The Potential for Development of Eco Industries in Ireland

By

Lisa Cawley B.Sc.

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Dissertation Declaration

Title: The Potential for Development of Eco Industries in Ireland

Author: Lisa Cawley B.Sc.

Supervisor: Mr Noel Connaughton

This thesis is submitted in part fulfilment of the requirements for the award of Master of Science in Environmental, Health and Safety Management at Institute of Technology, Sligo. It is entirely my own work and has not been submitted to any other university or higher education institution, or for any academic award. Where use has been made of work of other people, it has been fully acknowledged and fully referenced.

Signed: Lisa Cawley

Lisa Cawley

September 2005.

Abstract

This dissertation sought to determine the status of Eco Industries in Ireland with a view to incorporating ethical investment, policies of sustainable development and support systems as a means to improve Ireland's competitiveness and increase innovation to aid Ireland's endeavour to become a more knowledge based economy.

In order to establish the current level of awareness of Eco Industry in Ireland, 100 questionnaires were distributed among a range of different types of companies, selected from the industrial sector, using relevant industrial classifications. A response rate of 28% was recorded and the issues discussed in this dissertation are based on the information supplied by the 28 respondents.

A discussion of the results identified a low response rate from the small to medium sized companies, which lead to a greater representation of the opinions of large companies. The current level of awareness of Eco Industries was also identified. Opinions were also sought and obtained from respondent companies to the specific drivers and barriers in place, which promote and limit the number of companies adopting Eco industry status. The discussion of results also identified the number of companies with some form of environmental and safety management systems in place. These systems are the first steps towards Eco Industry status and with additional support this can be achieved.

From the findings of this study recommendations are given to support and promote the future adoption of Eco Industry in Ireland.

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1.0 Introduction

Industry remains an important sector to the economy in Europe. However, industry in Western Europe and especially Ireland are feeling the effects of the recent economic booms in Asia and India. In 2000 the European Council in Lisbon set an objective for the European Union to become the most competitive and dynamic knowledge based economy in the world. In Europe the move towards Eco Industries has been strengthened as studies have shown the need to improve the economic costs the environment is placing on organisations, as studies are showing that "*the manufacturing industry has, next to households, the highest marginal costs of meeting the Kyoto targets*" (www.countries.eea.eu.int).

Ireland is a small open, trade dependent economy and is one of the fastest growing economies in the developed world. Currently, Irish industry is at a crucial point in its development as it plays an important role in Ireland's growing economy. Ireland has become a world leader in a number of aspects of economic performance, and between 1990 and 1998, Ireland was the fastest growing OECD economy (EPA, 2002). In the past Ireland's environment did not suffer to a great extent from intensive development. However, recently Ireland's environment is showing signs of decline due to development. Ireland's environment faces challenges of controlling pollution i.e. air, noise, soil and water pollution and improving waste management and nature protection. The decline in the environment reflects the inadequate environmental infrastructure and consumptions patterns that exist in Ireland.

Not only have changes been seen in relation to how the environment is tackled, but also the importance of health and safety is now paramount within organisations. These areas can be tackled by implementing appropriate environmental, health and safety policies and the integration of environmental and health and safety concerns into economic decisions. The challenge to industry is to improve the cost effectiveness of the two areas in regards to compliance with regulations while maintaining the sector's competitiveness.

With the focus of sustainable development, the environment, health and safety should be seen as issues to be integrated into economic growth and social development to achieve a balanced and sustainable development.

Industry not only contributes to environmental pollution and health and safety problems. It also helps to solve these problems. For the purposes of this study, Eco Industries have been defined as:

"Activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use"

(OECD/Eurostat, 1999)

The advantages of the Eco Industries have been identified through a number of studies carried out by the EU. As identified in the ECOTEC reports there are a number of reasons why this area should be promoted. For the purpose of this study, Eco Industries are being investigated for its promotion within Ireland with the intention of integrating health and safety management into a revised definition. This will be carried out by investigating management systems, investment and support systems with a view to integrate the environment, heath and safety issues to achieve a competitive knowledge-based economy.

2.0 Literature Review

2.1 Eco Industries

For the purposes of this study, the current Eco Industries definition is as follows:

"Activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use". (OECD/Eurostat, 1999)

From this definition of Eco Industries a wide number of activities are involved. The main activities used to establish this definition in the EU are described in Table 2.1. These activities are carried out in most all industries in Ireland today. These activities should be taken advantage of and promoted as "green" activities to stakeholders and use this as a promotion tool for improving an organisation's image.

Currently, Europe's Eco-Industries have been placed on a database, which provides an innovative, central source of information of over 7000 European companies providing goods and services for environmental protection. This database provides valuable information for consumers of environmental goods and services and acts as a promotional tool for the promotion of Eco Industries. Further promotion of Eco-Industries is carried out by a number of associations such as the UK based Environmental Industries Commission (EIC) and the European Committee of Environmental Technology Suppliers Associations (EUCESTA).

Table 2.1 Eco Industries Activities

Eco Industry Group	Environmental Area
Pollution Management*	Air Pollution Control (APC) Waste Water Treatment (WWT) Waste Management (WM) Remediation and Clean up of Soil & Groundwater Noise & Vibration control Environmental research and development Public Environmental Administration Private Environmental Management
Resources Management	Water Supply Recycled Materials Nature Protection

Note (*) Pollution Management includes all investments in cleaner technologies and process. Such investments will be incorporated mainly in to the values for APC, WWT & WM. (ECOTEC, 2002)

In the growing European economy and market Eco industries are playing a vital role in relation to Europe's export trade and employment. In 1999, the total EU Eco Industries supplied €183 billion of goods and services, of which €54 billion were investment goods and €129 billion were services, including 'in-house' non-market services. The total pollution management and cleaner technologies Eco Industry supplies are around €127 billion of goods

and services a year, of which €40 billion are investment goods and €87 billion are services, also including 'in-house' non-market services. The total resources management Eco Industries (excluding renewable energy plant) supply around €56 billion of goods and services a year, of which €14 billion are investment goods and €42 billion are services, including 'in-house' non-market services (ECOTEC, 2002).

The investment in Eco Industries in the EU each year totals to €54 billion with resulting benefits for construction, capital goods industries and associated services. The average per capita expenditure in the EU in 1999 for €340 for pollution management and €150 for resources management, which is close to an average per capita expenditure of €500 overall.

Eco Industries also contribute to employment in EU with direct employment in the EU in Eco Industries amounts to over 2 million (full time employment) jobs – around 1.5 million jobs for pollution management and 650,000 for resources management. The 1.5 million jobs in pollution management Eco Industries are split into over 1 million operations-related jobs and 400,000 capital-related jobs. For every €1 billion of investment in environmental goods and services there is another €1.6Bn generated in operating expenditure and the generation of 30,000 direct jobs (*Idem*).

The major non-EU companies involved in the world's environmental markets are the USA and Japan, both of which have more substantial export sales than most EU Member States. Countries such as Canada are also increasing their shares in the world markets.

2.2. Importance of Eco Industries in Ireland

Ireland exports between 5% and 10% of its total turnover in environmental goods and services, in markets in Central and Eastern Europe, North America, the Middle East and SE Asia. However, export activity is generally confined to niche markets and the overall performance of the Irish Eco Industries sector is limited compared with the larger EU countries and the US e.g. environmental service sectors in Austria, Finland, France, Germany

and the Netherlands obtain between 20% and 40% of their turnover from exports, compared with approximately 10% for the Irish sector (ECOTEC, 2002).

Enterprise Ireland has stated in the ECOTEC report (*Idem*) that it does not believe that the Irish environmental goods and services sector offers as good growth prospects, compared to other sectors of the Irish economy, such as software, chemicals, electronics, food and international services.

The environmental market is a growth one. The environmental market prices play an important role on the uptake of Eco Industries. Products that declare themselves as "green" will sell, however they must successfully compete in the marketplace with products, which may be cheaper. It is these market prices on environmental, health and safety technologies that have a powerful influence on the behaviour of businesses and consumers. During the 1980s and 1990s there was an increased use of economic instruments, which replaced regulatory force with incentives that encouraged firms to change their behaviour in a particular direction i.e. a change from a reactive approach to a proactive approach. This was done, as the costs to the economy of making the change, were lower with economic instruments than under a command and control system, as the market is a more efficient mechanism for achieving the desired result (www.europa.eu.int).

The EU supports the use of economic instruments in the field of environmental protection. Its Fifth Environmental Action Plan states:

"In order to get prices right and to create market-based incentives for environmentally-friendly economic behaviour, the use of economic and fiscal instruments will have to constitute an increasingly important part of the overall approach" (Hilton, 2001).

Changes in market prices can lead to new business opportunities to develop services and products that reduce the pressures on the environment and fulfil social and economic needs. This is carried out by placing a price on pollution and health and safety infringements, by removing subsidies that encourage wasteful use of natural resource and by increasing fines

e.g. under the Safety, Health and Welfare at Work Act, 2005, a person convicted may be fined up to €3m and/or sentenced to imprisonment for a period not exceeding two years when health and safety procedures are breached (www.europa.eu.int).

The promotion of Eco Industries is essential for its success. The introduction of Eco Industries can be traced through international policies such as Sustainable Development and the European Union's polices. Throughout Europe Eco Industries promotion is supported by Member States polices and legislation and competent bodies. These policies promote the move towards integration of the environment, health and safety and economics into industries. The promotion of Eco Industries should emphasise that participation can allow an organisation to be more competitive, compliant and with the growing trend of ethical investment, these industries are more attractive to investors.

2.3 Policies

In Europe, the European Union (EU) sets down policies, which are derived from a number of international policies. The promotion of Eco Industries is carried out through the integration of these policies. In these policies, integration of the environment and economic is generally approached through the concept of sustainable development strategies. Article 6 of the Maastricht Treaty in 1994 establishing the European community states:

"Environmental protection must be integrated into the definition and implementation of the Communities policies and activities".

However, integration in Western Europe is particularly slow compared to the rest of Europe due to resource limitations and competing priorities (www.countries.eea.eu.int). To combat this low uptake, policy makers and regulators have taken into account of the effects on competitiveness in new policies and legislation e.g. in Europe's and Ireland's Sustainable Development policies supports innovation to encourage and increase competitiveness.

2.3.1 Sustainable Development

Sustainable Development is globally recognised as a means of managing and integrating economic, social and environmental issues. In 1992 the United Nations Conference on Environmental and Development (The Earth Summit), was held in Rio de Janeiro. It was the first international conference to discuss Sustainable Development and its implementation. Sustainable Development was first introduced by the World Commission on Environment and Development (The Brundtland Commission) in 1987 and defined as:

"Development that meets the needs of the present without compromising the activity of future generations to meet their own needs"

Sustainable Development in relation to economics and the environment encourages market reform to create businesses to develop services and products that reduce pressures on the environment and meets social and economic needs for example placing a price on pollution. In return this should lead to the positive reform in corporate and consumer behaviour (www.europa.eu.int).

The European Union included the principle of Sustainable Development in the Maastricht Treaty in 1994. The Treaty lead to integration of Sustainable Development into EU policy in 1997, which provided for environmental protection requirements to be incorporated into Communities policies and activities since then.

2.3.1.1 Sustainable Development in European Policy

The EU recognises that incorporating Sustainable Development into environmental policy contributes to making the EU the world's most competitive knowledge based economy. In 1998 the European Council laid down the means to integrate environmental concerns into EU policies. This was known as the Cardiff Process. As a result of the Cardiff process the first EU-wide Sustainable Development strategy was produced at the European Council Summit in

Gothenburg, Sweden, 2001 which is known as *A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development.*

The strategy identifies the barriers to Sustainable Development such as global warming. The strategy introduced a new approach to policymaking i.e. economic growth supporting social progress and the environment, which meant that social policies should strengthen economic performance and environmental policy should be cost-effective This strategy was used as a framework to draw up Ireland's National Sustainable Development plans to achieve this new approach.

The 2001 strategy recognised the importance of getting market prices right to encourage reform by businesses and individuals to promote Sustainable Development. This also recognised the importance of innovation in the development of new technologies, which reduce pollution and the risks to health and safety. The policy plans to place a price on pollution (polluter pays principle), placing an incentive for new cleaner production methods, which in turns promotes "green" industry. For the strategy to work successfully governments must fully integrate the economic, environmental and social areas of Sustainable Development (www.europa.eu.int).

2.3.1.2 Sustainable Development in Irish Policy

Irish business and industry recognises the importance of Sustainable Development:

"To ensure that the economy and society in Ireland can develop to their full potential within a well protected environment, without compromising the quality of that environment and with responsibility towards present and future generations and the wider international community"

(DOELG, 1997)

The National Sustainable Development Policy - *Sustainable Development: A Strategy for Ireland* highlighted the need for industrial development to optimise the use of natural

resources and to minimise the production of waste and emissions to remain competitive, compliant and prosperous. *Comhar – The National Sustainable Development Partnership,* organises conferences, seminars, workshops etc. to raise the awareness of using technologies and innovations that reduce their impact on the environment. By doing this *Comhar* plays a key role in the development and implementation of these policies such as the integration of the environmental and economics as the policy to promote the further development of Eco-Management and Audit Schemes (EMAS) (*Idem*).

2.3.2 Agenda 21

Another means of promoting Sustainable Development and Eco Industries is Agenda 21. Agenda 21 highlights the important role of business and industry has in influencing the social and economic development of a country. Agenda 21 has a number of key aims to be achieved by business and industry to reduce their impacts on resource use and the environment (www.environcentre.ie)

The Irish Agenda 21 plan is set out in the *Sustainable Development: a Strategy for Ireland* published in 1997 (DOELG, 1997). Section 30 of Agenda 21 outlines the main areas of focus for strengthening the role of business and industry in Sustainable Development as:

- Integration of environmental management in industry as the highest corporate and key determinant to Sustainable Development
- Encouraging industry to move beyond compliance driven environmental performance and take further responsibility though the adoption of voluntary initiatives such as environmental management systems (EMS)
- Promotion of responsible entrepreneurship
- A strong focus on supporting environmental performance improvement in SMEs
- Using free market economic instruments to internalise the actual environment costs of goods and services.

These five focus points can be used as a means for promoting Eco Industries as they all follow the definition of what it is to be an Eco Industry.

2.3.3 Corporate Social Responsibility (CSR)

Corporate Social Responsibility (CSR) can be defined as a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis.

The European policy *"European Roadmap for Business – towards a Sustainable and Competitive Enterprise"* aims to promote the Lisbon Strategy by setting goals. These goals aim to improve health and safety and environmental performances by fully integrating CSR into business practices (www.euractiv.com/Article?tcmuri=tcm:29-136470-16&type=news).

The European Union and the Irish government support CSR. Under the Department of Enterprise, Trade and Employment Sustainable Development Strategy 2003-2005 CSR objectives are:

- Actively promote the adoption of good corporate practices by enterprises.
- Continue to promote the implementation of sustainable trade policies and practices at national, EU and international level.
- Enhance the capacity of enterprises to move towards sustainable management principles and practices.
- Support sustainable consumer choice through ensuring the provision of accurate and credible social and environmental information on products and services (DETE, 2002).

CSR can have a positive impact at both the micro and macro economic levels. The potential benefits for enterprises of CSR include enhanced company reputation and image, improved financial performance, increased productivity and efficiency, employee morale and loyalty and less regulation in the future. Also, CSR is recognised as being intrinsically linked to competitiveness and future profitability.

However, integrating CSR can lead to a number of constraints for the small medium sized enterprises as the financial budgets for CSR are quite large which may cause delay in any

other long-term strategies. Other limitations on CSR are time constraints and a lack of finance and personnel (www.bitc.ie/csrforsmes.htm).

2.4 The Economy, the Environment and Health and Safety

In recent years Ireland has gone under economic transformation, which has given rise to many changes. With the increases in economic activity there has been increased production and consumption, which has caused greater demands and pressures on the environment in terms of increased uses and depletion of natural resources, increased waste generation and the greater threats of pollution incidents. However, as economies grow, technologies change and efficient methods of production are created which reduce the demands on the use of natural resources and reduce pollution levels.

The relationship between the economy and environment is important as surveys have shown a growing trend in the public willingness to pay for environmentally friendly products and services are also related to people increase income. This growing trend of people being concerned with the environment was clearly seen in the Irish National Survey – *Attitudes and Actions* (DOELG, 2000), 78% of the people surveyed were in favour of maintaining a balance between environmental protection and economic development. This move to environmentally friendly products and services should be exploited to Irish businesses advantage and aid in the promotion of Eco Industry. However, strict environmental requirements are viewed as having restrictive qualities and slow down development.

Like the relationship between the economy and the environment many changes in health and safety has been seen in Irish business since the introduction of the Safety, Health and Welfare at Work Act, 1989 and now the Safety, Health and Welfare at Work Act, 2005 is coming into effect September 1st 2005. Since its introduction businesses are obliged to comply with the legislation or face legal action. Investing in safety is often viewed as "lost money" and is oftentimes carried out as a means of complying with legal requirements and reducing expenditure on insurance premiums (HSR, 2003).

C&M Safety Ltd carried out a survey on companies' "A*ttitudes and Spending on Health and Safety*". This study was based on a survey of 65 firms in the mid-west and south of Ireland. The C&M managing director, Margaret Culhane, stated as a result of the survey, that companies view *"health and safety as a growing cost burden"*. Studies have indicated that work-related accidents and illnesses are costing the Irish economy as much as €1.6bn (www.healthandsafetyreview.ie).

The benefits of implementing management systems have been studied by the Health and Safety Commission (UK) and the studies published to encourage businesses to invest in safety as the organisations involved all the reported significant and cost beneficial improvements in performance, the study reported one company reported a savings of £11m (*Idem*).

2.5 Investment

With public attitudes moving towards environmentally friendly products and services and the investment in Eco Industries in the EU reaching totals of €54 billion. More consideration should be placed in this area within Irish markets as investors are seeking to distinguish between the good and the bad companies within a sector, by comparing aspects such as resource efficiency and pollution levels. Investors looking at companies are also looking at the profitability implications of good environmental management. The advantage of this approach is that by discriminating between competing organisations based on their environmental, health and safety performances, sends a clear market signal that being environmental and health and safety conscience pays. However, many investors who are making environmental investments out of principle may still be reluctant to invest in the most polluting sectors, (e.g. chemicals, conventional energy) even if they are not the worst in the sector (Delphi International Ltd., 1997).

The London Stock Exchange has adopted the move towards health and safety conscious companies since the introduction of the *Turnbull Report on Risk Assessment* which requires companies quoted on the Stock exchange to have "*a sound system of internal control to*

safeguard shareholders investment". This requires that all risks financial, safety and environmental be reviewed and controlled (HSR, 2000).

2.5.1 Ethical Investment

Ethical investment products (such as socially responsible, green, environmental and sustainable funds) are now one of the fastest growing sectors in financial services in both their size and variety. The value of ethical funds worldwide stood at an estimated €3,000 billion in 2001 (www.europa.eu.int). Most ethical funds invest their assets in shares of companies listed on the stock exchanges. The numbers of companies in an ethical fund varies from 25-200, but on average between 40-100 companies are included (Kreander, 2001).

Ethical funds screens out organisations, which are found guilty of practices such as pollution and third world exploitation. Ethical investment has mainly taken the form of screened mutual funds, which assess and invest in large companies. In the past 10 years there have been a large number of ethical funds launched, which have been financially successful. This is a result of the population becoming increasingly aware that ethical investment options exist and also connections have been made between good environmental and financial performance in organisations. Ethical investment products are seen as a niche market product but investors are using these funds as a means to recognise companies that represent a good investment opportunity. There are many different types of funds with different screening methods. This is due to the commercial need for ethical fund managers and also rating agencies to differentiate their funds from others (O'Rourke, 2002).

Ethical investments are very popular in the United States, where 13% of funds are invested in companies with a high degree of corporate responsibility and just over 5% of British investors put their money into ethical funds, according to figures from UBS Warburg, a leading European investment bank. Although there is little demand for these funds in Ireland in interest in these funds is growing (Hughes, 2002). In France, companies listed on the stock exchange are required to report on their environmental and social performance. After this was introduced on the French Stock Exchange, the number of companies in the top 100 leapt to

21% in 2002 after having flat-lined at 4% for the previous six years. Reporting on environmental and social performance increased from 21% in 1999 to 28% amongst GFT250 in Japan in 2001 after the government issued reporting and indicator guidelines (www.endsreport.com).

There are a large number of ethical funds available and some of the best known are described below.

2.5.1.1 The Dow Jones Sustainability Index

With the growing interest in ethical investment products the Dow Jones (DJ) global financial index developed the Dow Jones Sustainability Group Indexes (DJSGI), which is aimed to identify the top 200 'sustainability-driven' companies from the top 2,000 stocks in the DJ global financial index. The assessment focuses on a company's pursuit of sustainability opportunities such as meeting market demands for sustainable products and services. However, the index is based on the judgement of consultants using information provided by the companies i.e. policies, management systems, auditing and reporting rather than performance data i.e. emissions, energy usage, etc (Hilton, 2001).

2.5.1.2 FTSE Ethical Index

The Financial Times Stock Exchange (FTSE) index launched an ethical index called FTSE4Good indices in 2001. At the time two-thirds of the FTSE100 companies immediately became eligible for inclusion in the index. However, FTSE tightened its environmental criteria, under which some organisations had initially escaped assessment altogether. Companies already included on the indices were given a timeframe to disclose their environmental policies and to demonstrate they had management systems where necessary. The FTSE4Good group of ethical indices removed seven firms after they refused to comply with enhanced environmental requirements brought in 2003. Three of the excluded firms - Elan (Ireland), Goldshield (UK) and Tenet Healthcare (US) - are in the pharmaceuticals and healthcare sector, which is regarded by FTSE as having a high impact on the environment.

Three had a medium impact - Norwegian hydroelectric generator company, Hafslund, US banking firm Suntrust and the St Ives printing company in the UK. The last company excluded was the UK software business, Royalblue. Since this the Association of Chartered Certified Accountants (ACCA), reported that about 80 % of FTSE 350 Company Groups now refer to environmental issues in their annual reports (EIRIS, 1999).

The groups reported on the index must meet FTSE's minimum requirements for having an environmental policy and environmental companies are those where the environment is not just a concern, but is a core part of their business and often being the "source" of their business. The companies on the index can be divided in the traditional environmental sector (waste disposal, water) whose job it is to handle industry's impact on the environment and the "green" pioneers developing new, environmentally sound approaches to business. These are companies who have relatively low environmental impact (measured by data such as toxic releases or regulatory fines).

However, a weakness of the FTSE4Good criteria is that they assess only policies and procedures and not environmental impacts. FTSE4Good is considering developing key performance indicators on a sector basis to enable investors to compare companies. The new environmental criteria is based on the principle that all organisations should at least have an environmental policy, but that those deemed to have a greater impact must do more must demonstrate compliance with a variable number of indicators, ranging from documentation of objectives and targets to having systems for management audit and review.

2.5.1.3 Environmental Technology Funds

These are funds that seek to invest primarily in companies that provide environmental technologies and services. The companies typically are involved in recycling, renewable energy and waste management. Funds in this category include the Swedish SEB Miljöfonden, Wasa Miljötoknikfonden, Swiss Orbitex Health and Environment and the UK Commercial Union Environmental Trust (Kreander, 2001).

2.5.1.4 The Environmental Management Index

This index identifies companies that have made progress on environmental management. The indicators investors look for when investing in the environmental management index include:

- Corporate environmental standards,
- Environmental reports,
- Environmental reporting awards,
- Adoption of EMS such as EMAS or ISO 14001,
- Alternative energy development and energy efficiency certification.

2.5.1.5 The Stewardship Fund

Friends First and First Active PLC introduced the Stewardship Fund, the first ethical investment fund available on the Irish market. The fund addresses social responsibility by selecting investments that make a positive contribution to society while avoiding investment in business activities, which is deemed harmful (Kelly, 2005).

2.6 Motivators for Promotion

For the promotion of Eco Industries in Ireland, incentives need to be put in place to attract businesses to adopt an "eco" approach. The following factors play a vital role in the future development of Eco Industries in Ireland.

2.6.1 Legislation

The European Communities Act, 1972 was introduced enabling Ireland to join the then European Economic Community (EEC) now known as the European Union. According to this Act, Ireland, as a member of the EU, were legally bound to transpose European legislation into Irish law. The legal basis for EU's environmental policies and legislation is found in articles 100a and 130 r-t of the Maastricht Treaty on the European Union (www.europa.eu.int/abc/obj/treaties/en/entoc01.htm) Therefore, the majority of legislation, regulations and policies in Ireland based on environmental, health and safety issues have been introduced and implemented from EU Directives and environmental, health and safety policies.

