Upgrading its upstairs area and putting in skylights to reduce light fittings • Reusing as much packaging as possible and communicates this to customers 	Recording energy use but not monitoring it as such

Table 5.1 contd.

Name	Comments	Status
2007/2008		
Ted Kelleher First Aid & Hygiene Supplies Ltd	<ul style="list-style-type: none"> Has maintained the programme but is not setting targets as such Very aware of energy use and waste generation – now reusing all plastic and cardboard internally 	Continued monitoring
O'Mahony Walsh Corrigan Murray Ltd	<ul style="list-style-type: none"> Continued monitoring of energy use and has identified problems with storage heaters. This was done through replicating the programme method in its second offices and comparing benchmarks 	Continued monitoring and internal assessment of its two offices
Mary's Toymaster	<ul style="list-style-type: none"> During first year did the minimum but has since reviewed all energy aspects of business Was in contact during second year about lighting upgrade and has retrofitted efficient system to shop 	Continuous monitoring and benchmark generation
2008/2009		
Cornucopia Health Food	<ul style="list-style-type: none"> Small retail unit with limited options Has plan in place to rearrange the shop with improved lighting and consolidating Constantly monitors energy and water – this helped identify issues with backyard water use 	Achieved minimum requirements during first year and has target plan in place
Matt Murphy's Pharmacy	<ul style="list-style-type: none"> Currently renovating the whole building Plans to upgrading lighting system – huge potential savings here as there must be 400 lights used – many halogen spots Has installed timer on display lights Waste well managed and water use minimal 	Achieved minimum requirements during first year and has target plan in place
Macrooom Town Council	<ul style="list-style-type: none"> Has put programme elements in place and has outlined series of individual targets Has upgraded boiler to high-efficiency condensing boiler New policy in place for computer management and has plans to upgrade internal lighting 	Achieved minimum requirements during first year and has target plan in place
Macrooom Motors	<ul style="list-style-type: none"> Has made huge savings on waste (50%) through improved segregation and management Has changed compressed air management with energy savings and had full energy assessment conducted Environmental Improvement Programme plan has set targets for coming years See the case study from this project in Appendix 9 of the Supplementary Information¹ 	Achieved minimum requirements during first year. Internal metrics done for waste, energy and fuel use. Target plan in place
Radon Ireland	<ul style="list-style-type: none"> Agreed to participate but due to downturn in building trade it is currently consolidating 	
Ecocel Ltd	<ul style="list-style-type: none"> Dropped out of programme due to investor issues Will get in touch with Macrooom E if things improve – very interested in programme and potential for improvement in production process 	
Solaris	<ul style="list-style-type: none"> Part of the Macrooom E building with very little overheads May track transport costs in the future but for now much of its work is overseas 	

¹Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information available at <http://erc.epa.ie/safer/reports>.

5.2 Key Programme Indicators

The use of continual monitoring of resource consumption values (including waste generation) was identified as a method of quantifying the successes generated during this programme. However, the lack of accurate information at the outset was a major barrier for most participants and, as such, quantification in the absolute sense was difficult. A number of different key performance indicators (KPIs) for this programme were generated and they are listed in Table 5.2. KPIs for individual companies are also given in the relevant case studies – see Appendix 9 of the Supplementary Information¹⁰.

10. *Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

5.3 Programme Publicity

Macroom E was the local manager of the programme and organised all the public functions associated with it. These were very well attended and received excellent local feedback.

The award ceremony was organised in order to mark the end of the first programme and to present the successful participants with their awards. It took place in the Macroom Town Council building on 27 May 2008.

Publicity efforts to advertise the ceremony included:

- A mailshot of invitation postcards and letters to participants and other local businesses;
- A mailshot of invitation letters to schools that had participated in the Green-Schools programme;

Table 5.2. Some key performance indicators (KPIs) from this Eco Business Ireland Award programme.

