Corporate Environmental Responsibility (CER)

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Declaration

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I hereby declare that, except where due acknowledgement has been made, the work presented in this thesis is my own. The thesis has not been submitted previously, in whole or in part, to qualify for any other academic award.

The content of the thesis is the result of work, which has been carried out since the official commencement date of the approved research program. Any editorial work, paid or unpaid, carried out by a third part is acknowledged.

Signed   Date

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Kel Dummett

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Abstract

This thesis uses document analysis and semi-structured personal interviews to look at current strategies and policies of major companies to manage the life cycle environmental risks associated with their products and processes, which I refer to as corporate environmental responsibility (CER); The thesis also explores what national governments are and could be doing to encourage greater environmental responsibility from companies.

As environmentalists and climate scientists have been warning for decades, and now world leaders are coming to realise, the world faces serious environmental challenges, none more urgent than climate change. A failure to act to mitigate the risks associated with this one challenge, as Stern (2006, pii) asserts "could create risks of major disruptions to economic and social activity".

A major proportion of the world's environmental problems can be attributed directly to production, use and disposal of products (Tukker & Jansen, 2006), and as this thesis will argue, national government policies to encourage or force greater environmental responsibility from producers are required to reduce risks and mitigate impacts. In recent decades national governments have been reluctant to intervene in the market place, preferring to rely on voluntary mechanisms, such as the business initiated corporate social responsibility (CSR), to address environmental risks. But as will be discussed in greater detail, there is now an increasingly critical voice (Zarsky, Roht-Ariaza & Brottem, 2002; Hirschland, 2003; Archer & Piper, 2003; Vogel 2005; Hay et al, 2005) that questions the effectiveness of voluntary corporate responsibility as it is currently practiced, which subsequently raises the question: what role national governments, and international governance should take? Thomas Lindhqvist, the Swedish academic who coined the term *extended producer responsibility (EPR)* has argued (personal interview, Sept 2002), that by continuing to promote the voluntary approach through the 1990s, national governments not only failed to capitalise on producers' increased awareness of the environmental impacts of their products, as well as their preparedness to take some responsibility for these, but also effectively abdicated their responsibility to govern.

Despite this criticism CSR is the most broadly accepted framework globally for addressing environmental risks of companies. Within the CSR framework, environmental risk is part of a 'triple bottom line approach', which advocates that companies consider the social and environmental impacts of their operations and balance these off against the financial bottom line. The discussion here will be limited mainly to environmental risks, as to also look at social

risks such as worker and human rights in detail, although often very closely linked to environmental impacts, is beyond the scope of this thesis.

In addressing what national governments could or should be doing by means of interventions in the market to encourage or force greater corporate environmental responsibility (CER), I will look at what various economic theories say about this type of intervention.

The primary data sources for this thesis are personal interviews with senior business leaders from 25 major companies, recorded public speeches, both web and non-web based corporate public relations material, and personal interviews with key academics in the field, environmentalists and corporate analysts, conducted mainly between 2002 and 2004. The analysis of this data has sought to investigate the attitudes of major companies to:
- corporate environmental responsibility, though some interrelated aspects of social responsibility are also considered;
- what drives them to take greater responsibility to reduce their environmental risks;
- government policies, especially possible legislation to encourage and/or force CER.

In addition through case studies of:
- one industry sector
- two major companies, and
- one industry sector pilot study;

as well as secondary research on several other companies, this thesis investigates what some companies are saying and doing about corporate environmental responsibility. This will lead to a short discussion of the degree to which these companies' rhetoric of responsibility matches their actions – that is how much they are 'walking the talk'.

The thesis also looks at the current potential of national governments in encouraging and/or forcing greater CER, then contrasts the development and implementation of national policies for CER in Australia with those in Europe, focussing on CER as it relates to products in the electrical and electronics industry.

The thesis concludes with some observations and suggestions on policies of major companies and of national governments, as well as international governance, to encourage greater CER.