As the environmental and health and safety legislation constraints tighten, treatment, disposal, control measures and penalties become more and more costly for business and industry the result is that environmental compliance is no longer just about avoiding fines for specific pollution incidents. The increased link between the environment and the economy (through pricing for externalities), the supervisory powers of licensing authorities and a watchdog role of the public and non government organisations have all made environmental compliance important for competitiveness, improving relationships with customers and for future development. Ireland has a modern body of environmental and health and safety legislation that requires regular updating, particularly in line with EU Directives e.g. The Protection of the Environment Act 2003 brings the Environmental Protection Agency Act 1992 and the Waste Management Acts fully into line with the Integrated Pollution Prevention and Control Directive (96/61/EC).

2.6.1.1 The Protection of the Environment Act, 2003

This is a significant piece of environmental legislation. Its main purpose is to fully transpose the Council Directive 96/61/EC concerning Integrated Pollution Prevention and Control (IPPC) licensing by making appropriate amendments to the now known EPA Act, 1992-2003 and the Waste Management Act, 1997-2003. These amendments improve administration and enforcement of these Acts.

The Protection of the Environment Act, 2003 amends the pollution control system applying to significant industrial activities in Ireland over the past 10 years. The Protection of the Environment Act, 2003 substitutes the First Schedule of the EPA Act, 1992-2003 and prohibits the carrying out of certain industrial activities without the now known Integrated Pollution Prevention and Control (IPPC) license. IPPC licensable activities are spread across thirteen different industry sectors (including minerals, energy, metals and chemicals). Under Section 84 of the Protection of the Environment Act, 2003, the EPA is now formally entitled to consider whether the applicant for an IPPC license is a fit and proper person.

The Act makes important changes:

- Section 83 - Sets out the main procedural steps for an IPPC license application and determination
- Section 82 - Deals with licence reviews and amendments; and
- Section 99(H) - Specifies the enforcement powers for the Environmental Protection Agency ("EPA").

Section 99(H) of the act introduces a public watchdog role to members of the public to apply to the High Court or the Circuit Court for appropriate orders where an activity is being carried on *"in contravention of the requirements of the [Act]"*. This is a significant new element of control over IPPC licensed activities and also, places some pressure on organisations as the public can object to activities carried out more readily therefore bringing more attention to the organisation and affecting the organisation's image and future business.

The Act also introduces increased powers and penalties for more serious environmental pollution offences. The Protection of the Environment Act, 2003 now carries penalties (under Sections 10 and 22) of up to €15m and states that the level of fine must reflect the extent of damage to the environment and any remediation required and for ongoing offences the Act provides for fines of up to €130,000 for each day an offence continues after conviction. Under Sections 14 and 24, EPA Inspectors are given increased powers of inspection and data recording when investigating premises or incidents. These penalties and new provisions should encourage an organisation to take on an "environmentally friendly" approach as it will aid in reducing an organisation's overall impact and therefore reduce the treat of penalties for non-compliance.

2.6.1.2 Waste Management Act, 1996-2003

The Waste Management Act, 1996-2003 has a number of provisions that if not adhered to and complied with can affect an organisation's image and if prosecuted lead to increases in insurance costs and losses in investment. Under Section 9 of the act, an offence committed by a corporate body that is proved to have been committed with the consent of the director, manager, secretary or other similar officer of the organisation, can be charge guilty of the offence and prosecuted under Section 11, of the Waste Management Act, 1996-2003 or fined under Section 22 of the Protection of the Environment Act, 2003.

2.6.1.3 Environmental Liability Directive

The Environmental Liability Directive (2004/35/CE) was adopted following European Parliament approval in April 2004. It is aimed at preventing environmental damage by forcing industrial polluters ("operators") to pay prevention and remediation costs. Ireland has until 30th April 2007 to incorporate the Directive's provisions into law.

The Directive aims to establish a framework that would prevent "significant environmental damage" or rectify damage after it has occurred. Under this Directive, operators carrying out "hazardous" activities will be held liable (i.e. no need to show fault or negligence) for preventing or restoring any damage caused by those activities to land, water and protected habitats and species. Plus, operators carrying out other, less harmful, activities will be held liable when damage to protected habitats and species has been caused by their fault or negligence (www.environment-agency.gov.uk).

Under this Directive Member States will be under a duty to ensure that the necessary preventive or restorative measures are actually taken. The Directive states that insurance and other and financial security should be encouraged but not required by Member States (IIF, 2005). This Directive when transposed into Irish legislation will provide further incentive for organisations to adopt an Eco Industry status to reduce liability.

2.6.1.4. Safety, Health and Welfare at Work Act, 2003

This act repeals the Safety, Health and Welfare at Work Act, 1989. The act imposes a statutory duty on employers to ensure in so far as reasonably practicable the health and safety of their employees while at work. The Safety, Health and Welfare at Work Act, 2005, which comes into force on the 1st of September 2005 has a number of changes to the original 1989 Act.

Under Section 8- the *General Duties of Employers*, in so far as is reasonably practicable are:

- Managing and conducting work activities to ensure health and safety: the duty to manage
- Managing and conducting work activities so as to prevent improper conduct or behaviour likely to put the health and safety of employees at risk
- The place of work, to ensure the design, provision and maintenance and access and egress to and from it and plant, machinery and other articles are safe and without risk to health
- The safety and prevention of risk to health from the use of any substance or article or exposure to noise, vibration or ionising or other radiation or any other physical agent
- Providing systems of work that are planned, organised, performed, maintained and revised, so as to be safe and without risk to health
- Providing and maintaining welfare facilities
- Providing information, instruction, training and supervision to ensure employees' health and safety
- To determining and implementing, having identified the hazards and assessed the risks, the measures necessary to protect health and safety, taking into account the General Principles of Prevention (Schedule 3) and changing circumstances and by, where risks cannot be eliminated or adequately controlled, providing and maintaining suitable protective clothing and equipment.

It is mandatory for every employer under the Act under Section 20 to prepare a *Safety Statement* based on the identification of hazards and an assessment of health and safety risks at

the place of work. The safety statement should be brought to employees' attention on commencement of employment, following any amendments and at least annually and it should be brought to the attention of other people at the place of work who may be exposed to risks to which it applies. The statement should identify the way in which employees' health and safety is to be secured and managed.

Under Section 13- the following *Duties of Employees* must be adhered to Employees must:

- Not to be under the influence of an intoxicant to the extent that they may endanger their own or others' health and safety
- To comply with statutory provisions and take reasonable care to protect their own health and safety and that of others who may be affected by their acts or omissions
- To attend training and undergo such assessment as may reasonably be required
- Co-operate with employers or other persons to enable the employer or other person to comply with statutory requirements
- Not to engage in improper conduct or behaviour that is likely to endanger their own or others' health and safety
- To make correct use - having regard to training and instructions - of articles or substances, including protective clothing, supplied to protect health and safety
- Report, as soon as possible, defects in systems of work, articles or substances, or work being carried on which might endanger health and safety.

Organisations need to consider Section 78 - *Penalties*. Under this section, charges for less serious offences will be brought to the District Court and if convicted, the person charged will be fined a sum not exceeding €3,000. For serious offences brought to the District Court, a person convicted may be fined up to €3,000 and/or imprisoned for a period not exceeding six months. If the charges are brought on indictment to the Circuit Court, a person convicted may be fined up to €3m and/or sentenced to imprisonment for a period not exceeding two years.

These penalties should encourage organisations to incorporate a safety management system to ensure compliance at all times as the fines have major economic implications to an organisations and a safety management system could reduce this risk.

Liability of directors and officers under Section 80 has implications for organisations who are oftentimes non compliant. Where an offence is proved to have been committed with the consent or attributed to any neglect on the part of a director or manager or other officer of the company - that person, as well as the company, will be guilty of an offence and be liable to be proceeded against.

Section 81- *Onus of Proof,* now leaves the onus of proof onto the defendant and it is up to a person charged with non-compliance to a duty, to prove that it was not practicable for him/her/it to do more than was in fact done to satisfy the duty or requirement. If an organisation is brought to court under this section, organisations may find it difficult to satisfy the court in proving that it carried out all that was possible to avoid the non-compliance occurring (Crowley, 2005).

2.7 Management systems

In recent years the importance of management systems in businesses has increased since the introduction of the ISO 9000 series developed by the International Standards Organisation in 1987. Accredited management systems began with the development of the ISO Quality Management Standard (ISO 9000). The key element of a management system is the integrated and goal-oriented approach for the whole organisation (including top management, procurement, design, sales, accounting etc.). This integration is being fostered by standards for environmental management systems such as the Eco-Management and Audit Scheme of the European Union (EMAS) and the ISO 14001, the international standard for environmental management systems and the health and safety management system - OHSAS 18001.

Implementing management systems could be considered as an activity of Eco Industries as management system have been developed as tools to aid in the management of organisations to better identify, manage and control their activities that can impact health and safety and the environment which is what an Eco industry sets out to do.

2.7.1 Environmental Management Systems

Following the success of the Quality Management Standard (ISO 9000), a number of environmental management systems were developed in Europe based on the ISO 9000 standard e.g. the BS 7750 (British Standard for Environmental Management) and the Irish Standard IS 310.

The adoption of accredited environmental management systems is not mandatory in Ireland, however, any organisation with an IPPC license are legally required to have, as a minimum, an informal EMS. The Environmental Protection Agency Act, 1992-2003 requires IPPC licensed organisation to:

i. Continuously improve the organisation's environmental performance
ii. Report environmental performance to the public.

Organisations now have two environmental management systems to be certified to – ISO 14001 and EMAS. Though these environmental management systems are similar there are some notable differences between the two, (refer to Table 2.2).

2.7.1.1 ISO Standard- ISO 14001

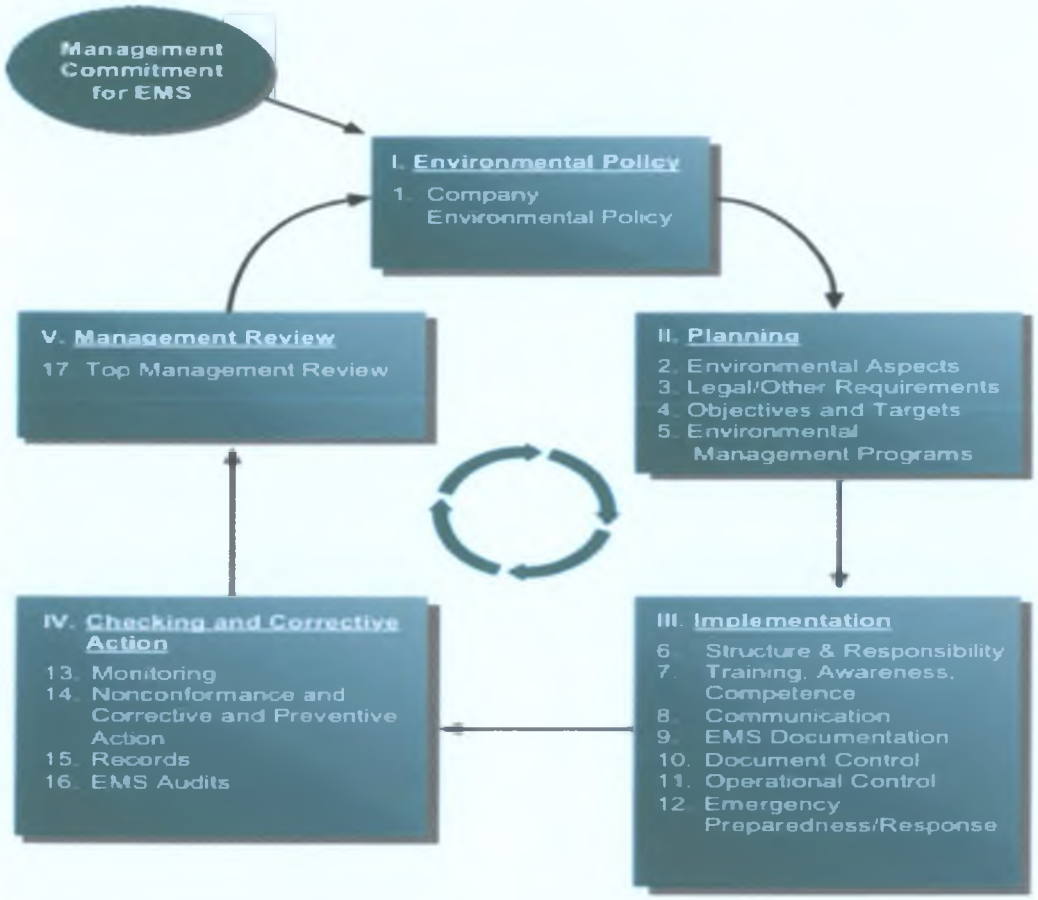
ISO 14001 is recognised as an environmental management standard throughout the world. The standard also demonstrates to stakeholders, regulators and other third parties that the organisation is concerned with its environmental impacts (www.nsai.ie). Throughout Europe the participation of ISO 14001 is far greater than EMAS. The system is evaluated by the International Standard Organisation, which is audited, approved and certified by a formal accreditation company e.g. Certification Europe, which in turn has been accredited by the relevant accreditation authority – Irish National Accreditation Board (INAB).

The environmental management systems of ISO 14001 allows an organisation to develop an organised structure that provides a system of continuous improvement of an organisations environmental impacts and focuses more on a proactive approach rather than a reactive

approach to management. It specifies requirements for establishing an environmental policy, determining environmental aspects & impacts of products/activities/services, planning environmental objectives and measurable targets, implementation & operation of programs to meet objectives & targets, checking & corrective action, and management review.

ISO 14001 has a number of steps (refer to Figure 2.1) to achieve its overall aim of continual improvement. Planning includes the identification of environmental aspects of activities, services or products that may have an influence on the environment, so that significant impacts can be identified and considered when setting the EMS objectives. Planning establishes and maintains procedures to maintain the legal and other requirements of the organisation. Through this careful consideration of an organisations environmental aspects and legal requirements, objectives and targets can be devised to improve environmental performance. This allows for an environmental management programme to be established.

Figure 2.1: Environmental Management System Model for ISO 14001



www.ndcee.ctc.com

The implementation and operation of the management system determines vital elements that must be in place in order to have an effective EMS. Implementation and operation determines the organisations arrangements and procedures in place for the defining and assigning of roles and responsibilities, relevant training and communication, operational controls and emergency arrangements. This stage also requires an organisation to develop procedures to identify, update, maintain, protect and control all EMS documentation produced as a part of the EMS.

The next stage (refer to Figure 2.1) is the checking and corrective action stage of the EMS, which requires the organisation to develop procedures to define the personnel responsible for preventing or mitigating any environmental impacts that may be caused by the organisation. This stage requires audits to be carried out to assess the adequacy of the EMS so that elements of the EMS can be improved upon.

The final stage of the EMS is the management review and involves the review of the EMS to develop new objectives and improvements of the EMS, based on the audits findings. This recurring process accomplishes the continuous improvement concept of the ISO 14001 (ISO, 1996).

There are a number of positive benefits for an organisation to introduce ISO 14001:

- Improved perception of the key environmental issues by their employees and a better (greener) public image of the organisation.
- Improved perception from the stakeholders, regulators and other third parties.
- An increase in the efficiency and use of energy and raw materials (less waste)
- Improved ability to meet compliance with environmental regulation
- Dependence on a system rather than just the experience and capabilities of an individual to manage the environmental function of an organisation (Sheerin, 1997).

2.7.1.2 Eco-Management and Audit Scheme (EMAS)

Twenty-eight of Europe's top 100 stock market companies - BP, Volkswagen, Lufthansa, Volvo have opted for EMAS as their management system. The Eco Management and Audit Scheme (EMAS), which was launched in 1993 and companies (in the industrial sector) were able to participate since 1995 under the Council Regulation (EEC) No 1836/93 of 29 June 1993. EMAS is a voluntary scheme designed for organisations to evaluate, manage and encourage companies to go beyond the minimum performance necessary to ensure compliance with environmental laws and regulations improve their environmental performance. The European Commission sees EMAS as a means to meet the increasing demand for integrated management systems and as an instrument for Corporate Social Responsibility (CSR) (www.europa.eu.int/comm/environment/news/efe/15/index_en.htm).

When implementing EMAS, applicant companies must adopt an environmental policy in which the overall environmental aims and principles of actions are decided on. In the policy, the company commits to complying with all relevant environmental regulations and to continuously improve its environmental performance. Afterwards an environmental review is carried out. The review considers all environmental impacts and performances of an organisation's activities, production processes, products and services legal requirements and assessment methods.

Following, the environmental review, an environmental management system has to be established which aims to achieve the organisation's environmental policy. This EMS defines responsibility, objectives, means, operational procedures, training needs, monitoring and communication systems. Once the system is implemented, an environmental audit is carried out to evaluate whether the system is suited to assure compliance with all the relevant legislation and the organisation's environmental policy has been adhered to. As a result of this audit, corrective actions are taken and new environmental objectives are set (www.europa.eu.int/comm/environment/emas).

While EMAS is similar in many respects to ISO 14001, there are several differences in particular the requirement to publish an environmental statement. This statement includes a description of the environmental policy, programme and management system as well as an assessment of all the significant environmental issues related to activities on the site. This is costly requirement of EMAS and many experts believe this the main reason why the number of ISO 14001 registered companies exceed the number of EMAS registrations (Bültmann, Wätzold, 2000).

In 2001, EMAS II has been open to all economic sectors including public and private services under Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19 March 2001 (www.europa.eu.int). EMAS II introduces a number of changes, which makes the EMAS management system more compatible with ISO 14001. The 2001 regulations strengthened EMAS by:

- The extension of the scope of EMAS to all sectors of economic activity including local authorities
- The integration of ISO 14001 as the environmental management system required by EMAS
- Adopting an attractive EMAS logo (Figure 2.2) to signal EMAS registration to the outside world,
- The involvement of employees in the implementation of EMAS
- Requirement that the environmental statement to improve transparency of communication between presentation of environmental performance between registered organisations and their stakeholders and the public
- Considering indirect effects more strongly, such as those related to financial services or administrative and planning decisions.
- Registration of an organisation rather than the site to be the normal basis of registration, but site specific registration will be still allowed as an option
- Setting of the audit interval at 3 years between full environmental statements

(www.europa.eu.int/comm/environment/emas/tools/faq_en.htm)

Figure 2.2 EMAS Logo

(*Idem*)

An organisation has to commission an independent accredited environmental verifier who carry out an examination of the system and validate the environmental statement. There are over 200 accredited EMAS verifiers, covering all relevant industry sectors. The Irish National Accreditation Board (INAB) is both the EMAS Competent Body for the registration of sites and the environment policy accreditation body for verifiers. The total number of sites across the EU registered under EMAS has increased progressively from 2 in August 1995 to over 4000 at the beginning of 2005 (www.europa.eu.int). There are presently eleven EMAS registered sites in Ireland (www.inab.ie/schemes/emas/directory.html).

EMAS is designed to bring a number of advantages to participating organisations such as:

- Compliance with environmental legislation
- Prevention of environmental accidents
- Reductions in energy and resources expenditures
- Improved employee morale
- Better internal and external communication with employees, authorities, banks and insurance companies
- Better management control
- Improvement of public image

(www.inem.org/new_toolkit/comm/environment/emas/toolkit/toolkit_2_3.htm)

2.7.1.3 EMAS II versus ISO 14001

While the principal elements of EMAS II and ISO 14001 are similar, there are several key differences between the two (refer to Table 2.2). One major difference between the two (as previously discussed) is that EMAS requires all participants to submit an annual report (Environmental Statement) outlining the organisation's environmental performance, which is accessible by members of the public. This requirement is aimed at increasing the public access to environmental information, and is believed to be a key aspect in the performance of ISO 14001 over EMAS.

Table 2.2. The Main Differences between EMAS II and ISO 14001

Management Systems Criteria	EMAS II	ISO 14001
Preliminary Environmental Review	Verified initial review	No review
External Communication and Verification	Environmental policy, Objectives, Environmental management system and details of organisation's performance made public	Environmental Policy made public
Audits	Frequency and methodology of audits of the environmental management system and of environmental performance	Audits of environmental management system Frequency and methodology is not specified
Contractors and Suppliers	Required influence over contractors and suppliers	Relevant procedures are communicated to contractors and suppliers
Commitment and Requirements	Employee involvement, continuous improvement of environmental performance and compliance with environmental legislation	Commitment of continual improvement of the environmental management system rather than a demonstration of continual improvement of environmental performance

(www.eurpoa.eu.int/comm/environment/emas/pdf/factsheet/fs_iso_en.pdf)

2.8 Safety Management Systems

The importance of developing a safety management system to mange health and safety in businesses was first recognised in Ireland with the Safety, Health and Welfare at Work Act, 1989. This Act required management of the health, safety and welfare at work of all employees through the development of a safety statement, which is based on identifying hazards and carrying out risk assessments, and plans control of these identified risks. This requirement was further clarified under the Safety, Health and Welfare at Work (General Applications) Regulations, 1993 as amended. Under these regulations, a safety statement must be provided by an organisation, in writing and must include an assessment of risks to health and safety of employees and information regarding arrangements that are in place to ensure a high standard of health and safety at the place of work.

Following the success of ISO 9000 and ISO 14001 series, the International Standards Authority developed the Occupational Health and Safety Assessment Series (known as the OHSAS 18001). This series elaborates on many of the central aspects of the safety statement, including risk assessment, hazard identification consultation and training arrangements and is closely based on the British Standard for Occupational Health and Safety Management Systems - BS 8800, which was developed in the early 1990s. However, unlike the safety statement, the adoption of OHSAS 18001 is not required under Irish law.

2.8.1 OHSAS 18001

The Occupational Health and Safety Assessment Series (OHSAS 18001) was developed in response to urgent customer demand for a recognisable occupational health and safety management system standard which, their management system may be assessed and certified. There is no formally recognised ISO standard for occupational safety and health management. Not withstanding this, the OHSAS 18001 is used throughout the world as a management tool for occupational safety and health. This standard is expected some time in the future to become a recognised as a worldwide ISO 18001 - safety management system, due to the fact that it is similar to the quality and environmental management systems ISO 9000 and ISO 14001.

OHSAS 18001 can be used by organisation of all sizes regardless of the nature of their activities or location. The OHSAS system contains the same principal elements as the EMSs with an occupational health and safety policy, planning, implementation and operation, checking and corrective action and management review used to aid the systems continuous improvement (OHSAS, 1999).

The similarity of the ISO 14001 and OHSAS 18001 provides the opportunity to integrate both systems allowing for effective management for occupational health and safety and environmental aspects of an organisation. As the systems are so alike, organisations certified to one system should be able to develop similar procedures to implement certain components of the other system such as auditing, document control and identification of legal and other requirements (Millane, 2001).

The main significant difference between the two systems is that the OHSAS system requires planning for hazard identification, risk assessment and risk control rather than planning for environmental aspects, which is required under ISO 14001.

To manage an organisation's occupational health and safety effectively the hazard identification, risk assessment and control must be cost effective so to prevent likely and significant occupational losses. The hazard identification and risk assessment should also include routine and non-routine activities of all workplace personnel. Hazard identification and risk assessment procedures must be defined in terms of their nature and timing to ensure that they are proactive and allow for the classification of all risks to aid in the section of appropriate risk control measures (OHSAS, 1999).

Organisations that have registered OHSAS 18001 through the NSAI in Ireland, have already reported increased operational benefits, reduction in lost work days, fewer accidents and medical claims, recognition by insurers and regulars and improved worker retention and satisfaction (www.nsai.ie).

The benefits of implementing OHSAS 18001 is as follows:

- It will assist in meeting regulatory requirements.
- It is a great marketing tool.
- Certification may become a prerequisite for tendering to EU public bodies.
- It facilitates achieving "preferred supplier listing" with major manufacturers and retailers and aids companies' ability to bid for contracts.
- It may improve relationships with the community and with other stakeholders.
- It may reduce insurance premium.
- It will reduce the risk of accidents and occupational ill health.
- It will reduce lost time through employee illness and injury.
- It will indicate to employees that the company is concerned about their welfare.

(www.qualtec.ie:content:view:22:41:.html)

2.8.2 The Potential for Environmental and Safety Management Integration

Environmental and safety management systems have similar layouts and due to the legislative requirements placed on organisations through the EPA Acts, 1992-2003 and the Safety, Health and Welfare at Work Act, 2005, companies in Ireland are required to install environmental and safety management systems. Though law requires the management systems, they do not have to be credited. However, companies are seeking certified management systems i.e. EMAS and ISO 14001 and the non-accredited OHSAS 18001 due to the benefits previously mentioned. Organisations are increasingly looking to integrate one or more system such as quality, environment and health and safety management systems for a number of reasons e.g. carrying out joint audits so to reduce workplace disruption and minimising costs. Also, the integration of management systems may lead to less duplication of effort, procedures that can be optimally designed to take into account the needs of each discipline being integrated (IOSH, 1998).