KPI	Value ¹	Comment
Training sessions done	4	Limited number of training sessions allocated. Additional specific workshops may be beneficial with industry experts invited to speak.
People trained	28	Most businesses were small so only one person usually attended from each business. This was not always the most appropriate person. Increased numbers would be better.
Site visits made	64	This was the most time-consuming part of the programme. Many of the visits were short; however, time on-site was needed to assist in and convince on participation.
Follow-up visits made	18	These were done once the programme was ended for each year. This element was most important as it created an element of continuation and reinforced the need to constantly improve. Also allowed for site-specific questioning.
Back-up office support	–	This support was over the phone and via email and was given as needed.
Options identified	80	Many options were identified, though the majority related to the participants were low-cost, short payback options. Any long payback options were generally given after the first year's participation.
Options implemented	35	Some businesses were more motivated than others. Also, a number of businesses improved after their year's involvement in the programme. This information was gleaned during the follow-up visits.
Quantified savings	–	Difficult to measure as the initial level of resource measurement was quite poor. Each business is discussed in Table 5.1.
Continuation of the programme	8	From the first year, all of the businesses continued some element of the programme. The formal set-up was carried on by six of the eight successful participants.
Awards given out	12	Eight successful Year 1 participants and four from the second year. The awards ceremony for Year 2 took place in October 2009.
Case studies	3	O'Donovan Engineering Co. Ltd, Macroom Motors and small business selection (see Appendix 9 of the Supplementary Information ²).

¹Total value for both years.

²*Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

- An article and full-page advertisement in the *Lee Valley Outlook* magazine;
- An article and a ¼ page advertisement in *The Corkman* newspaper; and
- Posters.

These are all shown in Appendix 4 of the Supplementary Information¹¹. Prior to the ceremony, an exhibition entitled *Greening the Lee Valley* was hosted in the same building, where companies and businesses offering eco-friendly products and services were able to host display stands. Following the exhibition, an award ceremony took place and each successful participant received the Eco Business Ireland Award from Minister for Education Batt O’Keeffe. Some of the photos from the ceremony are shown in Appendix 10 of the Supplementary Information¹⁰. Macroom E had also conducted a poster competition with the local schools that had taken part in the Green-Schools programme. Each school was invited to attend the ceremony and winners of the competition were presented with a gift of a tree for their school.

11. *Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

The programme was also disseminated through the websites of both CTC (<http://ctc-cork.ie>) and Macroom E (http://www.macroom-e.com/proj_eco_business_ire.htm). Through the Local Authority Prevention Demonstration (LAPD) programme, which CTC has been involved in, many of the programme elements have been communicated to local authorities. A recent Local Authority Prevention Network (LAPN) meeting in Macroom E allowed the local authorities the opportunity to examine the programme and discuss the transferability to different areas in Ireland. It is hoped that through this network the Eco Business Ireland Award will spread to different regions (e.g. Monaghan, East Cork, Tuam).

A summary of the publicity generated by the programme is given in Table 5.3.

5.4 Summary of Findings

This section provides an overview of the findings from this research programme. They are collated under the following headings:

- Positives;
- Negatives; and
- Barriers to success.

Table 5.3. Summary of local publicity generated during the programme.

23 November 2006 (<i>The Corkman</i>)	Article: <i>Eco Gossip Profit is good, but clean green profit is even better</i>
23 November 2006 (<i>The Corkman</i>)	Article: <i>The Lee Valley’s best kept secret: Macroom E</i>
01 December 2006 (<i>The Corkman</i>)	Article: <i>Macroom can set a green standard for rest of country</i>
23 December 2006 (<i>The Corkman</i>)	Front-page header: <i>Macroom E takes the lead on the environment</i>
23 December 2006 (<i>The Southern Star</i>)	Article: <i>New business award piloted in Macroom</i>
December 2006 (<i>West Cork People</i>)	Article: <i>Eco Award to be piloted in Macroom</i>
15 May 2008 (<i>Lee Valley Outlook</i>)	Article: <i>Greening the Lee Valley</i> + full page ad (poster)
22 May 2008 (<i>The Corkman</i>)	Article: <i>Greening the Lee Valley</i> + ¼ page ad
29 May 2008 (<i>Lee Valley Outlook</i>)	Article: <i>Eco Business Ireland Awards</i>
31 May 2008 (<i>The Southern Star</i>)	Article: <i>Clean, green and mean: the slogan at Macroom</i>
05 June 2008 (<i>The Corkman</i>)	Article: <i>Minister praises town for setting the green standard</i>
10 June 2008 (<i>Irish Examiner – County Supplement</i>)	Article: <i>Eco-minded town</i>