Chapter 1

Crises, what crisis? The Environmental Imperative

"Never before in the history of the world has the viability of much of life on this planet been under threat from humanity" **(Dunphy et al, 2003, p3)**

1.1 Background

<u>1.1.1 The context of this research</u>

In 2001 I joined a RMIT University and University of NSW research team for a project entitled "Recycling and Reuse in the Australian Whitegoods Industry" jointly funded by the Australian government and industry partners. My specific research responsibility was to consider the legal implications of the reuse of whitegoods or whitegoods components, and what government and industry policies might encourage the implementation of strategies for recycling and reuse in the whitegoods industry, that is extending producer responsibility. The project provided the opportunity to pursue a PhD in a related field.

My background for this came from academic study on environmental management and working in the field of environmental management in local government and environmental education in schools, universities and community, as well environmental and social justice campaigning and activism. After much initial exploration of the issues, a useful contribution to the process of defining the research for this PhD was my attendance firstly at the World Summit on Sustainable Development (WSSD) Preparatory Conference in Bali in2002, and then at the WSSD in Johannesburg later in 2002.

It was while attending formal sessions of the Summit, and the parallel Business Forum sessions organised by the International Chamber of Commerce (ICC) and the World Business Council for Sustainable Development (WBCSD), and also during informal discussions with business leaders from major corporations, that I became aware of an apparent gulf between what government leaders were saying in the formal Forum sessions and what some top business leaders were saying at the parallel Business Forum.

This apparent dichotomy between the rhetoric of some key players in the business community (including CEOs from some of the world's top 100 companies) and that of most national governments, prompted the question of what makes some major companies develop policies for environmental (and social) responsibility and not others? From this the qualitative research project based on personal interviews with senior business leaders from major companies was developed. These interviews took place in Johannesburg during the Summit, in Europe in 2002 and in Australia in 2002 and 2003.

In Australia, as part of my role in the earlier research team, I examined pilot studies on extended producer responsibility (EPR) carried out in the context of Australian television, computer and mobile phone industries; and the EPR rhetoric and actual practice of some major whitegoods and electrical/electronics companies. This work provided a basis and departure point, for this thesis.

Included in this thesis are the views of some key corporate analysts, environmentalists and environmental organisations on the newly-found awareness of some major companies in relation to their environmental responsibilities.

1.1.2 Environmental Risk

This thesis looks at environmental risk: what is it; what causes it; some of the key global environmental problems associated with a failure to consider or address risks; and focuses on what some companies and governments are doing, or should be doing, about it. It looks specifically at strategies or approaches for achieving greater environmental responsibility, and uses the term corporate environmental responsibility (CER), to describe the act of companies taking responsibility to minimise their environmental impacts and remedy those that occur.

At its simplest, environmental risk can be defined as the potential for harm to the environment. The UK Department of Environment, Food and Rural Affairs (DEFRA) defines environmental risk as "a combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence" (http://www.defra.gov.uk/ENVIRONMENT/risk/eramguide/02.htm)

Kristin, Clarke and Renzulli (2000) define environmental risk as both a potential for harm, as well as a social construction of worry, that is a combination of 'hazard' and 'outrage', and that measurement of environmental risk equals the hazard plus outrage. This definition they note,

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has been accepted by risk management agencies in the US. DEFRA make specific note of the importance of the level of worry in society and states that the evaluation of risk:

> entails a judgment about how significant the risk is to the receiving environment and to those concerned with, or affected by, the decision. It is, therefore, a process which necessarily involves the question of risk acceptability. In conjunction with formal scientific input, this requires the examination of public and political judgments about risks alongside the measurable costs and benefits of the activity in question (http://www.defra.gov.uk/ENVIRONMENT/risk/eramguide/02.htm).

Wilson (1991) argues that environmental risks cannot be considered as merely the actual hazard that damages the environment, but that it is a complex relationship between the source of the risk, the actual risk action and the surrounding context for the risk, that is it is a system of components that govern the risk – which he refers to as the 'risk system'.