However, the prospective benefits of integration are attractive, the process of integration is far from straightforward. Personnel in many organisations are already sceptical about the need for formal documentation systems. Integration can in some cases increase the complexity of systems that are already perceived by many employees within organisations as overly bureaucratic (Biondi *et al*, 2000).

2.9 Competitiveness

Another important factor that organisations need to addresses before becoming Eco Industries is competitiveness. Competitiveness is considered as the ability to achieve success in markets in a sustainable manner leading to a better quality of life overall. Dr. Mary Kelly of IBEC stated that Sustainable Development issues of Irish companies need to be addressed:

"Irish companies will need to incorporate issues into all respects of their business if they are to stay competitive" (DOELG, 1997).

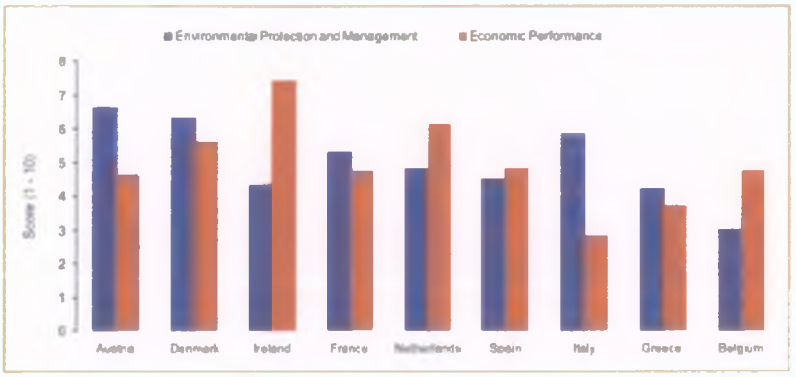
The challenge for organisations is to integrated environmental, health and safety and economics issues into their businesses inline with the growing market of products and services "friendly". This integration of environment, health and safety and economics activities is to improve the cost effectiveness of regulations and control as a means to protect the environment and the health and safety of those concerned while maintaining Ireland's competitive industrial base (*Idem*).

The EPA used competitiveness as an indicator of the relationship between the Economy and the Environment in the publication – *Environment in Focus 2002: Key Environmental Indicators for Ireland.* This publication used information from the annual competitiveness report published by Enterprise Ireland, which benchmarks Ireland's competitiveness against countries in Europe and the OECD. The report looked at a range of different characteristics of competitiveness including economic performance, transport infrastructure and environmental protection and management (www.ireland.com/newspaper/special/2002/epa2002/index.pdf).

Ireland's competitiveness score ranked 1st out of 18 countries in 2001 for economic performance. This shows the very strong economic growth experienced in Ireland between the mid-1990s and 2001. However, IBEC carried out a National Survey of Business Costs, which indicated that Ireland's competitive position is deteriorating. The results of the survey showed business cost headings from 2002 to 2004 growing at an unsustainable rate – more than 3

times that of inflation. The impact of this is clearly seen, as Ireland's international competitiveness has fallen to 30th in 2005 in the world's competitiveness league (Sweetman, 2005). These competitiveness scores can be seen in Graph 2.1.

Graph 2.1 Economic and Environmental Competitiveness



Competitiveness	Austria	Denmark	Ireland	France	Netherlands	Spain	Italy	Greece	Belgium
Environmental Score	6.6	6.3	4.3	5.3	4.8	4.5	5.8	4.2	3
Economic Score	4.6	5.6	7.4	4.7	6.1	4.8	2.8	3.7	4.7

Source: Forfás

(EPA, 2002)

This report from the EPA highlights the important relationship between the growth of Ireland economic activities and Irelands environment. It is this relationship that needs to be integrated these areas by using the Sustainable Development strategy devised by the European Union and the Irish Government. To achieve better competitiveness in the future the government supports the integration of sustainability and competitiveness by supporting the move to more sustainable forms of production by promoting knowledge based initiatives such as research and development in areas such as clean technologies, green business opportunities and design of sustainable products and processes.

2.10 Stakeholders

Stakeholders may play an increasingly crucial role in encouraging the adoption of Eco Industries in the future. Financial institutions, including banks, investors and insurers are expected to be the most influential e.g. the European Investment Bank may grant loans for environmental protection projects (European Commission, 1999). Irish stakeholders who are interested in environmental, health and safety performances were identified as follows.

2.10.1 Public stakeholders

In recent years surveys have shown that the as the economy grows stronger, the public has more spending money, these consumers are moving towards more environmentally friendly products and services. 53% of Irish consumers claim that they would pay more for products/services that are socially and environmentally responsible (Business in the Community, 2002). Also, this growing trend of people being concerned with the environment was clearly seen in the Irish National Survey – *Attitudes and Actions* – (DOELG, 2000), 78% of the people surveyed were in favour of maintaining a balance between environmental protection and economic development. With this growing trend, organisations need to address their environmental, health and safety to attract customers and investors.

2.10.2 Insurance Companies

From 1999 to 2003, annual premium business increased from €2082m to €3838m, an average rise of 16.5 per cent per annum (IIF, 2004). Insurance costs have increased in recent years throughout Ireland and has been a concern for many companies. Based on figures published by the Irish Insurance Federation, the cost of employers' liability insurance rose by 115% during the period from 1999 to 2002. Public liability insurance premiums costs rose by 110% in the same period. Therefore, organisations paying €1,000 for insurance cover in 1999 are now paying over €2,000. In 2002 according to the Irish Small & Medium Enterprises Association (ISME), 4,000 jobs were lost as a result of insurance cost increases and a further 30,000 are at risk (www.healthandsafetyreview.ie).

The financial effects can be seen from having a management system for managing organisations environmental issues. One of the first companies in Austria to introduce an EMS pays 1% less interest rates and 30% less insurance fees, because the risks of this company are estimated lower by the bank and the insurance company (Fresner, 1998).

The benefits of managing environmental, health and safety are now being examined in Ireland. A Joint Oireachtas Committee on Enterprise and Small Business led by Tanaiste, Mary Harney, T.D., investigated insurance costs, with the aim of reforming the Irish insurance market and as a result of this committee, the Health and Safety Authority (HSA) and Irish Insurance Federation (IIF) are presently developing a joint scheme to reward safety compliant companies with reduced insurance premiums.

However, organisations will still be paying premiums more than they were in 1999, even if premiums fall by the targeted 30%. Evidence suggests that companies with good safety records and management systems are seeing reductions well in excess of 30% as companies are rewarded by complying with recommended health and safety standards recognised by the Health and Safety Authority and insurance companies. The scheme is aimed at companies who comply with such standards to receive premium reductions and those who don't comply are penalised, through their insurance premiums (www.healthandsafetyreview.ie).

2.10.3 Enterprise Ireland

Enterprise Ireland is the government agency responsible for the development of Irish industry. Enterprise Ireland is in partnership with client companies to help build a competitive advantage in the global marketplace.

Enterprise Ireland has three strategic priorities:

- Technology innovation
- Business development
- Internationalisation

Enterprise Ireland provides information on environmental issues on the website - www.envirocentre.ie, which is free and regularly updated with environmental information designed specifically to enhance environmental awareness in Irish industry, with particular emphasis on small and medium enterprises (SMEs). The Enterprise Ireland's Envirocentre aims to improve business through the environment and to assist Irish companies to increase profitability, competitiveness and export growth through improved environmental performance and/or the development of products or services related to environmental protection.

Enterprise Ireland Client Companies can participate in initiatives, which is dedicated to assisting companies to achieve environmental regulatory compliance at minimum cost and become more competitive through improved environmental practices. A range of support services is provided through the Environment Policy Unit, which provides technical and advisory support and financial initiatives to core clients and indigenous industry to comply with relevant legislation and standards in key environmental areas such as:

- Environmental Management Systems (EMS)
- Waste Management
- Eco-design/Design for Environment
- Improving the Environmental Performance of Electrical & Electronic Goods
- Environmental and Analytical Laboratories
- Ambient Air Quality and Emissions Monitoring
- Aquatic Toxicity Testing
- Biological Effluent Treatment
- Climate Change and Energy
- Eco-Efficiency

(www.envirocentre.ie)

2.11 Support Systems

A range of financial and non-financial support systems are available to Irish organisations seeking to improve their environmental, health and safety performance to enhance stakeholders opinion towards an organisation and in turn promote Eco Industries. The following programmes and awards system aim to improve organisations' overall environment, and health and safety issues.

2.11.1 EU LIFE-Environmental Programme

The LIFE (Financial Instrument For the Environment) programme was set up as a financial instrument, which aids in developing and implementing environmental policy and legislation through the support of innovative and demonstration type environmental projects. The programme aims to aid reduce impacts of economic activity on the environment through the development of clean technologies, the consideration of the life cycle of a product and placing emphasis on prevention of environmental damage (www.environ.ie).

2.1.2 Enterprise Ireland Environmental Management System Grant Scheme

Enterprise Ireland provides the financial grant scheme - Environmental Management System (EMS) Grant Scheme. The aim of the grant is to improve Small to Medium Sized Enterprises (SMEs) environmental issues and to develop and take advantage of market opportunities that improved environmental performance brings. The initiative is open to indigenous manufacturing SMEs. This financial assistance scheme is used to go towards the costs of hiring independent consultants to install, in full or in part, a certified management system - ISO 14001 or EMAS for SMEs. The grant accounts for 50% of the external consultancy costs where the SMEs comply with the specifications set down by Enterprise Ireland (www.envirocentre.ie).

2.11.3 Cleaner Greener Production Programme

The EPA established the Cleaner Greener Production Programme in 1997. The programme set out to promote a more friendly approach to production in the manufacturing and service industries in Ireland. The programmes focuses on avoiding and preventing adverse environmental impact and promote organisation's taking a proactive approach rather than a reactive approach to the environment. This approach brings better economic and environmental efficiency (www.epa.ie/soe/soemain.html).

2.11.4 IBEC Environmental Awards

The Irish Business and Employers Confederation (IBEC) has developed the *"IBEC Environment Awards"* which aims to promote companies that develop innovative solutions to environmental problems faced by an individual industry or sector as a means to maintain and improve the quality of Ireland's environment. The awards are a part of a European wide scheme, which aims to promote the development of innovative environmental technologies and management practices in industry. The award is divided into a number of categories, which covers a range of areas, i.e. environmental management, eco-design, clean technology and waste management (IBEC, 2003).

The following associations support the awards Irish Pharmaceutical and Chemical Manufacturing Federation (IPCMF), Food and Drink Industry Ireland (FDII) and the Irish Engineering Enterprises Federation (IEEF) (*Idem*).

2.11.5 The Annual Better Environmental Awards for Industry

The Annual Better Environmental Awards for Industry, which is sponsored by Enterprise Ireland and is associated with the European Better Environment Awards for Industry and encourages innovative environmental practices and technologies at all levels in manufacturing industry (www.enfo.ie/leaflets/sd11.htm).

2.11.6 Safety Management Workshops For Small Medium Size Enterprises (SMEs)

The Irish Small and Medium Enterprises Association (ISME) designed this workshop. The aim of the workshop is to introduce a series of practical training workshops on safety management and is aimed at owners and managers of SMEs employing fewer than 50 people. The objective of the project is to reduce the level of work-related accidents within SMEs, through training in methods and practices of preventing accidents (www.isme.ie).

2.11.7 Co-operative Health and Safety Management (CHASE Programme)

This project was organised by the Irish Congress of Trade Unions (ICTU) and the Construction Industry Federation (CIF). The project was developed originally as a training course to be given to safety officers/advisors and worker safety representatives in the construction industry. The aim of the programme is to reduce construction accidents and promoting safety consultations on site. The programme has devised a guidance manual to aid the site safety consultation process for the construction industry (www.ictu.ie).

2.11. 8 The FÁS Training Programmes

FÁS provides a wide range of environmental, health and safety training programmes. These programmes are used by both the private sector and by local authorities. The programmes are aimed at providing information and raising awareness of both environmental, health and safety issues, to ensure that a company is in line its legislative requirements, to raise standards of health, safety and welfare and to provide the expertise required for managing the environment and to improve environmental quality standards.

The environmental training programmes include:

- Waste Management
- Waste and Wastewater Treatment Plant Operation
- Group Water Scheme Training Programme
- Radon Gas Remediation
- Site Suitability Assessments for On-Site Wastewater Management
- Laboratory Procedures
- Building Control/Building Regulations
- Graduate Diploma / MSc. in Environmental Protection
- Construction & Demolition Waste - National Awareness Programme

In addition to the environmental training programmes, FÁS also provide a range of health and safety awareness training programmes which are aimed at increasing employee and employer awareness. One such training programme is the one-day FÁS Safe Pass Safety Awareness Training Programme. This programme was set-up to ensure that all construction site personnel should have basic safety training and be able to work on site without being a risk to themselves or others who might be affected by their acts or omissions.

The training modules incorporated within the Safe Pass Programme are:

- The Reasons for Promoting Safety
- Health and Safety At Work Legislation
- Accident Reporting and Emergency Procedure
- Accident Prevention
- Health and Hygiene
- Manual Handling
- Working at Heights
- Working with Electricity - Underground and Overhead Services.
- Use of Hand Held Equipment and Tools
- Personal Protective Equipment
- Safe Use of Vehicles
- Noise and Vibrations
- Excavations and Confined Spaces

Grant aid is available for the FÁS Environmental Training programmes and FÁS Safe Pass Safety Awareness Training Programme (under the Construction Industry Federation Incentive Scheme). This grant aid is given to those who attend the training programmes. Grants are only paid after the courses are completed and are subject to availability of funds (www.fas.ie).

2.11.9 Eco label Scheme

The EU Eco-label scheme was established by the European Union in 1992 to promote products and services with a reduced environmental impact and for the benefit of both consumers and manufacturers. The EU Eco-label has a clear objective of encouraging businesses to market greener products.

The EU Eco-Label Scheme was established by Council Regulation No. 880/92 to and revised in 2000 by Council Regulation (EC) No 1980/2000. The scheme:

- Promote the design, production, marketing and use of products which have a reduced environmental impact during their entire life cycle and
- Provide better consumer information on the environmental impact of products.

It is a voluntary scheme and manufacturers can choose whether or not to apply for the Eco-label. When placing the mark on a product, the consumer is being made aware that this product has been identified as having a reduced environmental impact. Displaying the Eco Label symbol informs the consumer, that the product has conformed to specific criteria, set by the European Commission and in Ireland is assured by the competent body (NSAI). The label is awarded under contract between the manufacturer and the competent body (NSAI). The label is easily identifiable by its green stalk supporting a corona of blue stars, representing the Member States of the European Union, in the centre of which is a green letter "e" for the environment (refer to Figure2.3). Once the Eco-label has been awarded by the NSAI, it can be used in all EU Member States (www.europa.eu.int).

To date there are 21 product groups for which ecological criteria have been agreed and there are over 200 products that carry the EU eco-label. Details of these eco-labelled products and on manufacturers have been drawn up and are available in the European eco-label catalogue (www.environ.ie).

Figure 2.3 Eco Label Mark

2.11.10 Environmentally Superior Products (ESP)

Enterprise Ireland runs the Environmentally Superior Products (ESP) scheme. The aim of this scheme is to improve the environmental and business performance of Irish manufacturing SMEs so that they can exploit the ESPs market. The scheme is a result of legal, market and economic developments that are putting increasing pressure on manufacturing industry to reduce the environmental impact of their products. The ESP initiative is designed to support Irish companies in response to pressures and as a result of participating companies can exploit the business opportunities and competitive advantage. Under this initiative, Irish manufacturing SMEs are granted aid to conduct projects to assess the potential for ESP within their existing or new product ranges.

The aim of each project funded is to assess ways to reduce the environmental impact of a product(s) without compromising product functionality, quality, ability to manufacture or cost. These products are known as "Environmentally Superior Product". The initiative is open to manufacturing indigenous small to medium sized enterprises (SMEs). A grant of up to 50%, subject to a maximum of €31,740 and excluding VAT, is available to successful industrial applicants towards the cost of projects to assess the potential for ESP within existing or new product ranges (www.envirocentre.ie).

2.11.11 NISO/NISG Health and Safety Awards

The NISO / NISG Awards Scheme has been running for 14 years and is supported by the Irish Insurance Federation. The awards allows for health and safety professionals to show their commitment to providing a safe workplace for all persons in their organisation. The award is a means for an organisation to promote themselves and their staff by detailing the positive efforts that have been made in relation to health and safety. The aim of the awards scheme is to improve safety performance, which ultimately has a number of positive effects i.e., aids in promoting staff morale, compliance with legislation etc. Winning an award may lead to an increased profile for the organisation, its employees, purchasers, clients and the general public (www.niso.ie).

2.11.12 ChamberSafe Initiative

The ChamberSafe Initiative is a health and safety training programme, which is aimed at SMEs in the retail, professional services, commercial and light industrial sectors to reduce insurance premiums for those who successfully complete the course. The training programme gives training in how to manage and implement health and safety programmes that meets the necessary regulatory standards. The Institute of Occupational Safety and Health certifies the programme. The programme combines a one-day training session with an online learning programme. On completing the programme participants have the option to advance to OHSAS 18001 standard.

Eagle Star insurance company supports the ChamberSafe programme. Eagle Star gives a discount of up to 20% on insurance premiums to companies who successfully achieve OHSAS 18001 standard (Irish Independent, 2005).

3.0 Methodology

3.1 Introduction

This section outlines the principle methods adopted by the researcher to collect and analyse the data required to achieve the aim of the study, which was to establish what could be done to assist industry in Ireland to move towards an Eco Industry based sector. In order to determine this, it was necessary to:

1) Review the current status of Eco Industry in Ireland.
2) To investigate what is influencing and inhibiting the Irish Industry from adopting Eco Industry.
3) To investigate what exists in Ireland to assist industries to implement Eco Industries.
4) To investigate management systems, investment and support systems with a view to integrate environmental, heath and safety issues

In order to establish the status of the above issues, a number different approaches were taken. These consisted of:

- Contacting organisations in Ireland that work with companies and organisations dealing with environmental, health and safety products and services.

- A literature search which identified all the sources of secondary information previously available either in print or electronic format, which are relevant to the thesis.

- Based on the findings of the above research, a questionnaire was designed and sent to companies throughout Ireland.

3.2 Organisations contacted

To get an up to date picture of information currently available to Irish companies with respect to Eco Industries numerous organisations were contacted. These contacts were used to gain an overall picture of the status of Eco Industry in Ireland. Organisations contacted are listed in Appendix II.

3.3 Literature Search

The purpose of exploring the existing literature is to ascertain what has been written or published in this area of research, what previous research was conducted and how this will impact on the author's research. Section 1 contains a review of the literature (academic journals, trade magazines, textbooks, web sites etc.), which is relevant to Eco Industry, environmental, health and safety issues and support systems.

In order to establish what systems/support structures exist in Ireland to assist the industry with the uptake with Eco Industry telephone and e-mail contacts were used. The main organisations contacted are listed in Appendix II. The process was, in many cases, very useful, providing relevant, unpublished information.

Following the collection of the information in relation to Eco Industry in Ireland and the establishment of various contacts, a questionnaire was compiled. The questionnaire was sent out to companies in Ireland, in order to ascertain:

1) How aware the Irish industry is of Eco Industry?
2) What the principle barriers and motivators to implementation of Eco Industry are?
3) Are recipient companies aware of policies that promote Eco Industry such as Sustainable Development?
4) What beneficial factors are recipients aware of to adopt Eco Industry such as Ethical Investment, Insurance Costs?
5) What support systems recipient companies are involved in which could be considered as a means to assist in their implementation of Eco Industry?

3.4 Criteria for selection of companies to which questionnaires were sent

In order to gain as much information as possible about the current situation in Ireland in relation to Eco Industry, a range of different types of companies were selected from the industrial sector, using relevant industrial classifications as divided under the Enterprise Ireland companies list (Finn, 2005) and the IDA website (www.idaireland.com).

The list of companies were obtained from the following sources:

1. Enterprise Ireland list of companies
2. IDA Company List

3.4.1 Company Types Selected

A range of different sectors was selected as subdivided by the list of companies deemed relevant for survey inclusion in order to gain as much information as possible about the current situation in Ireland in relation to Eco Industries and associated environmental, health and safety issues these companies were involved in the following sectors:

- International Services
- Pharmaceuticals
- Medical Technologies
- Engineering
- Chemicals
- Consumer Products

In order to gain as much information as possible, these sectors were divided into the following sectors to allow a comparison of company views by industrial sectors.

- Pharmaceutical
- Manufacturing
- Service based
- Other (e.g. mining industry)

The "other" industrial sector category included company types such as the food processing, breweries, and mining industries. The number of companies selected from each sector (refer to Table 3.1) was based on the proportion of these sectors identified from the company lists. Due to the relatively small number of companies in Ireland accredited to EMAS, EMAS accredited companies were automatically selected for inclusion.

Table 3.1 Breakdown of the number of Participant Companies by Industrial Sector that received a questionnaire

Industrial Sector	No. Of Questionnaires Sent
Pharmaceutical	40
Manufacturing	40
Service based	10
Other	10

3.4.2 Company Selection process

In order to gain a representative sample of the companies listed under the Enterprise Ireland's and the IDA's industrial sector company lists, a random sample was taken using the random function key on the SHARP EL-531VH scientific calculator. These samples were taken from the number the random function key displayed and compared to a Microsoft Excel spreadsheet with each company assigned a designated number. For example, the calculator selected the number 0.823 which was taken as 823. This number was then compared to the numbered Excel spreadsheet, which in turn received a questionnaire.

3.5 Questionnaire

One hundred questionnaires were circulated to companies using the criterion outlined above. A cover letter was enclosed with each questionnaire outlining the objectives of the survey and the importance of completing the questionnaire relative to the company's own experiences, in order that the findings would enable objective conclusions to be drawn up. It was stressed that all replies would be treated in strict confidence.

Each questionnaire was assigned an identification number, which was used in collating the results and a means for identifying each company. A self-addressed envelope was included with the intention of encouraging ease of response to the respondent. To further influence completion of the questionnaire it was stated that results of the survey would be forwarded upon request. A copy of the questionnaire and cover letter are included in Appendix I.

3.5.1 Structure of the Questionnaire

The questionnaire was structured in such a manner as to encourage and facilitate ease of completion and response to relevant issues. The questionnaire was laid out in a clear format with the majority of the questions requiring the respondent to tick a box selecting one of many options presented. The remainder of the questionnaire was based on a multiple options, which was presented to the respondent to rate in order of importance. This was done to assess certain

key issues where specific information was required.

The questionnaire was divided into five sections. Section one consisted of a series of general questions, the objective of which was to obtain an overview of the company.

The objectives of the second section were to:

a) Ascertain the companies overall position in relation to Eco Industry,
b) Get an insight into the general level of awareness among companies in Ireland of Eco Industry and particularly to,
c) Establish how many of the companies had any form of Eco Industry i.e. technology, environmental controls or even management systems in place,
d) Ascertain what programmes the recipient companies were using to assist them with improving their environmental, health and safety issues
e) To establish what the companies regarded as the main barriers and motivators to their uptake of Eco Industry

The third section of the questionnaire consisted of questions intended to determine the awareness of Sustainable Development concepts in business:

I. To establish whether companies are aware of Sustainable Development policies
II. To assess whether Sustainable Development is an issue for companies
III. To assess the use of Corporate Social Responsibility in Ireland.

In the fourth section questions were asked to find out if the companies had management systems. These questions were asked to:

1) To establish the presence of environmental and health and safety management systems
2) To establish the importance of management systems
3) To determine to find out if environmental and health and safety management systems to become integrated

The fifth section of the questionnaire consisted of a series of questions to determine investment and its importance in relation to recipient companies environmental, health and safety image. This section also consisted of table-based questions to establish what measures recipient companies are aware of to improve their environmental management and health and safety issues in genera, to improve their profits and company image.

The objective of this system was to establish:

- ⇒ The important factors affecting profitability of Companies,
- ⇒ The familiarity of ethical investment in Irish companies
- ⇒ The awareness of programmes to support companies with their environmental and health and safety issues, which would allow companies Eco Industry and ethical company status.

3.5.2 Response to the Questionnaire

The response rate to the survey amongst the companies randomly selected was (28/100), which was a 28% response rate (refer to Table 3.2).

Table 3.2 Breakdown of response rate by Industrial Sector Categories

Industrial Sector	Response Rate	Percentage Return
Manufacturing	10/40	25%
Pharmaceutical	10/40	25%
Service Based	6/10	60%
Other	8/10	80%
Total	28/100	28%

The response rate may be attributed to the following:

- Structure of the questionnaire, use of tick type answering system
- All respondents to the survey would get a copy of the findings once compiled, if they so wished.
- The inclusion of a self addressed envelope.