5.4.1 Positives – what went well

Basing the programme in a specific locality and tying it to an overall community ambition (to become a Green Town) was an important aspect of this programme. Often, businesses need to be convinced of the benefits of undertaking environmental improvements in their business and frequently don't make the time to do so. By having a regional eco-mark, businesses were interested in participating in the programme, not only for their own business performance, but also to be part of greening the region as a whole. A question that was asked often during the recruitment process was "*Will it be good for the town/area?*". It was interesting that this should have such a significant impact on a business's decision to get involved with the programme. Of course, well-established businesses have long since realised that what is good for the town is good for their business.

The programme was based on workshops with a number of follow-up one-to-one visits with the businesses. These individual site visits by CTC consultants worked very well. As the group of businesses was mixed, each business had specific circumstances and needs and these could be dealt with by the consultant and any changes could be also supported by him/her over time. By providing this hands-on expertise, businesses could adapt the learning provided to their own individual situations. The course material was beneficial, particularly for companies which were larger in scale and process oriented (rather than retail). This is reflected in the two case studies that were generated through the programme and these are given in Appendix 9 of the Supplementary Information¹². Feedback on the programme from the participants to Macroom E was also very positive. The awards ceremony, held in the Town Hall and officiated by Minister for Education Mr. Batt O'Keeffe, TD, gave the businesses some publicity for the efforts and changes that they had made to their businesses.

Overall, the programme was successful at encouraging businesses to consider their operations and to think about how they did things. For some

businesses, it brought excellent improvements in their organisation and cost savings, and for others it brought an increased understanding to help their decision making in the future. At a minimum, it raised awareness and changed some behaviours, which businesses also pointed out that they changed in their home environment.

5.4.2 Negatives – what didn't go well

As the group of businesses recruited were mixed, it brought people with a diverse range of skills and backgrounds. Although in some cases this was useful, it also meant that in the workshops people were at different levels – for example, a local newsagent in the same workshop as a large cement supplier. In some cases, participants had a high level of competency in spreadsheets and manufacturing processes whilst others had to hand-write their responses. This was dealt with well during the sessions but, in hindsight, it would be best to make the programme specific to the size/type of business and the competency of the participant.

For some then, the course material prepared for the programme was too technical or didn't apply to certain situations. Certainly, for the smaller businesses, a lower-level course would have been more appropriate. In these instances, the CTC consultancy time, although receiving excellent feedback, was not at all times warranted or in fact appreciated. Also, when businesses identified ways in which they could perform better environmentally and economically, they often did not proceed due to capital investment issues. This is natural in a circumstance such as this, but it meant that although cost-saving measures were identified they were not realised. They may, of course, be put in place in the future.

Maintaining the motivation of the businesses was also an ongoing task. For the most part, businesses needed to be hand-held during the programme and would have benefited from more workshop time in some cases. The ambition of the programme was to 'help people to do it themselves' and although this principle was sound in practice, businesses needed a high level of support to monitor, track information and to make changes. The benefits of having workshops away from their place of work allowed businesses to progress rather

12. *Pilot Programme for Establishing a Regional Eco-Business Recognition Mark – Supplementary Information* available at <http://erc.epa.ie/safer/reports>.

than putting it on the long finger. More of these types of workshops may have helped the programme.

Long and lasting changes in behaviour are difficult to create unless they are economically driven or the participants feel deeply for the subject matter. It would be interesting to see in 5 years if the changes to the thinking and behaviour, which came about during the programme, have had a lasting effect on the participants.