Dunphy et al (2003) argues that the failure of the market to adequately consider environmental risk has resulted in a global environmental crisis, the urgency of which has been highlighted by numerous other writers (Ehlich and Ehlich, 1991; Thayer, 1994; Kemp, 1994; Papanek, 1995; Burall, 1996; Alpin et al, 1996; Elliot, 1998; Mol, 2001, Flannery, 2005; Stern, 2006). Stern (2006) asserts that the failure to consider and address the environmental risks in relation to climate change, will result in major economic risks for the entire global economy - this failure will be discussed in greater detail later.

1.1.3 Nature of the Environmental Crisis

As previously noted, many writers have written of the environmental crisis, including Lerche and Glaesser (2006) who categorise then encapsulate the key causes and issues associated with global environmental problems. This section will be brief, and will only attempt to capture the urgency of some of these global environmental perils.

In this exploration it is important to note that environmental risks frequently also entail social risks, some of which may have direct or indirect social impacts. Direct impacts can include destruction of people's traditional lifestyles as a result of resource extraction, for example logging in Brazil or on Borneo, flooding in Bangladesh and Latin American countries due to clear felling in water catchment areas, and water shortages in Melbourne, Perth, and Sydney, as a possible consequence of changed rainfall patterns due to climate change. Less direct impacts can include social impacts for future generations, such as loss of employment and lower quality of life resulting from resource depletion. However the analysis in this thesis will focus mainly

on environmental risks, as to look in detail at social risks, while important and obviously closely related, is beyond the scope of this study.

1.1.3.1 Climate change

Individual incidents, catastrophic as some can be, such as the Exxon Valdez oil tanker disaster, have impacts that are generally localised and addressing these problems to minimise the likelihood of them happening again involves government actions taken against one or a small number of companies and or institutions and usually within one government jurisdiction. Global problems caused by accumulated impacts from multiple activities and events are more difficult to address, mitigate and prevent in the future. The difficulties of addressing climate change is one such example. Climate change has been caused by an accumulation of effects from human activities over the past nearly 150 years, and because it is truly global in scope, it cannot be addressed by one government alone and requires concerted and co-ordinated action from world governments, the business sector as a whole and all communities.

In recent years, the reality of global climate change has become all too obvious because of serious weather related events. About 29 billion tonnes of greenhouse causing gases are released into the atmosphere annually by human activities, including 23 billion from fossil fuel burning and industry (IPCC, 2007), and, scientific opinion is now almost unanimous in attributing changes to global weather patterns, especially global warming, to this rapid increase in greenhouse gasses in the atmosphere. "The debate on global warming is over, any debate remaining is just to create confusion" (Slaughter, public address, October 2006).

At time of researching 2005 was the hottest year on record, and the ten hottest years have all occurred since 1990 (http://www.ucsusa.org/global_warming/science/recordtemp2005.html). During 2005 massive and unprecedented forest fires occurred in California, and South East Australia; while flooding on unprecedented scale occurred across Europe and USA. 2005 also saw killer storms and hurricanes lash the United States, Caribbean and South East Asia, torrential rain, unleashing massive landslides in Central and South America, and the worst droughts in living memory across much of Africa. Australia is suffering the worst drought in history across most of South and Eastern Australia. These are all signs of the extreme nature of global weather patterns and phenomena that the world's key climate scientists now almost unanimously attribute to human activity (Flannery, 2005; Stern, 2006; IPCC, 2007). Respected Australian scientist Ian Lowe (2005) asserts that there is no doubt that climate change is real, that it is happening now and it's accelerating.