Only one of the respondents to the questionnaire requested a copy of the results.

The results of the questionnaire and analysis of the findings are presented in Chapter 4.

4.0 RESULTS

4.1 Introduction

This section contains a breakdown of the responses obtained from the questionnaires distributed. The display of results is broken down by questionnaire question. Questions 1 and 2 are not displayed as they refer to the company name and address of respondent companies. (Refer to Appendix I for questionnaire)

Table 4.1 Summary Table of the Response Rate of the Questionnaire Based Survey

Total Number of Companies Surveyed	Total Number of Respondent Companies	Percentage Return Rate
100	28	28%

4.2 Size Category of each of the Respondent Companies

Question three sought to define each respondent company by size category. This was important as it allowed future results obtained via the questionnaires to be compared and contrasted, to determine if the views held by respondent companies towards Eco Industries. The size categories were based on the total number of employees working for each respondent company (refer to Table 4.2).

Table 4.2 Enterprise Ireland Size Category Key

Category Size	Very Small (VS)	Small (S)	Medium (M)	Large (L)
Category Definition	1-15	16-50	51-100	>100

(Finn, 2005)

Table 4.3 Numeric and Percentage Breakdown of Respondent Companies by Size Category

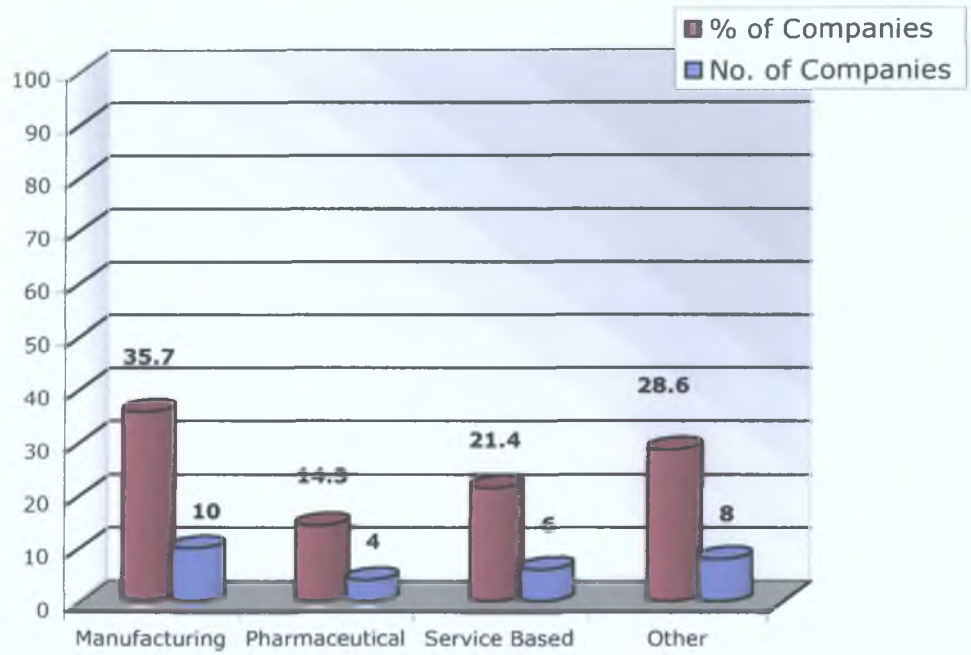
Category Size	Very Small (VS)	Small (S)	Medium (M)	Large (L)
Number of Companies	3	3	7	15
% Of Companies	10.7%	10.7%	25%	53.6%

4.3 Industrial Sector of each of the Respondent Companies

Question 4 sought to define each respondent company by size into one of four industrial sectors - manufacturing, pharmaceutical, service based and other. Manufacturing, pharmaceutical, service based and other were selected as sectors due to the large number of companies present in each sector.

For a breakdown of respondent companies by sector category, refer to Figure 4.1.

Figure 4.1 Numeric and Percentage of Respondents, within each Industrial Sector Classification.

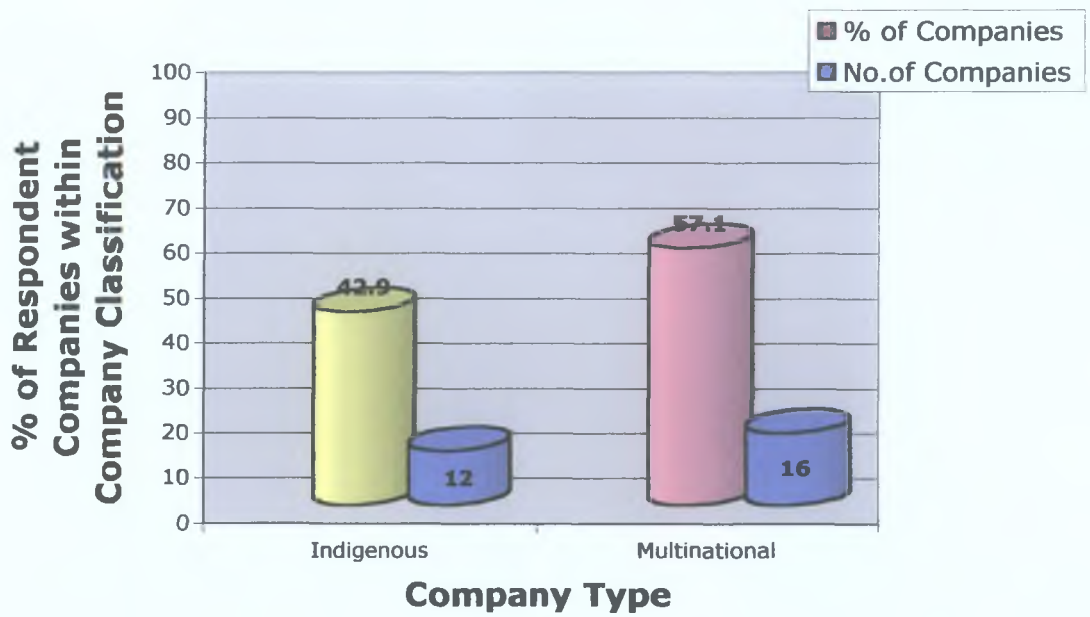


4.4 Breakdown of the Proportion of Respondent Companies that Indigenous or Multinational

Question 5 sought to determine the proportion of respondent companies that were either indigenous or multinational companies. The question was included to allow for a comparison of responses and to allow a comparison of company views by company type in relation to Eco Industries.

For a breakdown of respondent companies by sector category, refer to Figure 4.2.

Figure 4.2 Numeric and Percentage of Respondent Companies, in Indigenous or Multinational Category



4.5 Breakdown of the Proportion of Respondent Companies environmental and occupational health and safety control and discharge issues

Question 6 sought to determine the proportion of respondent companies with environmental and occupational health and safety control and discharge issues such as IPPC licenses, Local Authority discharge licenses, permits under the Waste Management Act, 1996-2003, Licenses under the Local Government (Water Pollution) Acts, 1977-1990 and Licenses under the Air Pollution Act, 1987.

Also, the question also sought to determine that all companies had a safety statement in order to determine the proportion of respondent companies that were largely in compliance with health and safety legislation. A high number of respondent companies with a safety statement would be expected to indicate that respondent companies have reached a certain level of safety awareness.

The question was also included to allow for a comparison of responses between respondent companies with licenses and those respondent companies that were not as tightly regulated, with a particular view as to whether the proportion of licensed respondent companies are more likely to seek Eco Industry classification.

For a breakdown of respondent companies by their environmental and health and safety control and discharge issues, refer to Tables 4.4- 4.9.

Table 4.4 Numeric and Percentage Breakdown of Respondent Companies that have IPPC licenses

IPPC License Requirement	YES	NO
No. Of Companies	18	10
% Of Companies	64.3%	35.7%

Table 4.5 Numeric and Percentage Breakdown of Respondent Companies that have Local Authority Discharge License

Local Authority Discharge License Requirement	YES	NO
No. Of Companies	6	22
% Of Companies	21.4%	78.6%

Table 4.6 Numeric and Percentage Breakdown of Respondent Companies that have Safety Statements

Safety Statement	YES	NO
No. Of Companies	26	2
% Of Companies	92.9%	7.1%

Table 4.7 Numeric and Percentage Breakdown of Respondent Companies that a permit under the Waste Management

Permit under Waste Management Acts. 1996-2003	YES	NO
No. Of Companies	5	23
% Of Companies	17.9%	82.1%

Table 4.8 Numeric and Percentage Breakdown of Respondent Companies that have a license under the Local Government (Water Pollution) Acts, 1977-1990

License under Local Government (Water Pollution) Acts. 1977-1990	YES	NO
No. Of Companies	6	22
% Of Companies	21.4%	78.6%

Table 4.9 Numeric and Percentage Breakdown of Respondent Companies that have a license under the Air Pollution Act, 1987

License under Air Pollution Act 1987	YES	NO
No. Of Companies	7	21
% Of Companies	25%	75%

4.6 Breakdown of the Proportion of Respondent Companies that are aware of Eco Industries

Question 7 sought to determine the proportion of respondent companies that have knowledge of Eco Industries. The question was included to allow for a comparison of responses to review the awareness of Eco Industry in Ireland.

For a breakdown of respondent companies that have knowledge of Eco Industries, refer to Figure 4.3.

Figure 4.3 Percentage Breakdown Respondent of Companies with Knowledge of Eco Industries

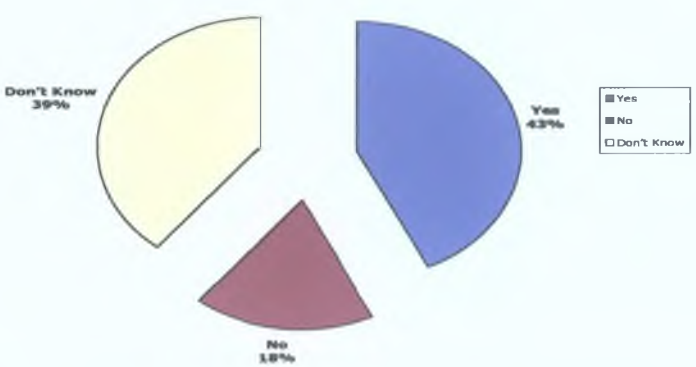


Table 4.10 Numeric and Percentage Breakdown of Respondent Companies that have knowledge of Eco Industries

Companies that have knowledge of Eco Industries	Yes	No	Don't Know
No. Of Companies	12	5	11
% Of Companies	42.8%	17.9%	39.3%

4.7 Breakdown of how the Proportion of Respondent Companies became aware of Eco Industries

Question 8 sought to determine how the respondent companies became aware of Eco Industries. This was included in the questionnaire to identify how the respondents became aware of Eco Industries and from these responses observations relating to future means of educating and promoting awareness of Eco Industries.

For a breakdown of how respondent companies became aware of Eco Industries, refer to Table 4.11.

Table 4.11 Breakdown of how Respondent Companies became aware of Eco Industries

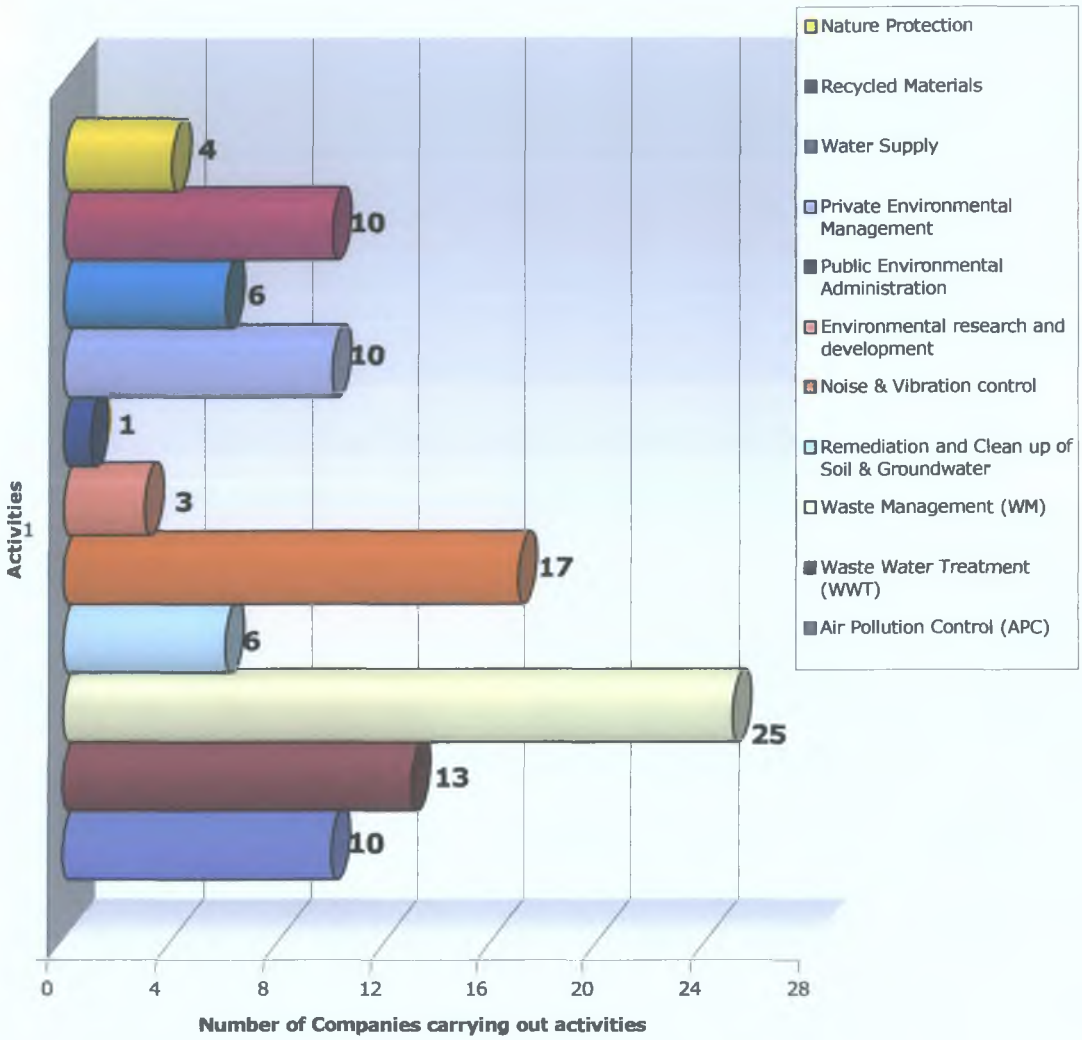
Means of Becoming Aware of Eco Industries	
Newspaper Advertisement	1
Industry Association	10
Internet Website	2
Trade Association	0
EU Initiative	7
Road show/Exhibition/Talk	1
Consultant	3
Supplier	0
Chamber of Commerce	2
Enterprise Ireland Advisor	1
EPA Inspector	0
Local Authority Inspector	0
Insurance Company	1

4.8 Breakdown of the Proportion of Respondent Companies involved in managing activities that can be defined as Eco Industry activities.

Question 9 sought to determine the proportion of respondent companies involved in managing activities that can be identified as an Eco Industry activity.

For a breakdown of the respondent companies involved in managing activities that can be defined as Eco Industry activities, refer to Figure 4.4.

Figure 4.4 Breakdown of Activities Carried out by Respondent Companies



4.9 Breakdown of Respondent Companies Perceived Drivers/Motivators for adopting Eco Industry

Question 10 sought to determine the perceived drivers/motivators for adopting Eco Industry. The response will identify the main drivers/motivators for companies to adopt Eco Industry status. Respondents were requested to rank the proposed drivers/motivators in order of perceived importance to their organisations

Table 4.12 Percentage Breakdown of Perceived Drivers/Motivators to adopting Eco Industry

Drivers and Motivators	HIGH	MEDIUM	LOW
Compliance with Legislation	85.71	14.29	0.00
Compliance with License	77.00	25.00	0.00
Market Pressures	17.86	71.43	10.71
Economic Incentives	35.71	50.00	14.29
Stakeholders Pressures e.g. Insurers, Regulators, Banks	0.00	71.43	28.57
Strengthen Public Relations	7.14	57.14	35.71
Education and Training	7.14	28.57	64.29
Increase Business Competitiveness	21.42	42.86	35.71
Benefit the Environment	14.29	25.00	60.71
Customer Pressure	3.57	64.29	32.14
Enhance Company's image	32.14	50.00	17.86

Figure 4.5 Percentage Breakdown of Perceived Importance of Drivers/Motivators to adopt Eco Industry Ranked by Respondent Companies

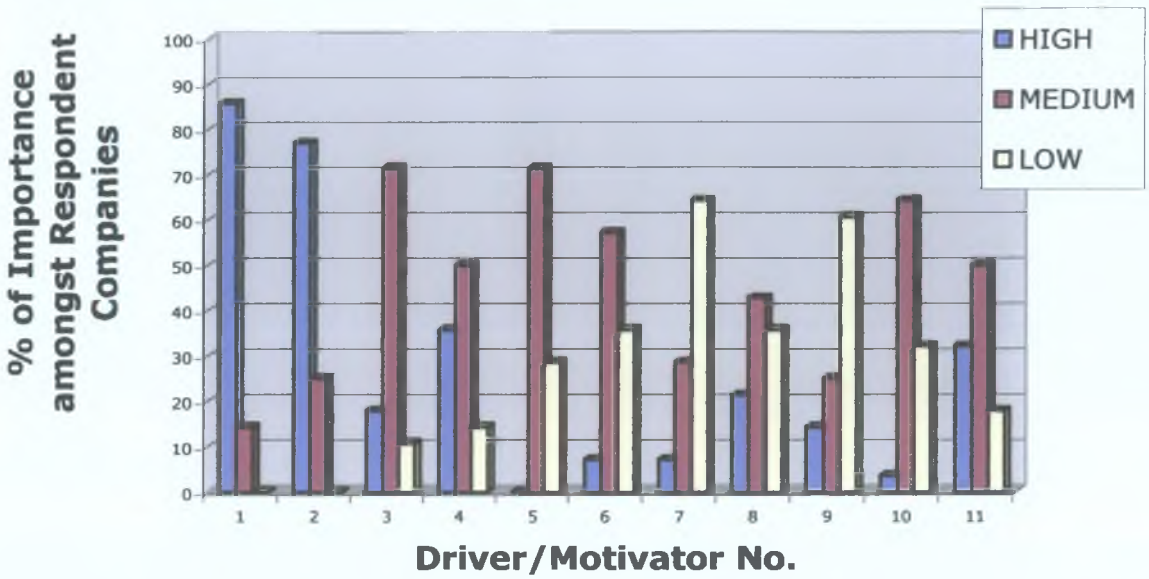


Table 4.13 Drivers/motivators key to adopting Eco Industry

Drivers/motivators No.	Drivers/motivators
1	Compliance with Legislation
2	Compliance with License
3	Market Pressures
4	Economic Incentives
5	Stakeholders Pressures e.g. Insurers, Regulators, Banks
6	Strengthen Public Relations
7	Education and Training
8	Increase Business Competitiveness
9	Benefit the Environment
10	Customer Pressure
11	Enhance Company's image

4.10 Breakdown of Respondent Companies Perceived Barriers for adopting Eco Industry

Question 11 sought to determine the perceived barriers for adopting Eco Industry status. The responses aim to identify the main barrier for companies to adopt Eco Industry. Respondents were requested to rank the proposed barriers in order of perceived importance to their organisations.

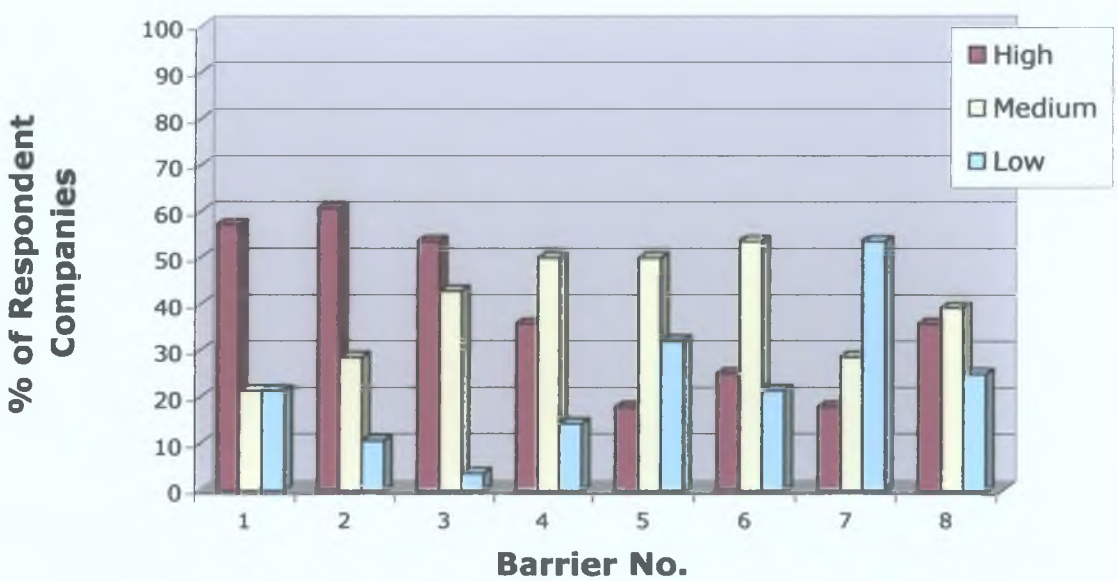
Table 4.14 Percentage Breakdown of Perceived Barriers to adopting Eco Industry Ranked by Respondent Companies

Barriers	High	Medium	Low
Lack of knowledge about Eco Industry	57.14	21.43	21.43
Competing business priorities	60.71	28.57	10.71
Increased costs of implementing activities	53.57	42.86	3.57
Lack of in-house awareness/training	35.71	50.00	14.29
Lack of commitment	17.86	50.00	32.14
Difficulty in assessing benefits	25.00	53.57	21.43
Concerns about changes to Product Quality	17.86	28.57	53.57
Financial Losses	35.71	39.29	25.00

Table 4.15 Main Barriers key of Perceived Barriers to adopting Eco Industry Ranked by Respondent Companies

Barriers No.	Barriers
1	Lack of knowledge about Eco Industry
2	Competing business priorities
3	Increased costs of implementing activities
4	Lack of in-house awareness/training
5	Lack of commitment
6	Difficulty in assessing benefits
7	Concerns about changes to Product Quality
8	Financial Losses

Figure 4.6 Percentage of Perceived Barriers to Eco Industry Ranked by Respondent Companies



4.11 Breakdown of Respondent Companies familiarity with Sustainable Development

Question 12 sought to determine the respondent companies familiarity with Sustainable Development. The results of this question are relevant, as one of the main aims of Sustainable development in Europe is to promote companies to become Eco Industries.

For a breakdown of the respondent companies, refer to Figure 4.7.