The programme would also benefit from an ongoing network of support which could be organised locally, where businesses could learn from each other or where guest speakers could give updates on subjects of interest.

5.4.3 *Barriers*

When discussing barriers one must consider those that affected the participants and also the overall award scheme. These will be considered individually though of course both are connected.

5.4.3.1 *Barriers for participants*

The main barriers are outlined and described below. These have been extracted from feedback information from the participants and also observations by the external agents.

- **Technical**

One of the major issues observed during this programme was the lack of some of the basic technical know-how for recording and monitoring enviro-data. For example, the difficulties experienced with reading bills was across the board. This was attributable to the complicated nature of the bills as well as the inconsistencies between different suppliers. Examples of common issues:

- When a multiplier appears on older bills;
- Various tariff rates;
- Wattless charges; and
- Extracting electricity usage rather than costs.

It must be noted that the various electricity suppliers now provide excellent on-line support in this regard. However, internet proficiency is not a given for all, especially those running smaller

businesses so accessing such information still remains a difficulty for many.

The fact that many of the bills initially examined were estimates meant that accurate recording of actual consumption/disposal was virtually impossible. Due to this issue for electricity, the first task with most sites was to encourage them to read their meter on the 1st of each month and record/report this. Many of the waste bills were fixed charges and did not reflect weights and there was no water metering when the programme started (though most sites are now metered).

The recording of data was facilitated with a basic MS Excel spreadsheet. However, cases where people did not have Excel – only basic accounting functions such as Sage – or were not computer literate were encountered. In such cases, the relevant data were submitted in paper format and the consultants assisted in inputting the information. This provided information in a usable format but the nature of the programme – self-help – was not promoted by this.

- **People**

While getting commitment to participation in the programme was not a problem, due to the small nature of many of the businesses getting people to work with the programme on the ground was difficult. Understanding that you get out what you put in was often lost, resulting in much promoting, cajoling and hand-holding. As with any improvement programme, the businesses where the people involved were motivated had the greatest levels of success.

For example, in one business the person assigned to the programme was asked to gather the basic process-related information. After 6 months, no data had been collated. After he moved from that position the person replacing him had both the time and the interest to pursue the programme. The business realised some great successes and the programme format has now been incorporated into everyday practice.

Thus, for an interactive self-help programme such as this, the people assigned to the tasks of

gathering and monitoring data must be committed and available and be given enough time to actually do it.

- **Time**

Time to do the work was a major issue as was getting time to meet the relevant people to discuss any issues. In small retail units where there are few employees often meetings had to take place on the shop floor or else outside of working hours.

Timing was also an interesting issue. While some of the participants were very interested in the principles guiding the programme, they were unable to justify any sort of change or investment within their business in the short term. Macroom was going through a significant change in the way the town worked during the 2-year programme. The town, and business, traditionally revolved around the square but much of the retail concentration has shifted because a number of new large retail units were opened (Dunnes Stores, Lidl, 4 Homes). Consequently many of the smaller Main Street shops were waiting to see what would happen to trade before making even the most minor of changes. A number of the participants from the first year identified viable improvement options but did not begin to implement these until close to the end of the programme.

Prior to 2007, there were no water meters on most of the businesses so water was not an issue at all. By the end of the second year of the programme, most had been fitted with County Council meters. Therefore, water became a more relevant issue as the programme progressed, though almost all participants had very small water use.

- **Existing infrastructure**

What was very interesting about the businesses involved in the town was their very good waste management practices. Waste had been a significant issue for many businesses but the opening of the state-of-the-art civic amenity site provided an excellent resource for businesses in the town to manage their separated waste fractions. Due to this, cost – a major driver for change – was not very great for waste management and, consequently, the businesses

were not overly concerned about changes in this regard.

- **Relevance**

It was found during the programme that much of the interest was due to a reactive rather than a proactive mentality. This is quite typical for smaller businesses that do not have the financial resources for investments with longer-term payback. Waste was well managed due to historic rises in waste costs and the availability of good local infrastructure. Initially there was no water metering so water was not on the radar for most businesses. However, after the initial metered bills there was a definite increased interest.