In a stark warning of the future political and economic significance of climate change, a leaked United States Central Intelligence Agency (CIA) report (Schwartz & Randall, 2003) identifies global climate change as the single greatest threat to the security of the United States, far greater than that posed by international terrorism. The report agues that conflict over scarce resources especially food, oil and water, and the movements of thousands of environmental refugees will threaten the US in the coming decades (Townsend and Harris, 2004). The unconfirmed report claims that future wars will be fought over survival rather than religion, ideology or nationalist ideologies. It argues that inundation by water caused by violent storms will render large parts of the Netherlands un-inhabitable, and cities like The Hague to be abandoned (and this report predated the disastrous hurricanes Katrina and Rita); Europe's average temperature is predicted to fall by 6F degrees, making the United Kingdom resemble Siberia; death tolls from wars and famine will be in the millions; riots and internal conflict will rage in India, South Africa and Indonesia; access to drinking water will become a global problem; mega droughts will affect the US's bread basket; more than 400 million people in tropical and sub-tropical regions will be at risk; China because of its huge population and food demands, will be particularly susceptible; and millions of environmental refugees will flee areas of conflict and areas no longer habitable.

Howes (2005) notes, while there is an abundance of reports on the anticipated costs associated with minimising the impacts of climate change (Barker & Ekins, 2004; Barker, Koehler & Villana, 2002; Cooper et al 1999; UNEP, 1998), up till now there has been very little research into the costs associated with **not** acting to address the problems caused by climate change. The Stern Report into economic costs associated with inaction on climate change (Stern, 2006), perhaps the most significant and influential recent report on climate change, focuses squarely on this question. By showing that inaction, that is business as usual, could amount to a decline in global GDP by as much as 20% now and into the future, dwarfing the costs associated with addressing climate change, which according to Stern would amount to 1% of GDP by 2050, the Stern Report has caused a radical rethink by many of the world's climate change sceptics and world leaders.

Although a majority of the world's scientists are convinced that human activities have contributed heavily to these climate changes, not all writers are convinced. There are a small number of environmental sceptics who challenge the majority view. One of these, Danish statistician Bjorn Lomborg (2003) wrote a best-selling book, *The Sceptical Environmentalist*, in which he accused the environmental science community and environmentalists, of grossly overstating the environmental problems confronting the planet. In fact he goes so far as to claim that in terms of the environment, things have never been better. Lomborg's book attracted a great deal of criticism from the scientific community. Critical journal articles were published with many of the world's leading environmental scientists identifying a litany of errors and

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misinterpretations in his book, while also pointing out that the author has no qualifications in many of the areas discussed in the book (Hamilton, 2003; Howes, 2006).

Despite the overwhelming criticism, Lomborg's views are still used by the world's financial media as evidence against the need to urgently address environmental problems, and continues to be used to justify their lobbying for inaction by governments (Howes, 2006). *The Economist* according to Howes, is one of Lomborg's most loyal defenders, and Howes asserts that this is indicative of the way in which those who have a vested interest in "maintaining the status quo, will seize any evidence, no matter how flimsy to justify their position" (ibid p20).

But, as Howes (2006) illustrates, Lomborg is not the first of these high profile dissenters. Through the 1980s and 1990s other writers presented the sceptics case, for example, in the *Resourceful Earth* Simon and Khan (1984) argued that the environmental problems affecting the planet were not that serious, in fact the planet they asserted was 'not in a bad shape'. Further they claimed that things would improve greatly by the end of the century.

Another climate change sceptic Richard Lindzen (1992) criticises scientific consensus on the grounds of uncertainty and also attacks evidence for example climate change and draws attention to the fact that Antarctic core samples show that the rate of increase of atmospheric CO_2 slowed between 1973 and 1992. He was widely discredited when journalist Gelbpan (1995) reported that Lindzen charged oil and coal interests $2500 per day for his services.