Figure 4.7 Percentage of Companies Familiar with Sustainable Development Policy

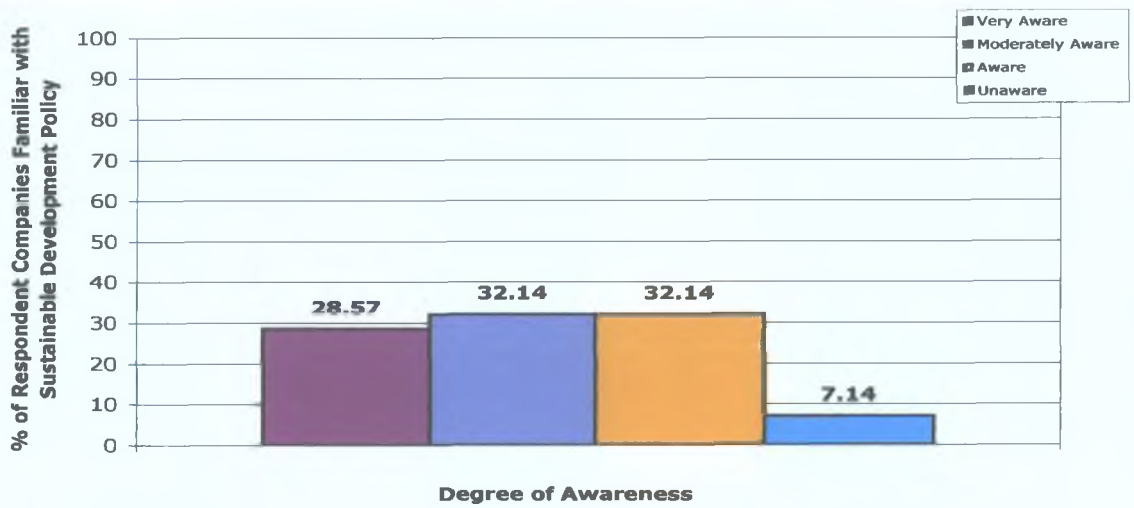


Table 4.16 Breakdown of Respondent Companies aware of Sustainable Development

Familiar with Sustainable Development	No. Of Companies	% Of Companies
Very Aware	8	28.57
Moderately Aware	9	32.14
Aware	9	32.14
Unaware	2	7.14

4.12 Breakdown of Respondent Companies familiarity with the National Sustainable Development Policy - *Sustainable Development: A Strategy for Ireland*

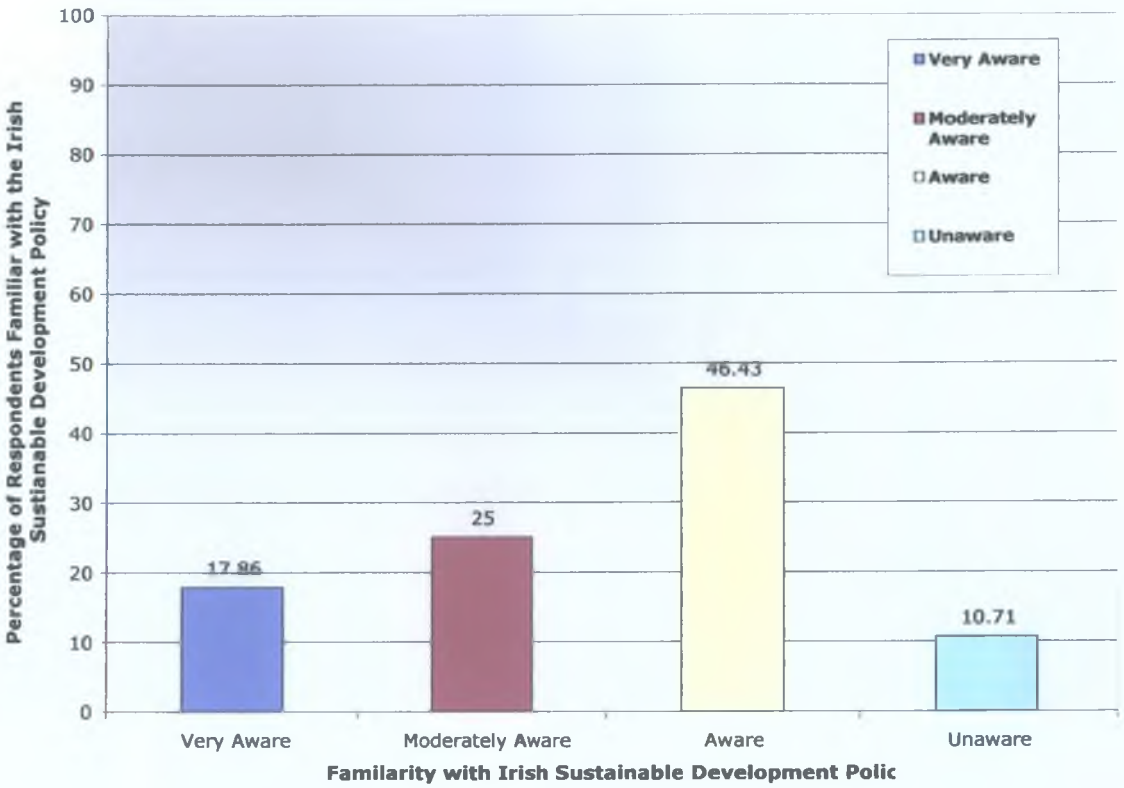
Question 13 sought to determine the respondent companies familiarity with the National Sustainable Development policy - *Sustainable Development: A Strategy for Ireland.* The results of this question will aid in assessing the main aims of the policy is to integrate Ireland's environmental and economics, which is to improve Ireland's competitiveness and to promote companies to become Eco Industries.

For a breakdown of the respondent familiar with the National Sustainable Development Policy - *Sustainable Development: A Strategy for Ireland*, refer to Figure 4.8.

Table 4.17 Breakdown of Respondent Companies aware of the National Sustainable Development Policy - *Sustainable Development: A Strategy for Ireland*

Familiar with Ireland's Sustainable Development Policy	No. Of Companies	% Of Companies
Very Aware	5	17.86
Moderately Aware	7	25
Aware	13	46.43
Unaware	3	10.71

Figure 4.8 Percentage of Respondents Familiar with the Irish Sustainable Development Policy



4.13 Breakdown of Respondent Companies attitude towards Sustainable Development, whether it is important to the respondent company.

Question 14 sought to determine the respondent companies' attitude towards Sustainable Development and whether it is important to the respondent company. The results of this question will aid in assessing relevance of sustainable development and its policies and whether it is recognised by Irish Companies.

For a breakdown of the attitude towards Sustainable Development and whether it is important to the respondent company, refer to Figure 4.9.

Figure 4.9 Percentage of Respondents who recognise that Sustainable Development is important

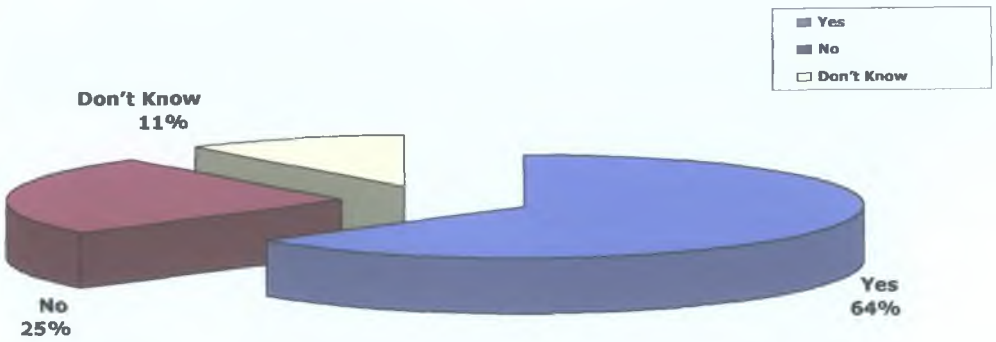


Table 4.18 Breakdown of Respondent Companies attitude towards Sustainable Development and whether it is important to the Respondent Company.

Issues of Sustainable Development Important	No. Of Companies	% Of Companies
Yes	18	64.29
No	7	25
Don't Know	3	10.71

4.14 Breakdown of Respondent Companies who participate in Corporate Social Responsibility (CSR) programmes

Question 15 sought to determine the respondent companies who participate in Corporate Social Responsibility (CSR) programmes. The results of this question will identify the number of respondent companies who participate in Corporate Social Responsibility (CSR) programmes which is a policy of Sustainable Development and a possible support measure in the future for investment.

For a breakdown of Respondent Companies who participate in Corporate Social Responsibility (CSR) programmes, refer to Figure 4.10.

Figure 4.10 Percentage of Respondent Companies who participate in Corporate Social Responsibility

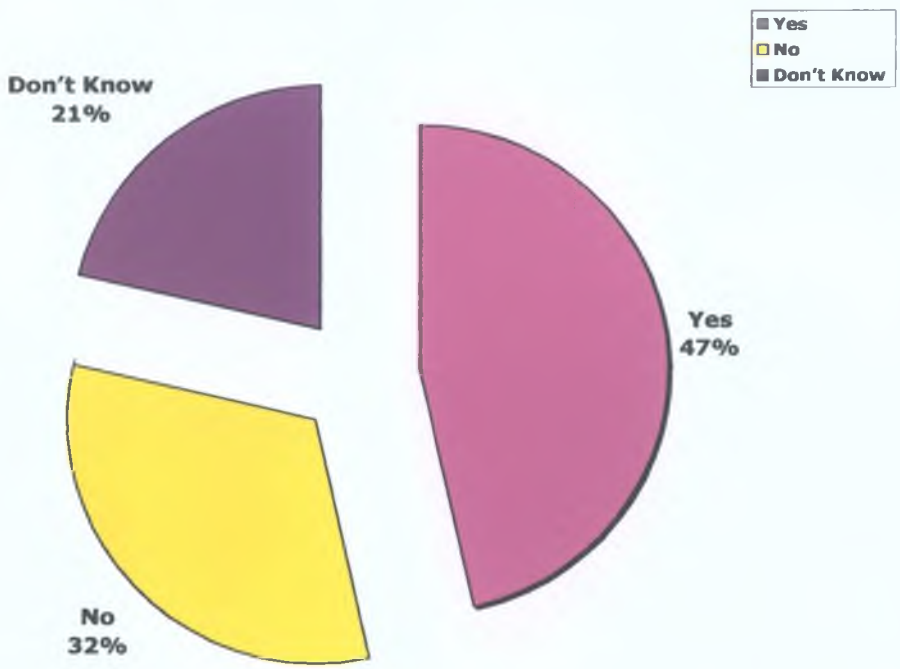


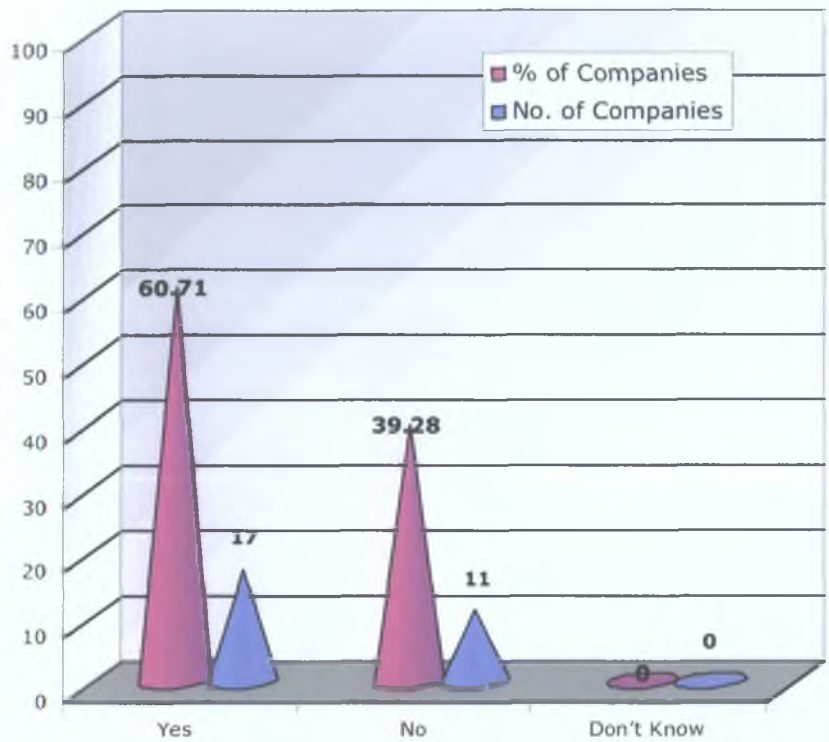
Table 4.19 Breakdown of Respondent Companies who participate in Corporate Social Responsibility (CSR) programmes

Participate in Corporate Social Responsibility	No. Of Companies	% Of Companies
Yes	13	46.43
No	9	32.14
Don't Know	6	21.43

4.15 Breakdown of Respondent Companies who have an Environmental Management Systems (EMS)

Question 16 (A) sought to identify respondent companies with environmental management systems. Only two companies of the recipient companies certified to EMAS participated in the survey. For a breakdown of respondent who have an Environmental Management Systems, refer to Figure 4.11.

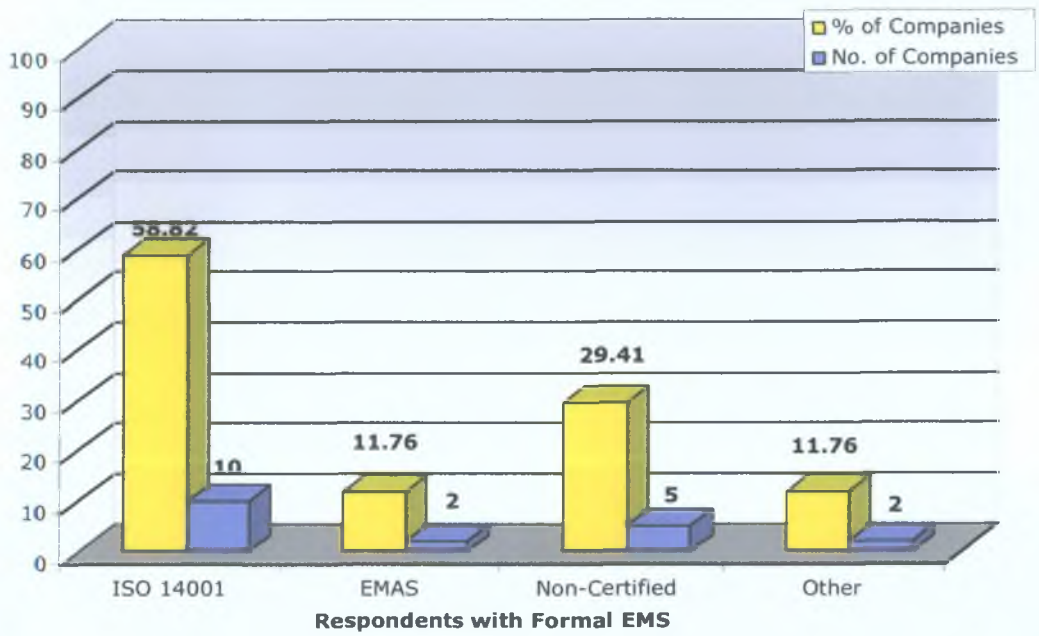
Figure 4.11 Numeric and Percentage Breakdown of Respondent Companies with EMS



4.15.1 Breakdown of Respondent Companies who have a Formal Environmental Management System (EMS) or seeking certification to a formal EMS.

Question 16 (B) sought to identify respondent companies with formal environmental management systems (EMS) or seeking certification to a formal EMS. This question was aimed to identify the companies who have first hand knowledge of environmental management systems. For a breakdown of respondent who have a formal Environmental Management Systems, refer to Figure 4.12.

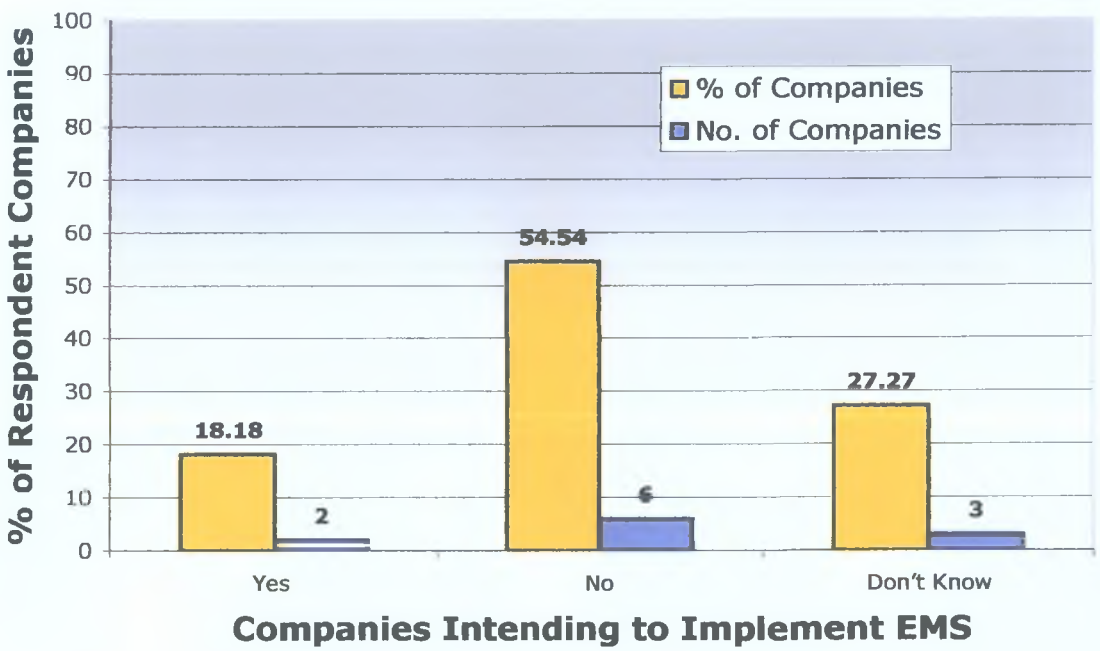
Figure 4.12 Numeric and Percentage Breakdown of Respondent Companies with Formal EMS



4.15.2 Breakdown of Respondent Companies who intend to install a Formal Environmental Management System (EMS) in the future.

Question 16 (C) sought to identify respondent companies that intend to install formal environmental management systems. The respondent companies that stated that they were considering installing a formal EMS in the future would be used to form observations on the likely demand for EMS in the future. For a breakdown of respondent who intend to install a formal Environmental Management Systems, refer to Figure 4.13.

Figure 4.13 Numeric and Percentage Breakdown of Respondent Companies who intend to Implement EMS

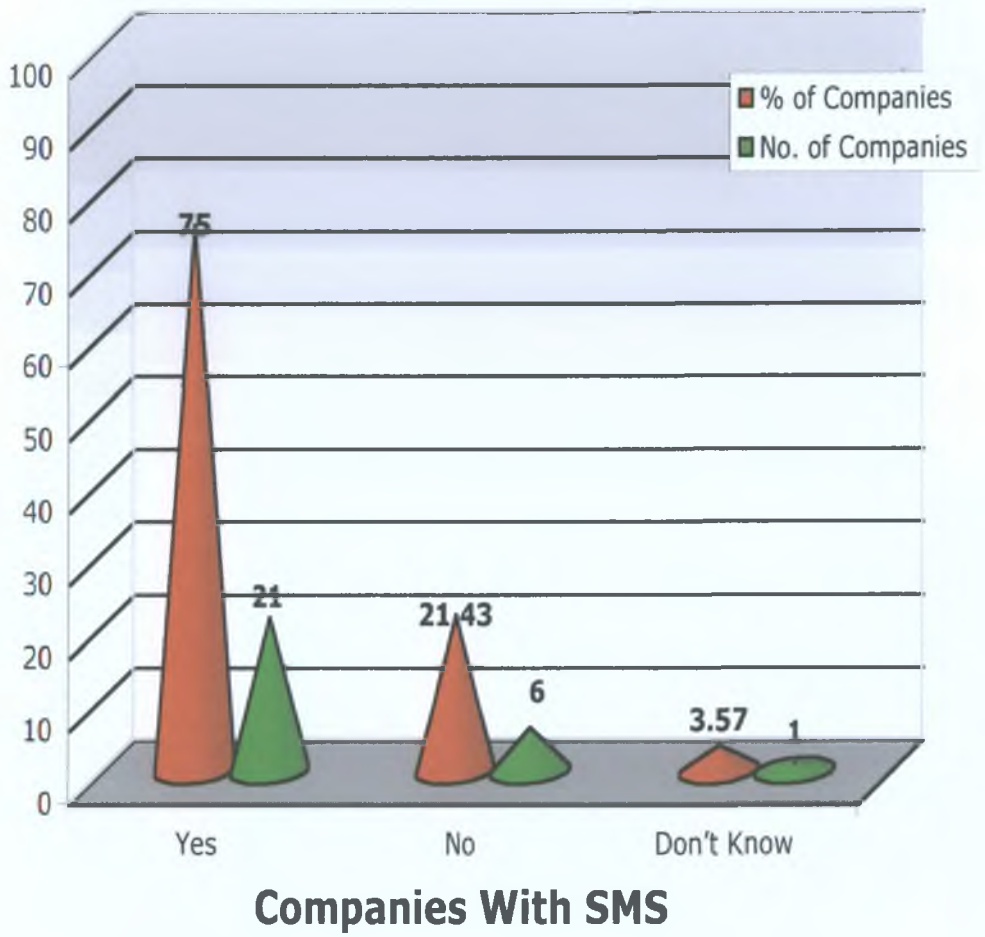


4.16 Breakdown of Respondent Companies who have a Safety Management System (SMS)

Question 17 (A) sought to identify respondent companies with some form of safety management system in place other than a safety statement. The proportion of respondent companies to this question will be considered as an aid to the future promotion of SMS in Irish Companies and therefore promoting Irish Industry

For a breakdown of respondent who have Safety Management Systems, refer to Figure 4.14.

Figure 4.14 Numeric and Percentage Breakdown of Respondent Companies with SMS

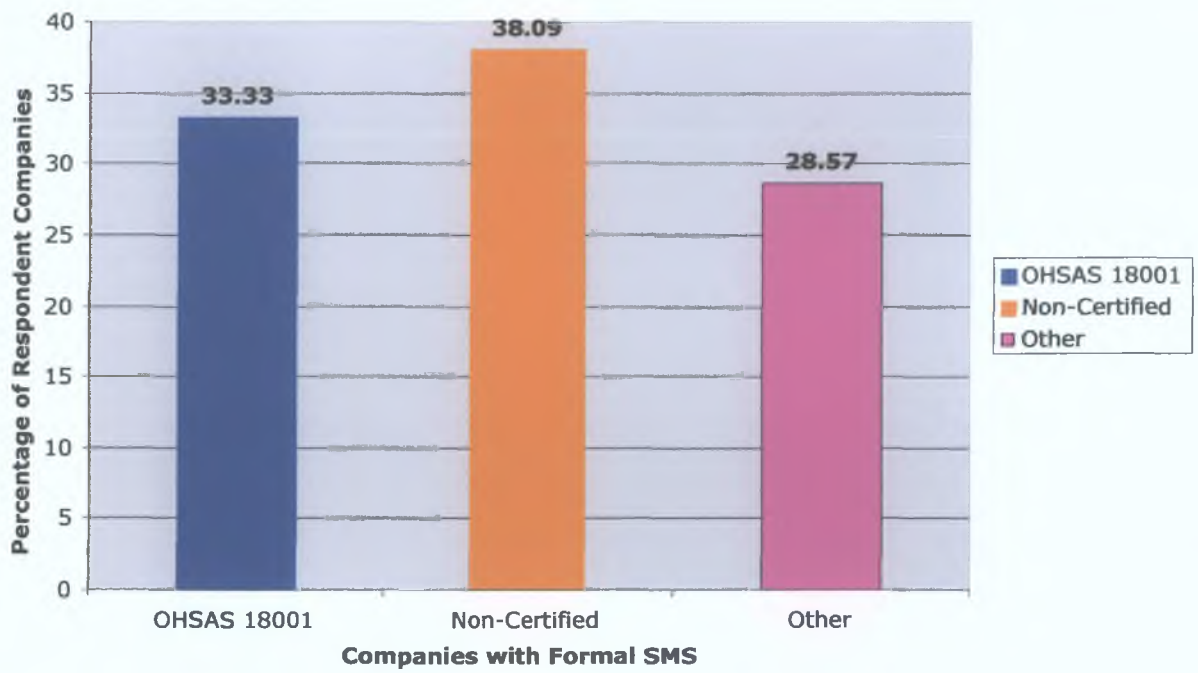


4.16.1 Breakdown of Respondent Companies who have a Formal Safety Management System (SMS) or seeking certification to a formal SMS.

Question 17 (B) sought to identify respondent companies with formal safety management systems or seeking certification to a formal SMS. This question was aimed to identify the respondent companies with a formal SMS and as a result identify, the companies who have first hand knowledge of the barriers and motivational factors for companies to implement activities that are considered to be an Eco Industry

For a breakdown of respondent who have a formal safety management system (SMS) or seeking certification to a formal SMS, refer to Figure 4.15.