The main concern was related to energy costs as these were the ones that were increasing and becoming quite a significant part of the business overheads.

- **Information and know-how**

During the programme it was found that much of the support was used for providing information. This information ranged from the basics such as understanding electricity bills and the various tariffs to other issues such as lighting options, refrigeration management, waste management options, etc. While this information is relatively easily available, knowing how and where to access it was an issue. The ability to do thorough web searches as well as condense much of the technical information into easily understood English was not evident.

5.4.3.2 Barriers for the programme

The main barriers are outlined and described below. These have been extracted from feedback information from the participants and also observations by the external agents.

- **Technical**

The technical aspects of the programme requirements did not appear onerous to the researchers, but for a number of the participants they were. This directly affects the long-term viability of such programmes as local participation and success are very important. However, if these basic levels of technical ability are achieved then

the participants will be far more able to elicit relevant information from technical brochures and information guides in the future.

While in the second year the programme was more streamlined and less technical, it still contained a significant level of requirements that may not suit the needs and ability of smaller retail-type businesses.

- **People**

It was hoped that through concentrating on the Main Street and working with Macroom E, the award would foster the evolution of a natural network and stimulate the programme. While an informal network was established through the training and encouragement of Macroom E and CTC, this informal network did not develop into a strong enough unit to drive the local inclusion aspect. Macroom Town Council was not involved during the first year nor was there any cross-interaction with other local groups or networks. The local actors driving such a programme would appear to be essential and, unfortunately, both Macroom E and CTC were somewhat outside the day-to-day social workings of the town which limited their ability to actively promote this network on the ground.

- **Business size**

The technical format of this programme is based on other such programmes, all of which were designed for SMEs. In this programme, the larger businesses, where accurate accounting and dedicated personnel are commonplace, success was greatest both in technical learning and relative improvements. Many of the smaller businesses were office or retail types, where the scope for improvements was limited and, as such, the programme format did not suit them. It is believed

that a more checklist-oriented format that was based on a 'work-in-progress' ideal would result in improved participation.

- **Time**

The annual nature of the award also had effects. The diverse nature of the businesses involved meant that, for some, winter was their busiest time whilst for others it was quieter, allowing for more commitment to the technical work required behind the scenes. The seasonality of businesses had not previously been considered as relevant to such a programme's success.

Also, a fixed 1-year time frame didn't allow much time for some of the businesses. Many of them spent the first 6 months simply coming to terms with the basic elements such as reading meters, gathering their bills, etc.

- **Expectations**

The expectation that all the work would be done for each business presented some problems. While it was clearly communicated that this would be a self-help programme where back-up support would be available for those who asked for it (i.e. those who investigated their own issues and came back with queries), there remained the attitude of some participants that the work would be done for them.

- **Support staff**

While every effort was made by the support staff to assist each participant, lack of success could be an issue with the level of support available. The limited time budgeted for direct intervention, as well as the lack of continual exposure of the participants to a more locally involved agency (for example the Town Council), are potential areas for improvement.

6 Lessons Learned and Recommendations

Many of the barriers mentioned in the previous section are in themselves lessons to be learned. However, from the work done the following main lessons and recommendations can be made.