Climate change is of course not the only environmental crisis facing humankind and the planet. Despite the Montreal Protocol, the Arctic and Antarctic holes in the Ozone layer continued to grow right up till 2003 (Climate Protection Centre, http://www.cpc.ncep.noaa.government), and may take 15 years longer to recover than previously predicted according to the American Geophysical Union (http://www.agu.org/). Deforestation continues on a large scale, especially the clearing of tropical and sub-tropical rainforests, and pollution continues to threaten the atmosphere, rivers, oceans and soil in many places. Since the early 1980s, there has been an average of one major oil-spill every day (Papanek, 1995). The damage caused when the Exxon Valdez oil tanker ran aground and broke-up on the coast of Alaska in 1989, is according to Papanek (1995), estimated to be tens of billions of dollars, and the impacts continue today and still threaten the livelihoods of Indigenous Alaskans.

1.1.4 Growth at all costs: The Western capitalist economic model

The Western capitalist economic model or the 'free-market system', based on economic ideologies variously termed 'economic rationalism', 'neo liberalism', 'global capitalism' has come to predominate across the world. Thurow (1996) even claims that Western capitalism is the only economic system that has been able to work anywhere in the world. And according to Neo-liberal economists, capitalism has been "the driving force behind unparalleled economic and social progress" (The Economist, 2005, p8). Thurow's and the Economist's view however, ignores the enormous economic growth being experienced in China and India, both of which practice their own form of capitalism, within their traditional political systems, and which cannot be termed Western capitalism.

Putting aside China and India for the purposes of this discussion, in the dominant economic paradigm, based on neo-classical economic theory (Stilwell, 2003), decisions on what is produced, how it is produced, how much is produced and for whom, are, according to Haveman (1970), made by individual producers and consumers in the market reacting to prices, and are not made by any central authority. According to Peters & Hertwich (2006) consumers cause indirect environmental impacts by initiating production processes through their consumption choices - for instance, purchasing food, clothing, or televisions.

Stilwell (2003) argues that the income and wealth created in this market economy can be used wisely or unwisely – it can be used for immediate consumption, invested in increasing productivity or wastefully spent on activities that are associated with military or environmental destruction.

Thurow (1996) says that capitalism is all about individuality and that to produce a rise in living standards it taps into the baser motives of greed and self-interest, which he asserts is the main cause of the major global environmental (and social) problems confronting humankind. This view is supported in the United Nations Development Program's 1998 Global Report, which asserts the virtually unregulated 'market system', based on 'greed and self-interest', is putting an enormous strain on the environment – destroying ecosystems, polluting the planet, irreversibly changing climate patterns. The Report goes on to argue that this development model is unsustainable, and that it results in poverty, and deprivation and can lead to conflict in developing countries. Meadows et al (2004) support this claim and assert, after analysing the continuing growth trends since the original *Limits to Growth* was published in 1972, that in spite of its increased environmental awareness, new improved technologies, and environmental policies, human society has moved to a new position relative to its limits – resource use and pollution has grown beyond its sustainable limits.

McDonough & Braungart (2002) are even stronger in their condemnation of the capitalist system when they assert that the modern industrial economic model, designed to chase economic growth at the expense of the environment, human health, culture and even human enjoyment and delight, is a recipe for disaster. Continued poverty around the world can also wreak havoc on the environment by forcing unsustainable practices such as forest burning and soil depletion. Tukker & Jansen (2006) claims that the environmental effects of economic activities are driven by consumption by households and governments. This occurs directly, as effects in the use phase of the product life cycle (covered in more detail in Chapter 3), and indirectly, due to environmental impacts associated with production systems, and end of life waste management issues.

There are of course many writers who advocate the successes of the free market, including the increasing capacity of a growing economy to improve environmental outcomes – some of these will be discussed later in this thesis.

1.2. Areas of Research

1.2.1 Key research areas

As stated earlier, this thesis concentrates on the environmental policies and strategies of some major companies, that is corporate environmental responsibility (CER); the drivers for these companies taking greater responsibility for the environmental risks of their operations and products; the degree to which these policies are being actioned; and the role for national governments in introducing public policies that encourage and/or force corporations to take greater environmental responsibility.