Figure 4.15 Numeric and Percentage Breakdown of Companies who have a formal safety management system (SMS) or seeking certification to a formal SMS

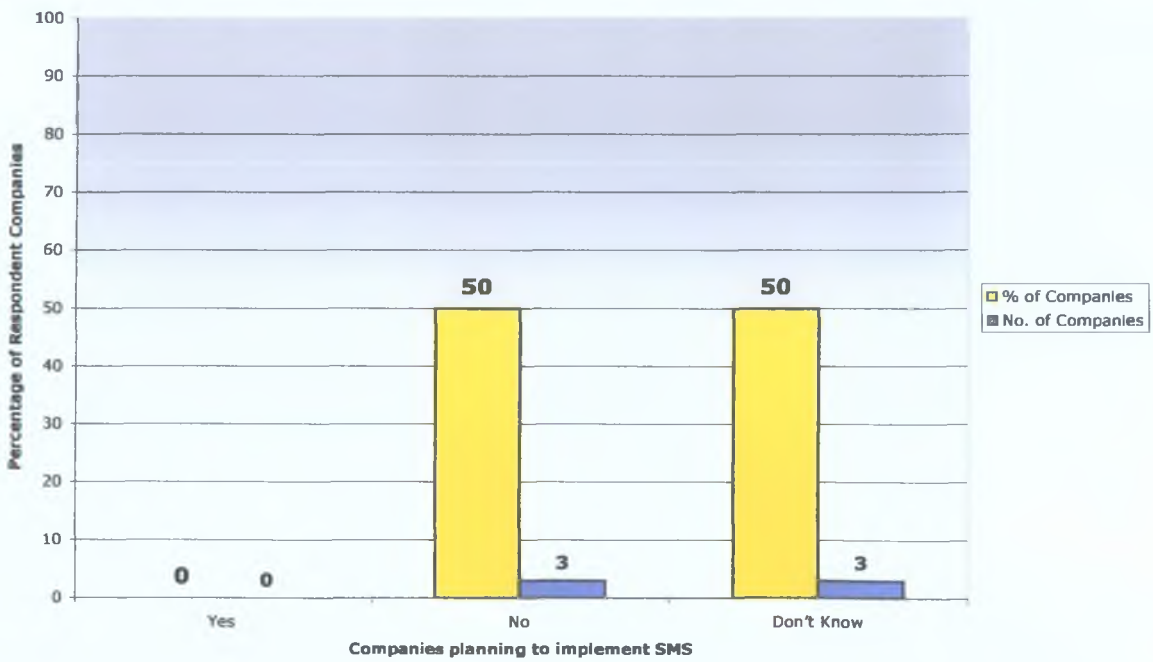


4.16.2 Breakdown of Respondent Companies that intends to install a Formal Safety Management System (SMS) in the future.

Question 17 (C) sought to identify respondent companies that intend to install formal safety management systems. The respondent companies that stated that they were considering installing a formal SMS in the future would be used to form observations on the likely demand for SMS in the future and therefore the demand for Eco Industries in Ireland in the future.

For a breakdown of respondent who intend to install a formal safety management systems, refer to Figure 4.16.

Figure 4.16 Numeric and Percentage Breakdown of Companies who Intend to Implement Formal SMS



4.17 Breakdown of Respondent Companies have/intend to integrate both Environmental and Safety Management Systems.

Question 18 sought to identify respondent companies that have or intend to integrate both Environmental and Safety Management Systems. The responses from this question will form observations showing that the respondent companies intend to integrate both systems providing an incentive for Eco Industries to incorporate health and safety activities.

For a breakdown of respondent who have or intend to integrate both Environmental and Safety Management Systems, refer to Figure 4.17.

Figure 4.17 Percentage of Respondent Companies which have/intend to integrate both Environmental and Safety Management System.

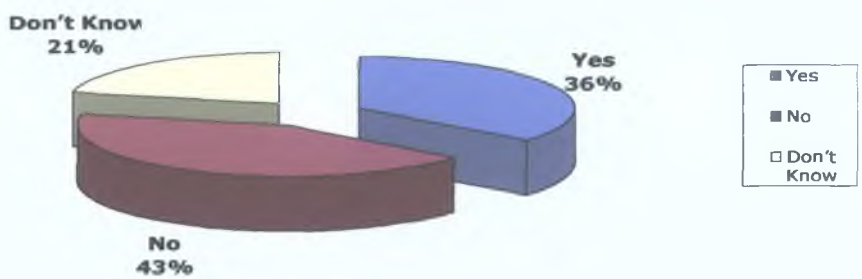


Table 4.20 Breakdown of Respondent Companies which have/intend to integrate both Environmental and Safety Management System.

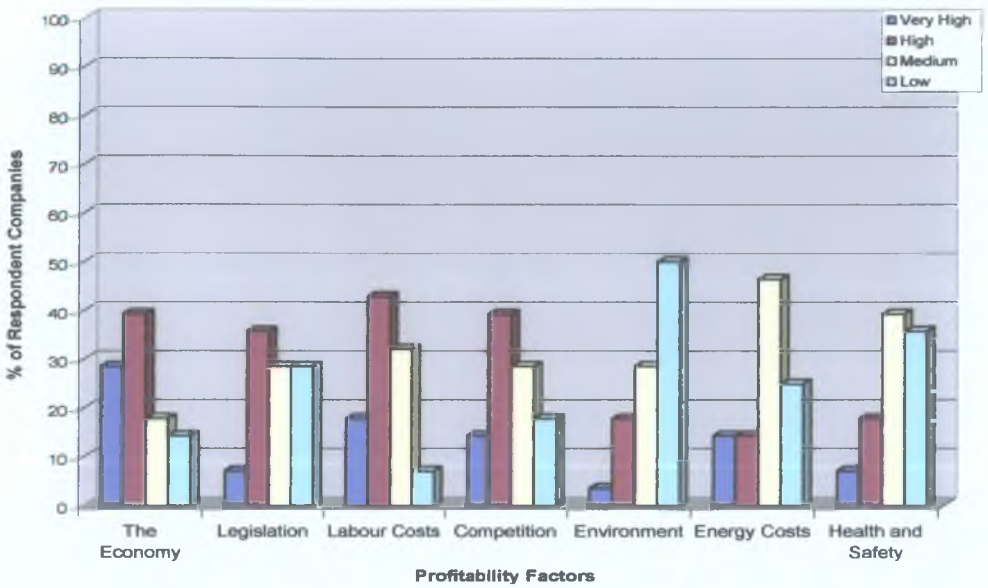
Integrated Environmental and Safety Management System In Place	Yes	No	Don't Know
No. Of Companies	10	12	6
% Of Companies	35.71	42.86	21.43

4.18 Breakdown of the perceived important issues affecting the profitability of the Respondent Companies

Question 19 sought to determine the perceived important issues affecting the respondent companies profitability. This aims to identify the issues that are concerning respondent companies profitability and observations will be made on the suitability of Eco Industries as an instrument to support a company's profitability.

For a breakdown of the respondent companies, refer to Figure 4.18.

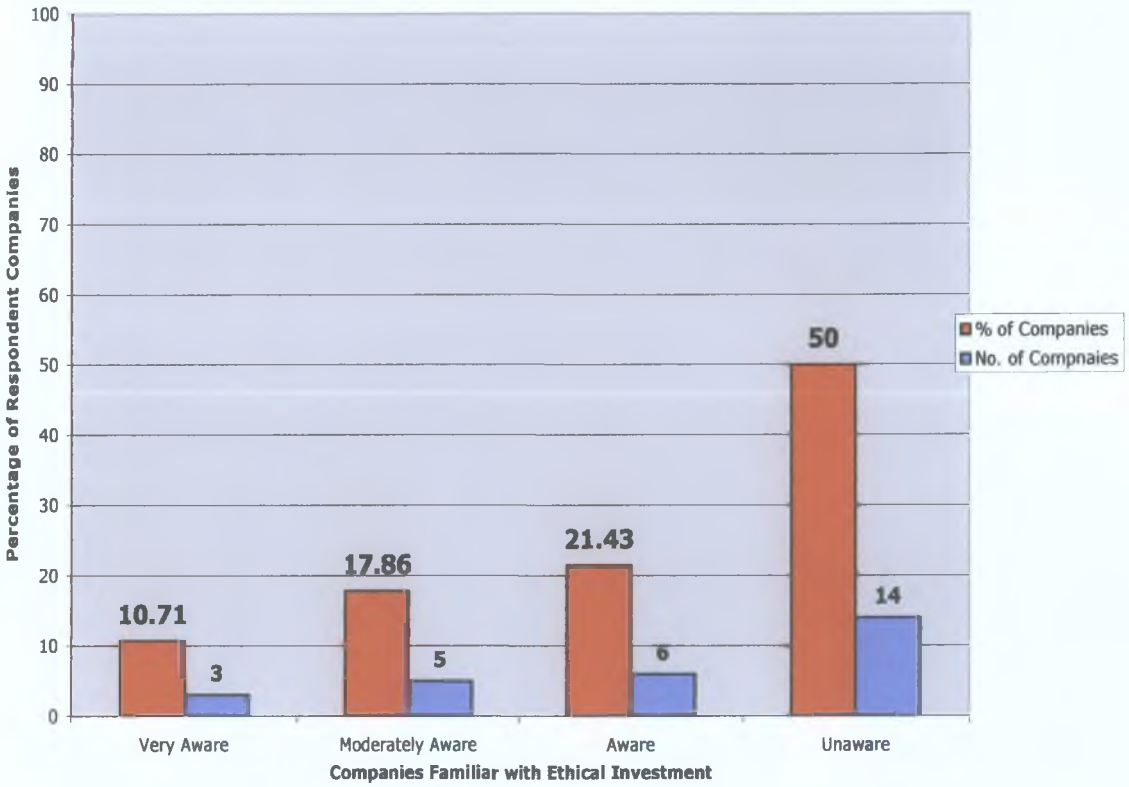
Figure 4.18 Percentage Breakdown of Perceived Factors affecting Profitability ranked by Respondent Companies



4.19 Breakdown of Respondent Companies familiar with Ethical Investment

Question 20 sought to determine the respondent companies familiar with Ethical Investment. The responses of this question will be assessed to determine whether respondent companies are aware of ethical investment and observations will be made on whether this is a suitable tool, to promote companies to achieve Eco Industries status as it may attract investors interested in Ethical Investment. For a breakdown of the respondent companies, refer to Figure 4.19.

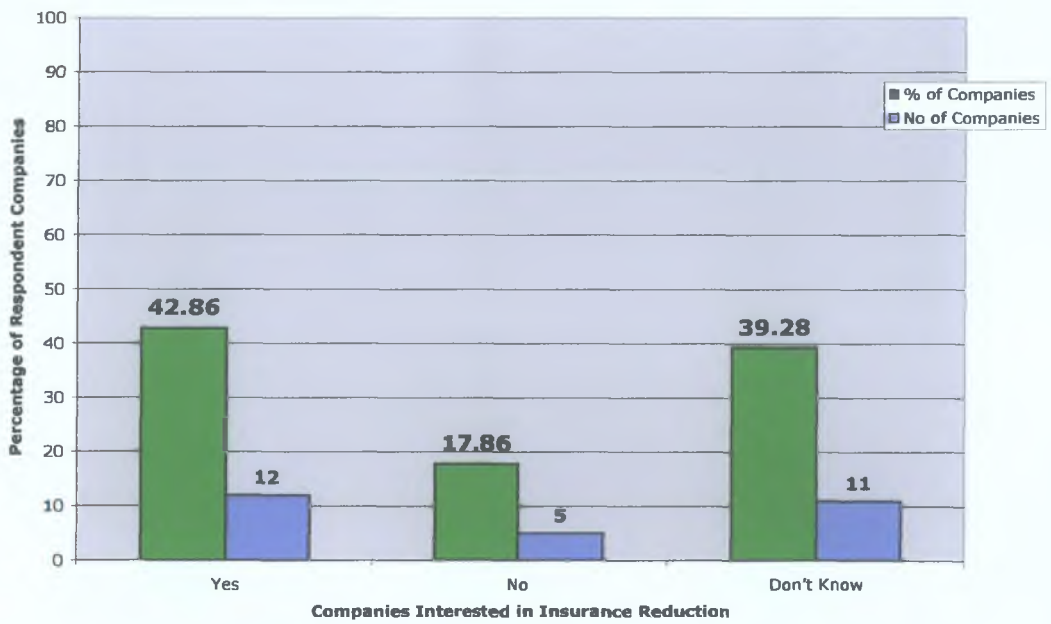
Figure 4.19 Numeric and Percentage Breakdown of Companies Familiar with Ethical Investment



4.20 Breakdown of Respondent Companies that would consider becoming an "Eco" company with a reduction in insurance costs

Question 21 sought to ascertain whether a reduction in Insurance costs would be a contributing factor for the respondent companies to take an Eco Industry approach. The number of respondent companies that stated that they would consider Eco Industry in the future would be used to form observations on the impact insurance costs has in relation to environmental and health and safety risks amongst Irish companies. For a breakdown of the respondent companies, refer to Figure 4.20.

Figure 4.20 Numeric and Percentage Breakdown of Respondent Companies interested in Eco Industries with an Insurance Reduction



4.21 Breakdown of Respondent Companies that are listed on the Stock Market

Question 22 (a) sought to ascertain the respondent companies that are listed on the Stock Market. Responses from the question will determine whether the market influences the respondent companies' activities. The number of respondent companies involved will be used to form observations on the position the respondents take in relation towards to their environmental and health and safety activities and policies.

For a breakdown of the respondent companies, refer to Figure 4.21.

Figure 4.21 Percentage of Respondent Companies listed on the Stock Market

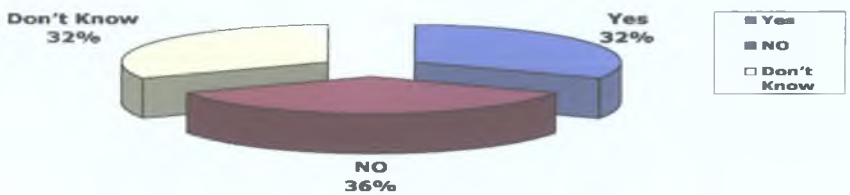


Table 4.21 Numeric and Percentage Breakdown of Respondent Companies that are listed on the Stock Market

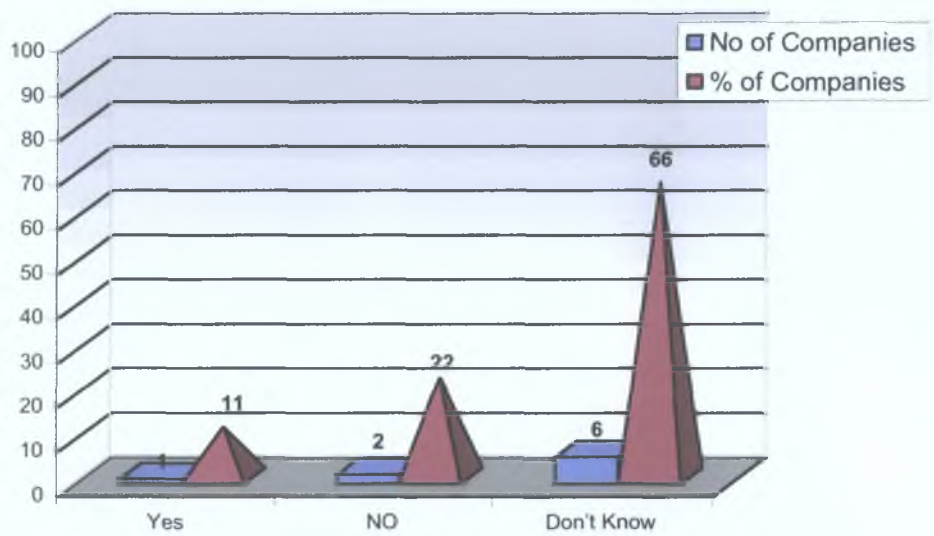
Listed on Stock Market	No of Companies	% Of Companies
Yes	9	32.14
NO	10	35.71
Don't Know	9	32.14

4.21.1 Breakdown of Respondent Companies whose Stock Market Portfolio could be considered as Ethical fund

Question 22 (b) sought to ascertain the respondent companies who are listed on the Stock Market as ethical funds. This will form whether the market influences the respondent companies environmental and health and safety activities. Observations will be made on the number of respondent companies that are involved in ethical funds.

For a breakdown of the respondent companies, refer to Figure 4.22.

Figure 4.22 Numeric and Percentage Breakdown of Respondent Companies Stock Market Portfolio, which is considered an ethical fund



Respondent Companies involved in Ethical Funds

4.22 Breakdown of the Proportion of Respondent Companies that was aware of grants and support systems to aid in the uptake of Environmental, Health and Safety (EHS) activities

Question 23 sought to identify the number of respondent companies that were aware of grants and support systems that are available to aid in environmental, health and safety activities. The information obtained from this question will determine respondent companies awareness of the availability of support system for their activities.

For a breakdown of the respondent companies, refer to Figure 4.23.

Figure 4.23 Percentage of Respondent Companies that are aware of Grants and Other Support Systems in Place for EHS Activities

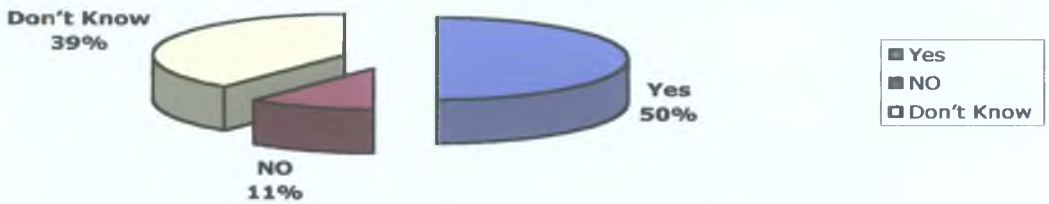


Table 4.22 Numeric and Percentage Breakdown of Respondent Companies that was aware of Grants and Support Systems to aid in the uptake of Environmental, Health and Safety activities

Respondents Aware of Grants	No of Companies	% Of Companies
Yes	14	50
NO	3	10.71
Don't Know	11	39.29

4.23 Breakdown of the Proportion of Respondent Companies that have received of grants or availed of other support systems to carry out improvements of their Environmental, Health and Safety activities

Question 24 sought to identify the number of respondent companies that have received grants to carry out improvements of their environmental, health and safety activities. The information obtained from this question will be compared with question 23 to build up an overall view of the level of awareness, knowledge and understanding possessed by Irish companies in relation to grants and support systems in relation to their environmental, health and safety activities.

For a breakdown of the respondent companies, refer to Figure 4.24.

Figure 4.24 Percentage of Respondent Companies who have received a Grant or availed of other Support Systems

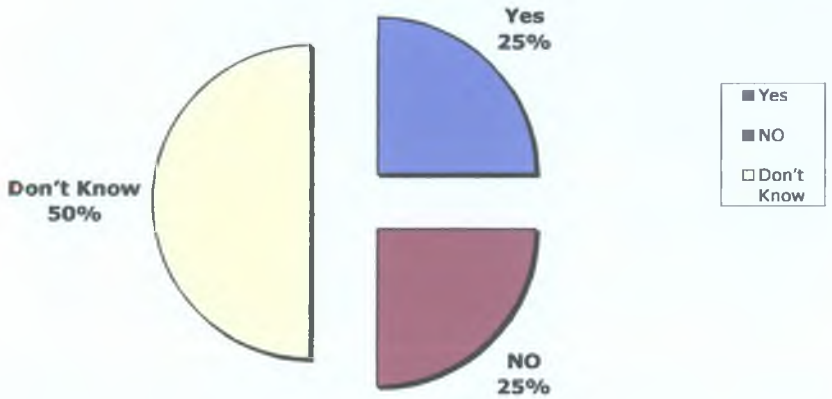


Table 4.23 Numeric and Percentage Breakdown of Respondent Companies that have received Grants to carry out improvements of their Environmental, Health and Safety activities

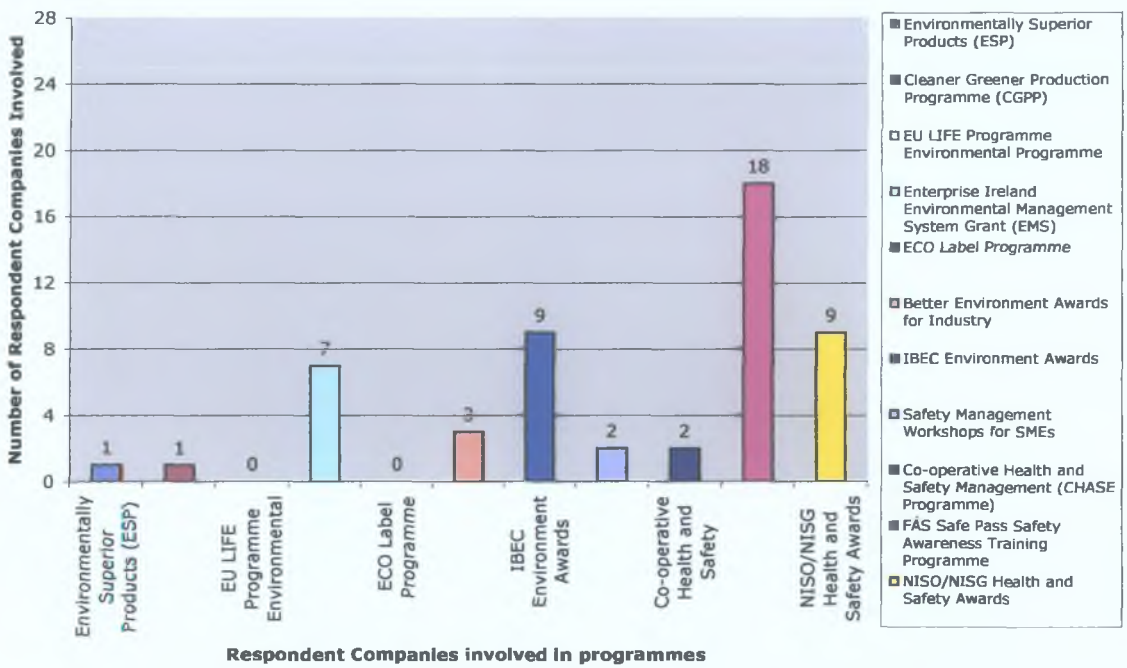
Respondent who have receive grants	No of Companies	% Of Companies
Yes	7	25
NO	7	25
Don't Know	14	50

4.24 Breakdown of the Proportion of Respondent Companies that have participated in programmes that aid the promotion and uptake of Eco Industry.

Question 25 sought to ascertain the programmes the respondent companies were involved with that could be used to promote Eco Industry. The information will be used to build an overall view of the programmes in which Irish companies are involved with. The results will form observations, with a view of these programmes being used as tools of promoting Eco Industries, as these programmes are known to have beneficial benefits for a company's overall image

For a breakdown of the respondent companies, refer to Figure 4.25

Figure 4.25 Respondent Companies that have participated in programmes that aid the promotion and uptake of Eco Industry



5.0 Discussion of Results

5.1 Discussion Introduction

Section five discusses the results (presented in Chapter 4) of the questionnaires received from respondent companies. Further comparative analysis of the various results presented in Chapter four, was carried out and discussed.

5.2 Discussion of Questionnaire Responses

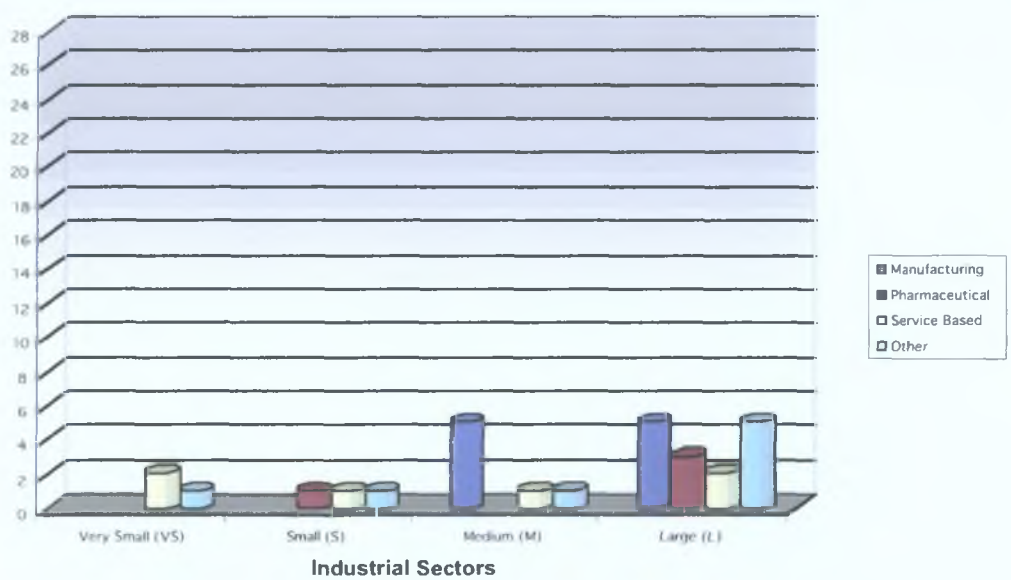
The proportion of large companies comprised of over 53% of the total number of respondent companies (refer to Table 4.3). This does not represent the breakdown of Irish Companies stated by Enterprise Ireland. The Enterprise Ireland website states that about 2% of Irish Companies are large, compared to the 53.6% respondent companies. While Table 4.3 shows that 47% of the respondent companies small medium sized companies which under-represents this sector as it is comprised of over 90% of the registered companies in Ireland (www.bitc.ie/csrforsmes.htm).