1. The idea behind the programme was to design an EMS-style programme for small and micro-enterprises. The programme showed that such a continual improvement model, which is primarily based on input/output analysis, works for businesses of a certain size and above. Below this size (typically the family-run small business with 10 employees or less), the continual improvement model may not apply. Consequently, recognition of a more obviously incremental model would be more effective.
2. The booklet developed was based on an EMS continual improvement cycle that put a large emphasis on tracking resource use. It evolved in the second year into a more user-friendly, checklist-based design that received positive feedback from the participants. The checklist model appears to be an effective method for such programmes involving micro-enterprises. During recent work in the LAPD programme, Monaghan County Council, in conjunction with the Vintners' Federation of Ireland, developed a booklet along these lines. This booklet was not award based and therefore did not have a minimum set of criteria. For future regionally based programmes, it is recommended that a booklet with a strong informational element (covering all the main environmental areas such as those covered in the criteria in Section 4.7) as well as a set of minimum requirements for each topic that must be achieved to participate in the programme be used. Additional criteria would also be set out which would allow businesses to target specific improvements over time. That said, Cork County Council has adapted elements of the workbook to its needs during the LAPD work with swimming pools. In addition a number of local authorities have expressed interest in adopting this model during the LAPN programme which is in its initial stages.
3. This programme was based on an annual award. This method works for larger businesses that are used to setting annual end dates. For the micro-enterprise, these are less important. Also, as this was not a sectoral award but considered all variety of businesses, there was no deadline that worked for all involved. Therefore, a more target-based 'in-your-own-time'-style programme would be more appropriate. This, in conjunction with a target-based booklet as described in the previous point, would allow businesses to work towards the award in their own time and tackle particular issues when funding and other resources are available to them. A rolling programme, perhaps marked by an annual or biennial award or induction, has potential.
4. As alluded to in the previous point, the heterogeneity of businesses that typically exist in regional areas in Ireland poses an issue for these types of programmes. For homogeneous sectors such as pubs or hospitality industry businesses, consistent problems and solutions will be encountered. Therefore, a general booklet should be used with, where applicable, references given to other relevant resources.
5. The level of direct intervention for businesses was high in this circumstance. Compared with the Viennese programme where a significant amount of money is spent on intervention each year, this programme had a much smaller allocation. While a lot of time was spent with the participants (five/six visits each), this was outside the budget allocations.
6. Due to the limited funding available for intervention, the inclusion of local organisations in the day-to-day running of such a programme is an important element. While CTC and Macroom E were very committed to the programme, inclusion

of a local organisation directly involved in the town mechanics (e.g. Chamber of Commerce, Tidy Towns Committee, etc.) would have been beneficial, allowing more direct promotion and local contact with participating, and potential, enterprises. Macroom Town Council was involved in the second year but its absence in the first year was unfortunate.

7. Regarding intervention, the heterogeneity of businesses was also an issue. As there was a difference in scope and size of the participants, the training sessions were, in the main, quite generic. Thus, sector-specific issues that arose were then examined during the on-site visits, which resulted in a higher time requirement than initially allocated.

7 Conclusions

1. The 'conventional' environmental management methodology, based on continual improvement cycles, extensive documentation and quantification, has been shown to be inappropriate for micro- service-oriented enterprises. This methodology works well for the larger (say >20 employee) operations – see Appendix 9 of the Supplementary Information¹³ which describes the successes of O'Donovan's Engineering Co. Ltd and Macroom Motors.
 2. A more appropriate methodology, based on a checklist approach, has been identified. The key components to be addressed by this methodology have been identified and are presented in the later version of the workbook. Infrequent increments of improvement occur in very small enterprises. Each of these may be associated with a step change identified in the checklist.
 3. The technical knowledge required for even small changes may be absent from small enterprises, particularly in the service area. However, this should not be a surprise since this knowledge is often weak in large service operations, e.g. hotels.
 4. Direct intervention and explicit advice are required by the majority of micro-enterprises. Such intervention must be highly efficient to be cost-effective and therefore must be targeted at sectors that are known to have high environmental impacts (e.g. hotels, pubs, garages) and that are homogeneous so that explicit checklists and, preferably, benchmarks can be rapidly devised.
 5. The timescale to improvement is affected by social factors, not solely economic ones. Gains may take a long time to realise and perseverance is needed to continue promoting change.
 6. Minimum and more advanced criteria have been identified and a scoring system proposed, should an award system be desired.
 7. The lessons learned from this project have already been adapted in developing the vintners' guidance in Monaghan County, under the auspices of the EPA's LAPD programme and several local authorities are seeking to apply the methodology in the new EPA LAPN programme. This project has been the proof-of-concept or prototype vehicle from which practical implementations may be deduced.
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Acronyms