The survey also over represents the attitudes of the multinational or foreign companies in Ireland (Figure 4.2) as the survey represents, 57% of the respondent companies. The ESG 2004 report, states that out of the 8,663 firms supported by the enterprise development agencies (IDA Ireland, Enterprise Ireland, Shannon Development and Údarás na Gaeltachta) 7,390 were indigenous companies and 1,273 companies were multinationals companies. As a result of this, many of the latter results that were obtained by the questionnaire tend to over state the number of Irish companies that are aware of Eco Industries, ethical investment and pertinent policies.

The low response rate from very small to medium size companies was not unexpected; the personnel in these companies have a greater degree of responsibility compared to personnel in similar larger companies. The personnel with greater responsibilities are also more likely to have time constraints and therefore may not have the time to complete a voluntary questionnaire. Also, small to medium sized companies often do not have specifically defined environmental or safety personnel, capable of completing the more detailed sections of the questionnaire.

Due to the over representation of medium and large sized respondent companies, the results emphasise the Irish situation as it relates to medium and large companies as opposed to smaller companies. This was expressed by the comparative analysis (Figure 5.1), which compared the company size categories of Enterprise Ireland (Finn, 2005) with the Industrial sectors. This showed that the majority of the respondent companies are from the medium to large sized companies.

Figure 5.1 Breakdown of Company Size Categories of the Industrial sectors of the Respondent Companies



5.3 Discussion of the requirements of the Respondent Companies

All respondents companies (Tables 4.4-4.5, 4.7-4.9) were involved in managing their environmental activities in accordance to licence requirements, which stipulates specific discharge limits such as those to air and water to comply with under environmental legislation. Therefore respondent companies with IPPC licenses and local authority licensed companies may be more likely to adopt Eco Industry status as they already carry out the Eco Industry activities compared to a non licensed company that does not have as many or as significant environmental aspects.

From Table 4.6, it was observed that 92.9% of the respondent companies had a safety statement. The high proportion of respondents was not unexpected as under the Safety, Health and Welfare at Work Act, 2005 and the Safety, Health and Welfare at Work (General Applications) Regulations, 1993 (as amended 2001) a written safety statement is required. From Table 5.1 it was observed that the service industry was the only sector not to be 100% compliant with this legal requirement.

The high proportion of respondent companies with safety statements in place is important as it identifies that the majority of respondent companies have a basic non-formal safety management system such as risk assessment and control. These elements are essential parts of the safety management system such as OHSAS 18001 and can be used as building block for the implementing of such a safety management system as it can be assumed that the majority of these companies would have the knowledge and expertise to implement OHSAS 18001, if provided with sufficient time, information and financial assistance to do so.

Table 5.1 Breakdown of the Respondent Companies environmental, health and safety control and discharge requirements

Industrial Sector	IPPC License	LA Discharge License	Safety Statement	Waste Management Permit	Water Pollution License	Air Pollution License
	No. Of Companies	No. Of Companies	No. Of Companies	No. Of Companies	No. Of Companies	No. Of Companies
Manufacturing	9/10 (90%)	3/10 (30%)	10/10 (100%)	1/10 (10%)	1/10 (10%)	2/10 (20%)
Pharmaceutical	4/4 (100%)	2/4 (50%)	4/4 (100%)	0/4 (0%)	3/4 (75%)	2/4 (50%)
Service Based	1/6 (16.7%)	0/6 (0%)	4/6 (66.7%)	2/6 (33.3%)	0/6 (0%)	0/6 (0%)
Other	4/8 (50%)	1/8 (12.5%)	8/8 (100%)	2/8 (25%)	2/8 (25%)	3/8 (37.5%)

5.4 Discussion of the Proportion of Respondent Companies that are aware of Eco Industries

From Table 4.10 and Figure 4.3, it was observed that 43% (12/28 of the respondent companies) were aware of Eco Industry. A large proportion (39%) of companies stated that they did not know what an Eco Industry was. This was not surprising as the literature review identified that the environmental goods and services is confined to niche markets and the overall performance of the Irish Eco Industries sector is limited compared to that of larger EU countries and the US. E.g. environmental service sectors in Austria, Finland, France, Germany and the Netherlands obtain between 20% and 40% of their turnover from exports, compared with approximately 10% for the Irish sector (ECOTEC, 1999). However, the level of awareness is expected to increase in the next 6 month as Enterprise Ireland is including an

Environmental Marketplace section with information on Eco Industries in the upcoming changes to the Enterprise Ireland Website (www.envirocentre.ie) (Maxwell, 2005).

In order to further identify the proportion of companies in the industrial sector that is aware of Eco Industry a comparative analysis between the company size and industrial profile i.e. Multinational (Foreign) or Indigenous companies for the respondent companies aware of Eco Industry was carried out to determine whether the more global multinational companies involved in the survey were more aware of Eco Industries. The results of the analysis are presented in Figure 5.2.

Figure 5.2 Percentage Breakdown of the Respondents Company Category Size and Industrial Profile based on their awareness of Eco Industry

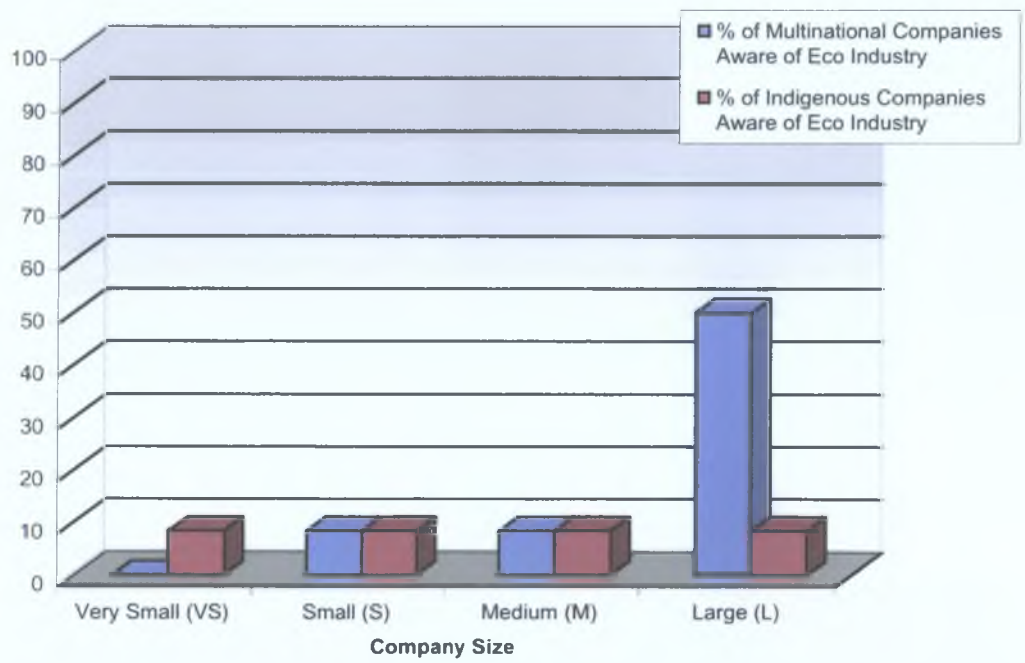


Table 5.2 Percentage and Numeric Breakdown of Respondents' Company Size Category and Industrial Profile based on their awareness of Eco Industry

Category Size	Very Small (VS)	Small (S)	Medium (M)	Large (L)
% Of Multinational Companies Aware of Eco Industry	0	8.33	8.33	50
% Of Indigenous Companies Aware of Eco Industry	8.33	8.33	8.33	8.33
No. Of Multinational Companies Aware of Eco Industry	0/12	1/12	1/12	6/12
No. Of Indigenous Companies Aware of Eco Industry	1/12	1/12	1/12	1/12

From Figure 5.2 and Table 5.2, it was observed that the highest percentage of respondent companies that was aware of Eco Industry was the large multinationals (50%). This was not unexpected due to the response rates obtained from this category size and industrial profile. This observation was believed to be due to one or more of several possible reasons:

- Multinationals compete on an international market, for these large multinational companies to remain competitive they must be aware of any changes towards their global product such as the move towards environmentally "friendly" products and services.

- Large sized companies are more likely to have employees with a degree of environmental expertise in their employment who may be more aware of Eco Industry than smaller companies

- These large multinationals export their products and service throughout the world and therefore need to be aware of Eco Industry companies to aid competition and promotion their product and services.

5.4.1 Discussion of how the Proportion of Respondent Companies became aware of Eco Industries

From Table 4.11, it was observed that 10 (35%) of the respondent companies became aware of Eco Industry through Industry associations. 24% of the respondent companies became aware of Eco Industry through EU initiatives.

This observation was believed to be due to one or more of several possible reasons:

- As seen in Table 5.2, the majority of companies aware of Eco Industry were large multinationals, these companies are more likely to have employees with a degree of environmental expertise in their employment who are in contact more often with Industry associations on environmental issues.

- As the majority of respondent companies aware of Eco Industry were multinationals, these companies may have other offices throughout Europe, therefore come in contact with Eco Industry initiatives ran by other member states.

It was also observed that only 4% became aware of Eco Industry through Enterprise Ireland. This was not unexpected as the previously discussed ECOTEC report (ECOTEC, 1999) stated that Enterprise Ireland does not believe that the Irish environmental goods and services sector offers as good growth prospects, compared to other sectors of the Irish economy. However, as previously mentioned this rate of awareness may change in the next 6 months, as Enterprise Ireland will be providing information for companies interested in Eco Industry (Maxwell, 2005).

5.4.2 Discussion of the Perceived Drivers/Motivators for adopting Eco Industry

It was observed from Figure 4.5 and Table 4.12, that the perceived drivers/motivators for adopting Eco Industry varied significantly, the driver perceived on average by respondent companies as the most important driver was to aid compliance with legislation (85.71%). The next important driver perceived important for adopting Eco Industry status was being compliant with licenses. This was not unexpected as it is a priority for companies to comply with their legal requirements and reduce the probability of being non-compliant and the risks of legal action being taken against the respondent companies.

Despite information obtained during the literature review, which suggested that Eco Industry status and activities would provide positive effects on a company's performance with stakeholders and strengthen public relations, stakeholders pressures and strengthen public relations were not all considered as a high ranking driver but as a medium to low ranking driver for companies to adopt Eco Industry status. Also, 21.42 % of the responses to perceived improving business competitiveness as a high ranking driver for the adoption of Eco Industry, this was unexpected as there has been a push in recent years from Irish companies to become more completive and innovative.

The most surprising result obtained from the respondent companies was the fact that 0% of the companies regarded stakeholder pressures from insurers, and regulators etc. as a high-ranking driver for the adoption of Eco Industries. This was surprising as the literature review identified that stakeholders such as insurance companies regard Eco Industries as a better risk that would ultimately lead to less claims and ultimately reflect in their premiums (Dunne, 2005).

It was observed that the drivers with the least perceived importance for adopting Eco Industry were that of education and training and to benefit the environment. This was not surprising as often times these activities in these fields are only carried out to ensure compliance with legislation and prevent future law actions to be taken against the respondent companies.

5.4.3 Discussion of the Perceived Barriers for adopting Eco Industry

It was observed from Figure 4.6 and Table 4.14, that the perceived barriers against adopting Eco Industry varied significantly from company to company, the barrier perceived on average by respondent companies as being the most important barrier was competing business priorities (61%). This was not unexpected as environmental goods and services are generally confined to niche markets and the overall performance of the Irish companies involved in the Eco Industries sector is limited compared with larger EU countries and the US.

The next barrier perceived as important against adopting Eco Industry status was the lack of knowledge about Eco Industry (58%). This was also not unexpected as seen in Figure 4.3 and Table 4.10 only 43% of the respondent companies were aware of Eco Industries.

It was observed that the barrier, which was ranked as a low raking barrier against adopting Eco Industry, was that of companies concerned about changes in product quality. This observation was not unexpected as the respondent companies product quality should remain the same by adopting to an Eco Industry point of view and should in theory improve product quality as the manufacturing of the product will consider activities that will reduce environmental risk and pollution and resource use which in turn reduces the costs that are involved in these areas.

5.5 Discussion of Sustainable Development Policies as a means of promoting the adopting Eco Industry

From Figure 4.7 and Table 4.16, the majority of respondent companies are moderately aware and aware of the EU Sustainable Development policy. This observation was expected as there are many initiatives carried out in within the EU member states to promote this policy. Also, as the majority of respondents are from large companies, which are more likely to have employees with a degree of environmental expertise in their employment, would be expected to have some degree of knowledge of Sustainable Development.

Observations from Figure 4.8 and Table 4.17 identified that 46.43 % of respondent companies are aware of the National Sustainable Development policy - *Sustainable Development: A Strategy for Ireland.* This was expected, as there have been a number of policies developed in Ireland directed at the industrial sectors selected for the survey, to promote sustainability in Ireland with promoting innovation and competitiveness with a view to integrating economics and the environment and incorporating corporate social responsibility into companies manifestos.

The survey identified that 64% (Figure 4.9) of the respondent companies recognised that Sustainable Development is important. This result can be considered as a positive outcome as respondent companies identify the importance for future business in Ireland to involve Sustainable Development and its policies, which it brings along with it innovation and competition which in turn aids Ireland's economy.

5.5.1 Discussion of Respondent Companies who participate in Sustainable Development Policy – Corporate social Responsibility (CSR)

From Figure 4.10 and Table 4.19, 46.43% of the respondent companies were involved in corporate social responsibility (CSR) in Ireland. This was not unexpected as there have been many polices developed to promote CSR. Many of the respondent companies involved in CSR come form the large companies (Figure 5.3) in Ireland.

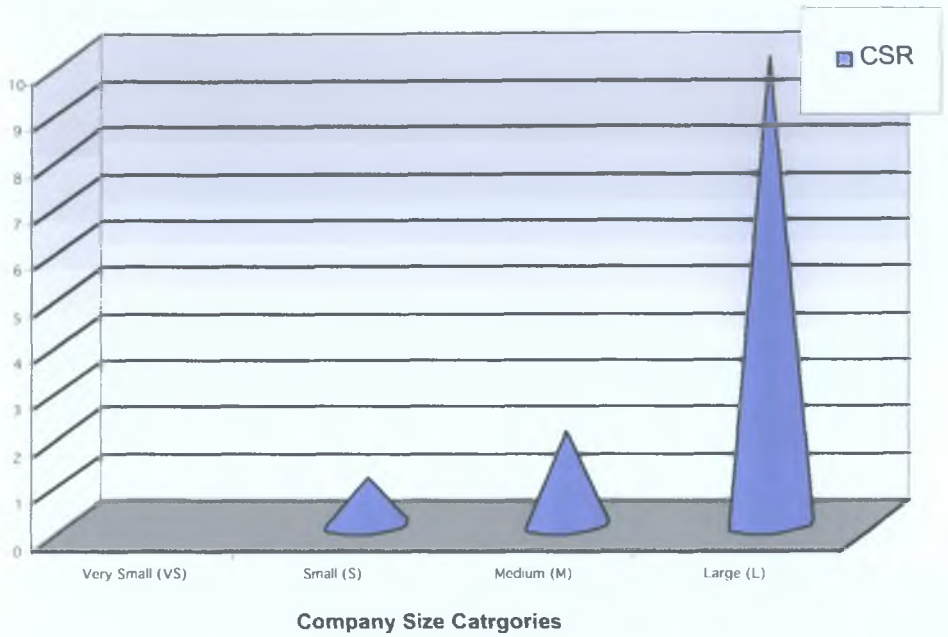
This is not surprising for the following reasons:

- The literature review noted that there have been initiatives in Ireland and Europe to promote CSR and many of the large companies surveyed would have offices in other member states.

- Many of these large companies involved in CSR use it as a promotional tool to improve relations with stakeholders as the benefits for companies with CSR include enhanced company reputation and image, improved financial performance, increased productivity and efficiency, employee morale and loyalty, and less regulation in the future. Also, CSR is recognised as being intrinsically linked to competitiveness and future profitability.

However, it was observed that no very small company size category respondents were involved in CSR. This was not surprising as integrating CSR can lead to a number of constraints for the small medium sized companies as the financial budgets for CSR are quite large which may cause delay in any other long-term strategies. Other restrictions on CSR are time constraints and a lack of finance and personnel.

Figure 5.3 Breakdown of Company Size Categories of the Industrial Sectors of the Respondent Companies



5.6 Discussion of Respondent Companies who have Environmental and Safety Management Systems

Figures 4.11 – 4.16 demonstrates that the respondent companies have some form of environmental and safety management systems. 60.71% of the respondent companies have some form of environmental management system and 75% of the respondent companies have some type of safety management other than a safety statement. This was not surprising, as the literature review identified; current environmental and safety legislation require some degree of management.

In order to ascertain the companies sizes involved in management systems, a comparative analysis was carried out to identify the company sizes with environmental and safety management systems. The results of this analysis can be seen in Figure 5.4. Figure 5.4 identifies that the large company sizes participated in environmental and safety management systems. This was not unexpected as this was the largest response category. The smaller

companies involved in the survey may not have implemented management systems as due to one or more of several possible reasons:

- Management personnel who have overall responsibility for the organisation's activities and management may not have the time required to implement such systems.

- Production responsibilities maybe another factor, as companies with tight production schedules may have less time to allocate to environmental concerns especially in smaller companies that do not have designated environmental personnel.

The low participation rates identified from the very small to medium sized companies involved in formal safety management systems, may be a result of companies considering that the statutory requirement of safety statements as a sufficient form of safety management systems. Also, the low response rates from the small to medium sized enterprises may not be giving a true representation of the number of companies that have management systems for a companies safety and environmental activities

In order to identify whether indigenous or multinational companies would be more capable to achieve activities that comply with the definition of Eco Industry identified in the literature review a comparative analysis of the industrial profile (Multinational or Indigenous companies) and between the number and type environmental and safety management systems of the respondent companies have in place was carried out. This analysis identifies the companies that could adapt without difficulty to Eco Industries as they already participate in environmental and safety management activities. The results of the analysis are presented in Figure 5.5.

Figure 5.4 Breakdown of Company Size Categories of the respondent companies with Environmental Management Systems (EMS) and Safety Management Systems (SMS)

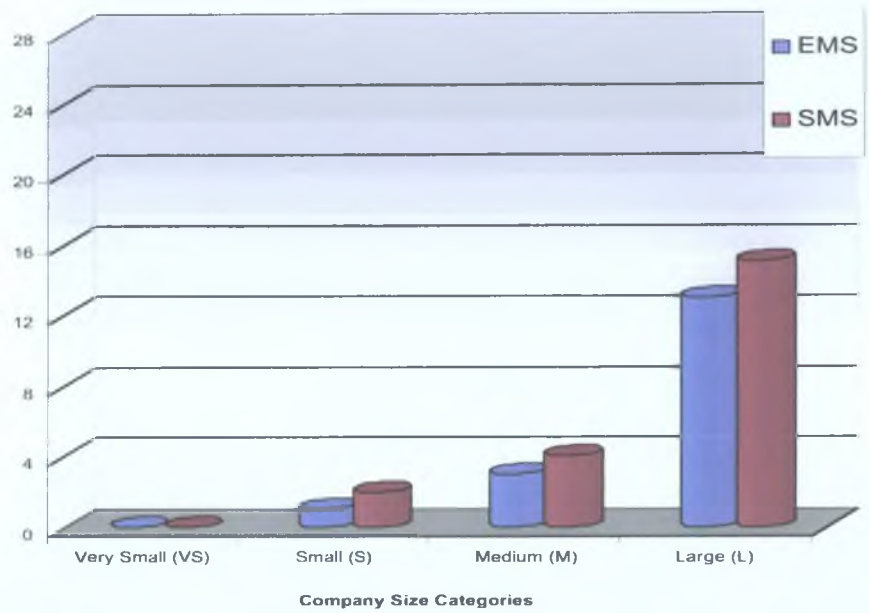
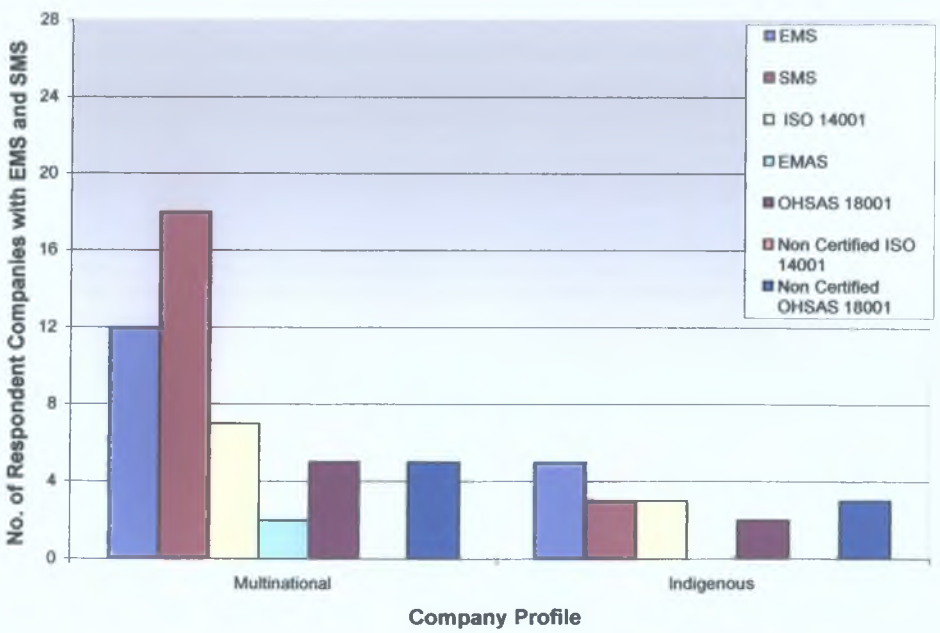


Figure 5.5 Breakdown of the Respondent's Company Profile in relation to Environmental and Safety Management Systems



It was observed from Figure 5.5, that the multinational companies have a high proportion of accredited environmental and safety management systems. Also, the two EMAS accredited company involved in the survey also were accredited to ISO 14001, supporting literature reviewed in Chapter 2. The analysis also highlighted that multinationals have more safety management systems in place.

From Figure 5.5, it was observed that the indigenous companies had a low proportion of environmental and safety management systems compared to the multinational companies surveyed. However, it should be noted, that there were fewer responses from the indigenous Irish companies (Figure 4.2).

Figure 4.13 identified that 18.18% of the respondent companies without environmental management systems, intend to implement a system in the future, however, Figure 4.16 identified that none of the respondent companies with out a safety management system (not including mandatory safety statement) do not intend to implement a safety management system. This was unexpected as the literature review identified a need to implement a management system as "to manage" Irish places of work is a statutory requirement.

Figure 4.17 identified that 36% of the respondent companies have/ or intend to implement both environmental, health and safety management systems. This was not surprising as due to one or more of several possible reasons:

- Smaller companies may not have the designated environmental and safety personnel required to implement such systems

- Production responsibilities maybe another factor, as companies with tight production schedules may have less time to implement integrated environment and safety systems.

- The low participation rates identified from the very small to medium sized companies may be overestimating the number of companies implementing management systems for a companies safety and environmental activities.

5.7 Discussion of the Respondent Companies perceived issues affecting Profitability

From Figure 4.18, it may be observed that the perceived issues affecting profitability of the respondent companies differ significantly. The majority respondent companies perceived the economy as the predominant issue affecting profitability. Labour costs and competition closely followed the economy as factors affecting respondent companies profitability. This was not unexpected, as policies identified in the literature review, seeks to encourage the integration of the economy and the environment throughout Europe without effecting competition and reduce growing labour costs such as the cost of lost days as a result of work related injuries.

Despite this the environment, health and safety are not perceived as significant issues affecting profitability as seen in Figure 4.18. This was not expected as identified in the literature review, the economy has taken precedent over these issues in recent years.

It was observed that energy costs have a medium perceived affect on profits; this was not unexpected in relation to recent increases in energy costs in Ireland and throughout the world. Electricity costs rose by 5.3% between 2001 and 2002 and increased a further 33% between 2002 and 2003 (ESG, 2004).

5.8 Discussion of respondent companies that would consider adopting Eco Industry status to receive a reduction in insurance costs.

42.86% (Figure 4.20) of the respondent companies would consider adopting Eco Industry status to receive a reduction in insurance costs. However, 17.86% the respondent companies stated "No" and 39.28% stated "Don't Know" to whether if a reduction in insurance costs would attract the respondent to change their activities to Eco Industry activities. This was not surprising as due to one or more of several possible reasons:

- The majority of respondent companies were from large sized companies, which are more likely to have employees with a degree of environmental expertise in their employment who may be not be aware companies interest in lower insurance costs.

- Correspondence with Insurance Company - *Ben McArdle LTD.*, indicated that all insurers take the view of an *"Environmentally Friendly Company"* being the better risk and that they would prefer such companies (Dunne, 2005). However, the method of screening such companies at present does not require this information. Insurance companies would not consider Eco Industries, as a reason for premium reductions but rather the participation in Eco Industry programmes i.e. Eco Label programme, would ultimately lead to less claims and ultimately reflect in their premiums.