BS	British Standard
CFL	Compact fluorescent light
CTC	Clean Technology Centre
EIP	Environmental Improvement Programme
EMAS	Eco-Management and Audit Scheme
EMS	Environmental management system
EPA	Environmental Protection Agency
ERTDI	Environmental Research Technological Development and Innovation
GHA	Green Hospitality Award
GLS	General lighting service
IEMA	Institute of Environmental Management and Assessment
INAP	Irish National Accreditation Body
KPI	Key performance indicator
LAPD	Local Authority Prevention Demonstration
LAPN	Local Authority Prevention Network
LED	Light-emitting diode
SME	Small- to medium-sized enterprise

An Gníomhaireacht um Chaomhnú Comhshaoil

Is í an Gníomhaireacht um Chaomhnú Comhshaoil (EPA) comhlachta reachtúil a chosnaíonn an comhshaoil do mhuintir na tíre go léir. Rialaímid agus déanaimid maoirsiú ar gníomhaíochtaí a d'fhéadfadh truailliú a chruthú murach sin. Cinntímid go bhfuil eolas cruinn ann ar threochtaí comhshaoil ionas go nglactar aon chéim is gá. Is iad na príomh-nithe a bhfuilimid gníomhach leo ná comhshaoil na hÉireann a chosaint agus cinntiú go bhfuil forbairt inbhuanaithe.

Is comhlacht poiblí neamhspleách í an Gníomhaireacht um Chaomhnú Comhshaoil (EPA) a bunaíodh i mí Iúil 1993 faoin Acht fán nGníomhaireacht um Chaomhnú Comhshaoil 1992. Ó thaobh an Rialtais, is í an Roinn Comhshaoil agus Rialtais Áitiúil a dhéanann urraíocht uirthi.

ÁR bhFREAGRACHTAÍ

CEADÚNÚ

Bíonn ceadúnais á n-eisiúint againn i gcomhair na nithe seo a leanas chun a chinntiú nach mbíonn astuithe uathu ag cur sláinte an phobail ná an comhshaoil i mbaol:

- áiseanna dramhaíola (m.sh., líonadh talún, loisceoirí, stáisiúin aistrithe dramhaíola);
- gníomhaíochtaí tionsclaíocha ar scála mór (m.sh., déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta);
- diantalmhaíocht;
- úsáid faoi shrian agus scaoileadh smachtaithe Orgánach Géinathraithe (GMO);
- mór-áiseanna stórais peitreal.
- Scardadh dramhúisce

FEIDHMIÚ COMHSHAOIL NÁISIÚNTA

- Stiúradh os cionn 2,000 iniúchadh agus cigireacht de áiseanna a fuair ceadúnas ón nGníomhaireacht gach bliain.
- Maoirsiú freagrachtaí cosanta comhshaoil údarás áitiúla thar sé earnáil - aer, fuaim, dramhaíl, dramhúisce agus caighdeán uisce.
- Obair le húdaráis áitiúla agus leis na Gardaí chun stop a chur le gníomhaíocht mhídhleathach dramhaíola trí chomhordú a dhéanamh ar líonra forfheidhmithe náisiúnta, díriú isteach ar chiontóirí, stiúradh fiosrúcháin agus maoirsiú leigheas na bhfadhbanna.
- An dlí a chur orthu siúd a bhriseann dlí comhshaoil agus a dhéanann dochar don chomhshaoil mar thoradh ar a gníomhaíochtaí.

MONATÓIREACHT, ANAILÍS AGUS TUAIRISCIÚ AR AN GCOMHSHAOIL

- Monatóireacht ar chaighdeán aer agus caighdeán aibhneacha, locha, uisce taoide agus uisce talaimh; leibhéil agus sruth aibhneacha a thomhas.
- Tuairisciú neamhspleách chun cabhrú le rialtais náisiúnta agus áitiúla cinntiú a dhéanamh.

RIALÚ ASTUITHE GÁIS CEAPTHA TEASA NA HÉIREANN

- Cainníochtú astuithe gáis ceaptha teasa na hÉireann i gcomhthéacs ár dtiomantas Kyoto.
- Cur i bhfeidhm na Treorach um Thrádáil Astuithe, a bhfuil baint aige le hos cionn 100 cuideachta atá ina mór-ghineadóirí dé-ocsaíd charbóin in Éirinn.

TAIGHDE AGUS FORBAIRT COMHSHAOIL

- Taighde ar shaincheisteanna comhshaoil a chomhordú (cosúil le caighdeán aer agus uisce, athrú aeráide, bithéagsúlacht, teicneolaíochtaí comhshaoil).

MEASÚNÚ STRAITÉISEACH COMHSHAOIL

- Ag déanamh measúnú ar thionchar phleananna agus chláracha ar chomhshaoil na hÉireann (cosúil le plannanna bainistíochta dramhaíola agus forbartha).

PLEANÁIL, OIDEACHAS AGUS TREOIR CHOMHSHAOIL

- Treoir a thabhairt don phobal agus do thionscal ar cheisteanna comhshaoil éagsúla (m.sh., iarratais ar cheadúnais, seachaint dramhaíola agus rialacháin chomhshaoil).
- Eolas níos fearr ar an gcomhshaoil a scaipeadh (trí cláracha teilifíse comhshaoil agus pacáistí acmhainne do bhunscoileanna agus do mheánscoileanna).

BAINISTÍOCHT DRAMHAÍOLA FHORGHNÍOMHACH

- Cur chun cinn seachaint agus laghdú dramhaíola trí chomhordú An Chláir Náisiúnta um Chosc Dramhaíola, lena n-áirítear cur i bhfeidhm na dTionscnamh Freagrachta Táirgeoirí.
- Cur i bhfeidhm Rialachán ar nós na treoracha maidir le Trealamh Leictreach agus Leictreonach Caite agus le Srianadh Substaintí Guaiseacha agus substaintí a dhéanann ídiú ar an gcrios ózóin.
- Plean Náisiúnta Bainistíochta um Dramhaíl Ghuaiseach a fhorbairt chun dramhaíl ghuaiseach a sheachaint agus a bhainistiú.

STRUCHTÚR NA GNÍOMHAIREACHTA

Bunaíodh an Gníomhaireacht i 1993 chun comhshaoil na hÉireann a chosaint. Tá an eagraíocht á bhainistiú ag Bord lánaimseartha, ar a bhfuil Príomhstíúrthóir agus ceithre Stíúrthóir.

Tá obair na Gníomhaireachta ar siúl trí ceithre Oifig:

- An Oifig Aeráide, Ceadúnaithe agus Úsáide Acmhainní
- An Oifig um Fhorfheidhmiúchán Comhshaoil
- An Oifig um Measúnacht Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáide

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag ball air agus tagann siad le chéile cúpla uair in aghaidh na bliana le plé a dhéanamh ar cheisteanna ar ábhar imní iad agus le comhairle a thabhairt don Bhord.

Science, Technology, Research and Innovation for the Environment (STRIVE) 2007-2013

The Science, Technology, Research and Innovation for the Environment (STRIVE) programme covers the period 2007 to 2013.

The programme comprises three key measures: Sustainable Development, Cleaner Production and Environmental Technologies, and A Healthy Environment; together with two supporting measures: EPA Environmental Research Centre (ERC) and Capacity & Capability Building. The seven principal thematic areas for the programme are Climate Change; Waste, Resource Management and Chemicals; Water Quality and the Aquatic Environment; Air Quality, Atmospheric Deposition and Noise; Impacts on Biodiversity; Soils and Land-use; and Socio-economic Considerations. In addition, other emerging issues will be addressed as the need arises.

The funding for the programme (approximately €100 million) comes from the Environmental Research Sub-Programme of the National Development Plan (NDP), the Inter-Departmental Committee for the Strategy for Science, Technology and Innovation (IDC-SSTI); and EPA core funding and co-funding by economic sectors.

The EPA has a statutory role to co-ordinate environmental research in Ireland and is organising and administering the STRIVE programme on behalf of the Department of the Environment, Heritage and Local Government.