5.9 Discussion of the familiarity of the response companies with Ethical Investment and the Stock Market.

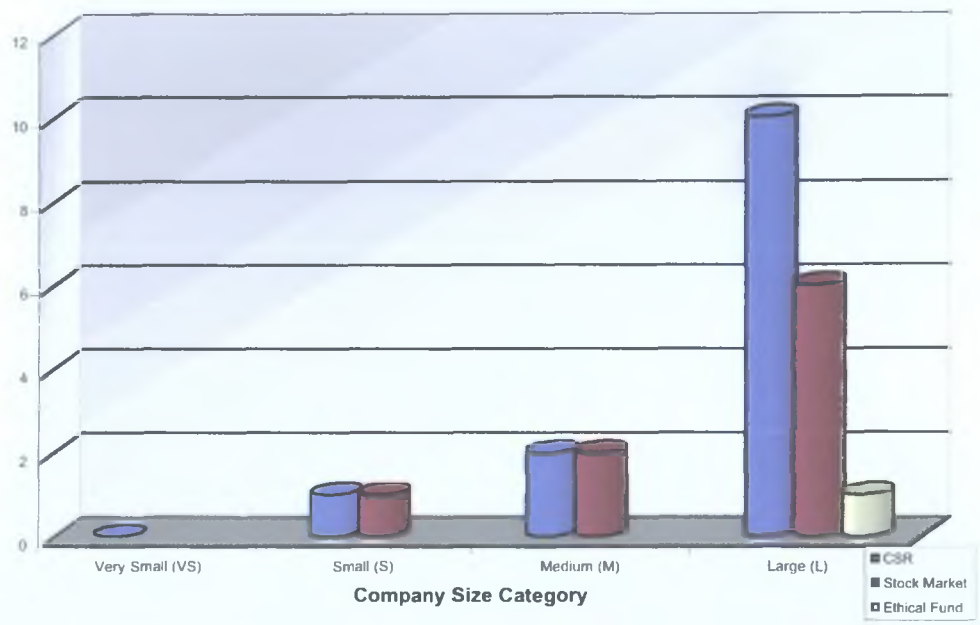
It was observed from Figure 4.19, that the 50% of respondent companies were unaware of ethical investment and only 10.71% of the respondents were aware of ethical investment.

It was identified from Table 4.21 that 9 companies (32.14%) were quoted on the stock market. Of these 9 companies, Figure 4.22 identifies that only one of the respondent companies was aware that the there company was quoted on the stock market as an ethical fund. This was unexpected as the literature review indicated that investors were moving towards ethical investment.

In order to identify the type of respondent companies involved with corporate social responsibility (CSR), the stock market and ethical funds, a comparative analysis of the companies sizes was carried out to identify the respondent companies that are responding to current issues identified in the literature review, that are used to attract growing number of investors that are turning towards these issues. The results of the analysis are presented in Figure 5.6.

It was observed in Figure 5.6, that the respondent companies involved in the large company category were involved with CSR, the stock market and was classified as an ethical fund. This was not surprising, as identified in the literature review; the area of business ethics has gained greater prominence in recent years. Having shares quoted on the stock market, can be an expensive activity as public companies are vulnerable to takeovers if not performing satisfactorily therefore CSR and ethical funds is a method to attract further investments.

Figure 5.6 Breakdown of Company Size Categories which are involved in Corporate Social Responsibility (CSR), the Stock Market and Ethical funds of the respondent companies



5.10 Discussion of the level of grant and support system awareness to aid adopting Environmental, Health and Safety activities to achieve a degree of Eco Industry.

From Table 4.22 and Figure 4.23, it was observed that 50% (14/28) of the respondent companies were aware of grants and support systems were available to support respondent companies to improve environmental, health and safety activities. A large proportion of companies (39.29%) stated that they did not know whether the company was aware of support systems to improve environmental, health and safety activities.

It was identified in Figure 4.24 and Table 4.23, that 25% of the respondent companies received grants to carry out improvements of their environmental, health and safety activities. 50 % of the respondent companies did not know whether the companies have availed of grants to improve environmental, health and safety activities. This was not unexpected as many of the companies replied to the survey where large companies who would have a dedicated environmental, health an safety department, these employees in this department (Figure 5.7) did not know if their company had received grants as they may not have a direct role in attaining grants or signing up to support systems for the company compared to employees in the respondent companies financial department and in managerial positions. Also, large companies are not eligible for a number of support systems such as Enterprise Ireland grant (Figure 5.8).

However, the survey identified the programmes the respondent companies were involved with (Figure 4.25). 18 of the 28 respondent companies were involved in the FÁS Training Programmes. The respondent companies were more involved in the health and safety programmes such as the NISO/ NISG Health and Safety awards. This was not unexpected as the results from Figure 5.5 identified that the respondent companies were more involved in managing their health and safety requirements due to the legal implications identified in the literature review.

Figure 5.7 Breakdown of the Company Size Categories that have received grants to carry out improvements to their EHS activities.

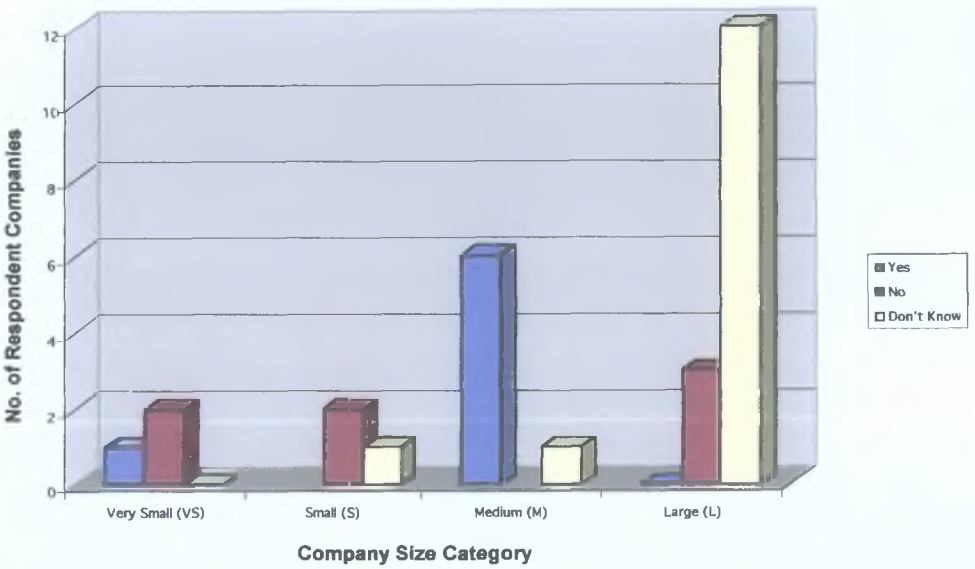


Figure 5.8 Breakdown of the Company Size Categories involved with Environmental, Health and Safety Programmes

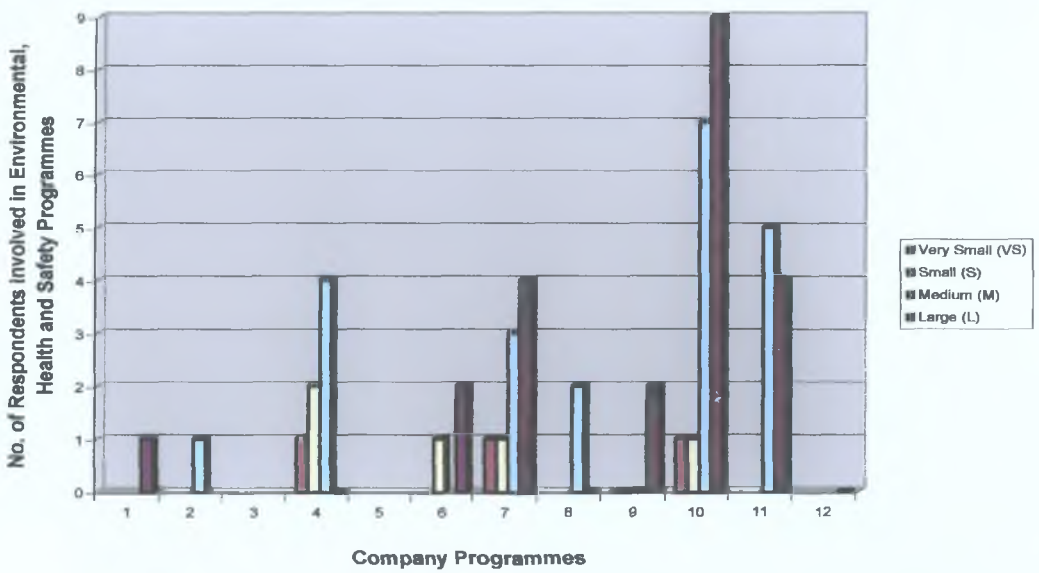


Table 5.3 Environmental, Health and Safety Programme Key

Environmental, Health and Safety Programmes	No.
Environmentally Superior Products (ESP)	1
Cleaner Greener Production Programme (CGPP)	2
EU LIFE Programme Environmental Programme	3
Enterprise Ireland Environmental Management System Grant (EMS)	4
ECO Label Programme	5
Better Environment Awards for Industry	6
IBEC Environment Awards	7
Safety Management Workshops for SMEs	8
Co-operative Health and Safety Management (CHASE Programme)	9
FÁS Training Programmes	10
NISO/NISG Health and Safety Awards	11
ChamberSafe Initiative	12

The low number of respondent companies in environmental initiatives was surprising, compared to the number of health and safety programmes. This was unexpected as the literature review identified these programmes such as the Cleaner Greener Production Programme organised by the Clean Technology Centre Cork had been introduced to encourage companies to be more environmentally aware and encourage innovation.

However, there was a notable amount of companies in involved in environmental award programmes. The majority of respondent companies are involved with the IBEC Environment Awards. Figure 5.8 identifies that all the company size categories were involved in this initiative. The majority of companies involved are in the medium to large size companies. This maybe the result of over representation of the large companies carried out in the survey. Also, large sized companies are more likely to have employees with a degree of environmental expertise in their employment that may be more aware and less time constraints to participate in such award programmes. There are a number of reasons why this programme is very

popular with the respondent companies as it is a means to acknowledge the effort and resources used to develop and implement innovative solutions to environmental issues faced by these companies. Also, it is a means to boost employee morale and acknowledge their work and improve a company's image throughout the business and public arena.

6.0 Conclusions & Recommendations

6.1 Discussion Conclusion

From the discussion of the results obtained, a range of conclusions can be made:

- It was concluded that the response rate obtained did not reflect the true breakdown of companies in Ireland, as the number of small to medium sized companies were under represented.

- The majority of companies surveyed had some degree of participation in some form of environmental or safety management system and after identifying the activities being carried out by the respondent companies, it can be concluded that there would be no major change in the respondent company's performance to achieve Eco Industry status as they are already managing their activities.

- It can be concluded that many of the companies have some degree of safety management systems, with the majority of companies having a safety statement as their basic safety management system, this could be used as a foundation for these companies to implement more formal management systems with the aid of financial assistance.

- Only 43% of the companies surveyed were aware of Eco Industries, many of these companies were large multinationals and were not representative of the true Irish situation. The majority of companies became aware of Eco Industry through industry associations and European Union initiatives. This allowed for the conclusion that more initiatives should be undertaken to inform and promote those in Irish organisations to make them more aware of the benefits an Eco Industry can bring to their organisations.

- The most significant drivers/motivators for companies to adopt Eco Industry is compliance with legislation and licenses. This supports the conclusion of the lack of awareness amongst Irish companies on the benefits of Eco Industry such as improved company image and competitiveness.

- The most significant barrier to adopting Eco Industry was competing business priorities and the lack of knowledge of the industry. Which further supports the conclusion of the lack of awareness as Eco Industry reflects the change in public opinion towards responsible consumerism.

- 64% of the companies surveyed recognised the importance of Sustainable Development. This is a positive outcome for future business in Ireland as with Sustainable Development comes innovation, competitiveness and promotes Ireland as a prosperous knowledge based economy with the environment, health and safety intertwined. However to accomplish this further promotion of the benefits of the European Union's Sustainable Development policy and the National Sustainable Development policy needs to be carried out.

- Corporate Social Responsibility is highly prevalent amongst the large companies. However, it can be concluded further promotion and support systems needs to be established to endorse Corporate Social Responsibility amongst the small to medium sized companies.

- From the results, it can be concluded that the economy, labour costs and competition are the predominant perceived issues affecting profitability to Irish organisations.

- It can be concluded that "Eco" companies are considered the better risk, but this is not ultimately reflected in company's premiums. However, participation in an "Eco" company would eventually reduce premiums and therefore should be a consideration to organisations.

- The majority of companies were not aware of ethical investment. Also, few of the companies were involved in the stock market. Respondent companies involved in the large company category were involved with Corporate Social Responsibility, the Stock Market and one respondent company was classified as an ethical fund (Figure 5.6).

- Half of the respondent companies were aware of grants or support systems to aid their environmental, health and safety activities (Figure 4.23) and 25% (Figure 4.24) of the respondent companies received grants or support systems to aid their environmental, health and safety activities. The majority of companies that received grants or support systems were from medium sized companies. From this observation it was concluded that the smaller sized companies were not aware of the grants or support systems that exist that could aid their performance based on their environmental, health and safety behaviour and attract more clients

- The current participation of respondent companies of existing programmes to aid environmental, health and safety activities with the aim to improve companies' performance and enhance company image is low. It was concluded that more should be carried out to promote these programme and make them more accessible to Irish companies.

6.2 Recommendations

The following recommendations and suggestions have been made based on the conclusions formed from the discussion, which aims to help the Irish industrial sector to adopt an Eco Industry ethos and strive towards Sustainable Development.

6.2.1 Definition Change

Currently, the definition of Eco Industry is as put forward by the OCED, Eurostat 1999.

The current definition of Eco Industry is as follows:

"Activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use".

(OECD/Eurostat, 1999)

It is suggested that the definition is changed to include health and safety and Corporate Social Responsibility issues and be more inclusive to organisations not directly involved in the environmental product and service industry. In response to changing the scope of the definition, Irish companies maybe more willing to get involved in the environmental market as a means to more competitive on the international market as well as aiding Ireland move towards a knowledge based economy.

A recommended change to the definition is as follows:

"Activities carried out to measure, prevent, limit, minimise or correct environmental, occupational health and safety damage to employees, water, air and soil, as well as problems related to waste, noise, eco-systems and health and safety issues. This includes organisations products and services which considers its corporate social responsibility and are involved in activities that reduces environmental and occupational health and safety risks throughout its lifecycle".

6.2.2 Review of the methods used to promote Eco Industry

It was concluded that the commonly recognised barrier facing the adoption of Eco Industry was competing business priorities and the lack of knowledge. It is recommended that the promotional information needs to be updated and distributed amongst Irish industry to address the industrial sector's social, ethical and environmental responsibilities through a comprehensive and systematic approach.

It is suggested that further information needs to be provided to organisations to emphasise and endorse the advantages to adopting Corporate Social Responsibility (CSR) that will improve the link between responsible business practices and businesses profits.

It is suggested that some form of communication system is established for the propagation of information relating to Eco Industries and grants and support systems to aid organisations to improve their environmental, health and safety activities. This system would involve Enterprise Ireland, County Enterprise Boards, IBEC, Chamber of Commerce, or other bodies that have regular contact with Irish organisations especially SMEs. This communication system would involve leaflets containing the information on the advantages of adopting an Eco Industry ethos and the grants and support systems available to organisations.

Information should also be provided to those companies who are quoted on the stock market or who intend to register their organisation on the stock market as to the current trend of investment moving towards ethical funds.

It is suggested for the further promotion and development of Eco Industry in Ireland a national database of all Eco Industries be drawn up, detailing the products and services of the organisations involved.

It is recommended that a committee be established in conjunction with employer groups such as IBEC etc specifically for addressing the needs of the organisation considering becoming an Eco Industry

6.2.3 Future Studies

It is recommended that further studies be carried out to assess the status of Eco Industry in Ireland due to the limitations of this study such as the under representation of the small to medium sized enterprises.

Finally, additional studies are required to further determine the feasibility of adopting Eco Industry status amongst Irish organisations for Ireland to be able to compete with global economies.

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Appendix I

5 Rathedmond Estate,
Sligo
17/6/2005

Dear Sir/Madam,

I am a M.Sc. student in Environmental, Health and Safety Management at the Institute of Technology, Sligo. As part of my M.Sc., I am undertaking a thesis entitled " Promotion of Eco Industries in Ireland". As part of my research I am carrying out a survey of 100 randomly selected small, medium and large sized organisations in order to determine the main motivators and barriers for companies to enter the "Green Market".

Please find the enclosed questionnaire, which will take approx. ***10 minutes to complete.*** This questionnaire can be filled out by any member of management in your organisation, but if you have personnel dealing with Environmental issues, please pass it on to the relevant person.

The information contained in questionnaire responses will be treated as strictly confidential, as the more participants in the survey, the more representative the findings will be. If your organisation wishes, I can prepare a summary of the results obtained (without names of respondents) upon completion of the survey in August/September.

For your convenience, enclosed is a self-addressed envelope, which can be used to return the questionnaire. If you require clarification on any issues, please do not hesitate to contact me via my email at lcawley@gmail.com.

Thank you in advance for your opinions and participation,

Yours Sincerely,

Lisa Cawley.

Appendix I

CONFIDENTIAL Questionnaire number: _____

Part 1. General Information

1) **Company Name** _____

2) **Company Address** _____

_____

3) **Number of Employees. (Tick one)**

1-15	16-50	51- 100	Over 100
☐	☐	☐	☐

4) **Type of Company (Tick One)**

Manufacturing ☐ Pharmaceutical ☐ Other ☐

Service Based ☐

If **other**, please state here_____

Appendix I

5) Is the Company (Tick One)

Indigenous ☐ Multinational ☐

6) Does your company have any if the following *(please tick all that is relevant)*

IPC License	
Local Authority Discharge License	
Safety Statement	
Permit under the Waste Management Act	
License under the Water Pollution Act	
License under the Air Pollution Act	

Part 2. Evaluation of the status of Eco Industries

Definition of Eco Industries:

"Activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use".

7) Does your company know what an Eco Industry is? (Tick One)

Yes ☐ No ☐ Don't Know ☐

Appendix I

8) **If <u>YES</u>, did your company become aware of Eco Industries through any of the following (You may tick more than one choice)**

Newspaper Advertisement	
Industry Association	
Internet Website	
Trade Association	
EU Initiative	
Road show/Exhibition/Talk	
Consultant	
Supplier	
Chamber of Commerce	
Enterprise Ireland Advisor	
EPA Inspector	
Local Authority Inspector	
Insurance Company	

If **<u>other,</u>** please state here _____

Appendix I

9) **Is your company involved in managing any of the following Eco Industry activities? (You may tick more than one choice)**

Air Pollution Control (APC)	
Waste Water Treatment (WWT)	
Waste Management (WM)	
Remediation and Clean up of Soil & Groundwater	
Noise & Vibration control	
Environmental research and development	
Public Environmental Administration	
Private Environmental Management	
Water Supply	
Recycled Materials	
Nature Protection	

If **other**, please state here_____

Appendix I

10) What would your company consider as the main drivers/motivators for adopting Eco Industry? ***(Please rank in order of importance 1-11)***

Compliance with Legislation	
Compliance with License	
Market Pressures	
Economic Incentives	
Stakeholders Pressures e.g. Insurers, Regulators, Banks	
Strengthen Public Relations	
Education and Training	
Increase Business Competitiveness	
Benefit the Environment	
Customer Pressure	
Enhance Company's image	

If **other**, please state here_____

Appendix I

11) What would your company consider as the main barriers for adopting Eco Industry? ***(Please rank in order of importance 1-8)***

Lack of knowledge about Eco industry	
Competing business priorities	
Increased costs of implementing activities	
Lack of in-house awareness/training	
Lack of commitment	
Difficulty in assessing benefits	
Concerns about changes to Product Quality	
Financial Losses	

If **other**, please state here_____

Appendix I

Part 3. Sustainable Development

12) How familiar is your company with Sustainable Development? (Tick One)

Very aware ☐ Moderately aware ☐ Aware ☐ Unaware ☐

13) How familiar is your company with the National Sustainable Development policy - *Sustainable Development: A Strategy for Ireland*? (Tick One)

Very aware ☐ Moderately aware ☐ Aware ☐ Unaware ☐

14) Does your company think the issues of Sustainable Development are important? (Tick One)

Yes ☐ No ☐ Don't Know ☐

15) Does your company participate in Corporate Social Responsibility (CSR) programmes? (Tick One)

Yes ☐ No ☐ Don't Know ☐

Appendix I

Part 4. Management Systems

16) **A. Does your company have an Environmental Management System in place? (Tick One)**

Yes ☐ No ☐ Don't Know ☐

B. If <u>YES</u> is it:

Certified to ISO 14001 ☐ Non Certified ISO 14001 ☐

Certified to EMAS ☐ Other ☐

If **<u>other</u>**, please state here_____

C. If <u>NO</u> does your company intend to install an Environmental Management System?

Yes ☐ No ☐ Don't Know ☐

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17) **A. Does your company have a Safety Management System in place? (Tick One)**

Yes ☐ No ☐ Don't Know ☐

B. If <u>YES</u> is it:

OHSAS 18001 ☐ Non Certified ISO 18001 ☐ Other ☐

If **<u>other</u>**, please state here _____

C. If <u>NO</u> does your company intend to install a Safety Management System?

Yes ☐ No ☐ Don't Know ☐

18) **Does your company have/intend to integrate both environmental and health and safety systems? (Tick One)**

Yes ☐ No ☐ Don't Know ☐

Appendix I

Part 5. Investment

Definition of Ethical investment:

Ethical investment involves considering the ethical, social, and environmental performance of companies selected for investment, as well as their financial performance.

19) In your opinion, what are the most important issues affecting the profitability of your company. (Please rank in order of preference 1=best)

The Economy	
Legislation	
Labour Costs	
Energy Costs	
Competition	
Environment	
Health and Safety	

If **other**, please state here_____

20) **How familiar is your company with Ethical Investment? (Tick One)**

Very aware ☐ Moderately aware ☐ Aware ☐ Unaware ☐

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21) **Would a reduction of your company's insurance costs be a factor for your company to consider becoming more like an Eco-Industry? (Tick One)**

Yes ☐ No ☐ Don't Know ☐

22) **Is your company listed on the stock market? (Tick One)**

Yes ☐ No ☐ Don't Know ☐

If <u>YES,</u> is your company stock market portfolio considered to be an "ethical" fund?

Yes ☐ No ☐ Don't Know ☐

23) **Is/was your company aware that grants and other support systems are available for organisations interested in methods to improve their EHS activities? (Tick One)**

Yes ☐ No ☐ Don't Know ☐

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24) Did your company receive any grants to carry out improvements in any EHS activities? (Tick One)

Yes ☐ No ☐ Don't Know ☐

25) Does your company participate in any of the following programmes ***(Please tick relevant)***

Environmentally Superior Products (ESP)	
Cleaner Greener Production Programme (CGPP)	
EU LIFE Programme Environmental Programme	
Enterprise Ireland Environmental Management System Grant (EMS)	
ECO Label Programme	
Better Environment Awards for Industry	
IBEC Environment Awards	
Safety Management Workshops for SMEs	
Co-operative Health and Safety Management (CHASE Programme)	
FÁS Environment and Safety Awareness Training Programmes	
NISO/NISG Health and Safety Awards	
ChamberSafe Initiative	

If **other**, please state here_____

Appendix II

Main Organisations Contacted:

- Bank of Ireland
- Business in the Community, Dublin
- Chamber of Commerce, Ireland
- Clean Technology Centre (CTC), Cork
- Department of Enterprise Trade & Employment
- Department of the Environment and Local Government, Dublin
- ECOTEC, Birmingham UK
- ENFO
- Enterprise Ireland
- Environmental Industries Commission (EIC)
- Environmental Protection Agency (EPA)
- Envirowise
- Ethical Investment Research Service (EIRIS) London UK
- EU Commission Office, Dublin
- Euro Info Centre, Sligo
- European Committee of Environmental Technology Suppliers Associations (EUCESTA)
- European Environment Agency
- FÁS
- Health and Safety Authority (HSA)
- IDA
- Information Centre, Environment Directorate-General, European Commission
- Irish Business and Employers Confederation (IBEC)
- Irish Insurance Federation
- Irish National Accreditation Board (INAB)
- Irish Small and Medium Enterprises Association (ISME)
- National Standards Authority of Ireland (NSAI)