It is important to stress here that this is not an economic analysis, although it is impossible to ignore economic aspects especially economic drivers for business' environmental decisions. Hence the discussion on what policies and actions national governments could or should take will often be discussed in economic terms.

While a considerable body of research already exist in this area, this thesis complements and builds on that research and adds to the debate by providing analysis of personal in-depth interviews of key players especially senior corporate managers of major companies and discusses the vexed issues of voluntary versus mandatory CER policies as well as looking at what governments and business should be doing.

The bulk of research for this thesis - literature study, interviews and site visits – was conducted between 2001 and 2003. Some new literature research for this rewrite of the thesis was conducted in late 2007 and early 2008.

1.2.2 Research Questions

This thesis looks at corporate environmental responsibility (CER): What is it? What are and should companies be doing? What are and should governments be doing? The key research questions are:

1. How important is corporate environmental responsibility (CER) to some large companies, especially in the manufacturing sector with special reference to Australia?

2. What are the most effective types of company and government policies for encouraging corporate environmental responsibility?

These will be answered through a detailed investigation of the following secondary questions:

1. What is the environmental imperative for CER?

2. What are the environmental risks associated with production of products?

3. Are producers taking responsibility to reduce these risks?

4. What drives some companies to at least 'say' the 'right' things?

5. How closely do the actions of some companies match their environmental rhetoric?

6. What is the appropriate role of national governments in encouraging greater CER?

7. How do Australia's policies for corporate responsibility, compare with those of Europe?

8. What is the role for global governance?

1.3. Methodology

1.3.1 Approach

This thesis involves stakeholder analysis. In this case, the stakeholders are mainly major companies and governments, but also selected academics, corporate analysts and environmentalists. The analysis follows a familiar thesis pattern starting with literature review and document analysis, followed by selective face-to-face interviews, leading into specific case studies. In analysing documents and interviews, as well as looking at what they are saying, I will also look at how they say it.

In this thesis documents are used as adjuncts to the larger research process (Scott, 1990). To this end documents form the foundation for my primary research namely personal interviews, and 'site visits' for case studies. For this reason, analysis of the 'audience', 'purpose' and 'style' of the writing is an important consideration. In analysing company reports and statements on corporate social and environmental responsibility, a major component of this thesis, the issue of what is suggested and what the company is actually doing, is crucial to the whole exercise of companies taking responsibility for the environmental (and social) implications of those companies' decisions and actions.

Case studies are used here not so much as intrinsic studies, that is not because I wanted to better understand a particular case, but to provide insight into the issue, or for illustration or example, as Denzin & Lincoln (2003) term it 'an instrumental case study'. Case studies are also to enable some comparative analysis, and as Platt (1988) says, to 'particularise' the discourse - to bring it onto a more personal level and make it easier to read for the non-specialist or non-academic reader. And, in the instance of selective case studies in Chapter 5, 'Walking the Talk', it is more a 'population of case studies' - to know one case and to gain a broad picture, it is important to know other cases (Denzin & Lincoln, 2003).

To enable a better analysis of policies for CER, I have concentrated, but not limited, my research on one industrial sector - global electrical and electronic products (EEPs) such as household appliances and computers. To give 'the big picture' of factors affecting a specific industrial sector there is a detailed analysis of the Australian whitegoods industry, a sub-sector of the EEPs industry. However for reasons of providing some breadth of views from interviewees and to permit some comparison, this thesis also looks at other sectors besides EEPs including automotive, energy, beverage, sporting and clothing; as well as waste management/recycling and environmental consultancy. The thesis also looks in some detail at

the policies and performance of a number of individual companies, from the EEP sector Electrolux and Fuji Xerox are examined, and Shell as an example of a company from another sector.

Interviews are used to complement and extend this analysis and to draw out and help understand, the findings from the case studies.

1.3.2 Research methodology

1.3.2.1 Document research

The document analysis involved an initial extensive literature review at libraries, using data bases and the internet, researching relevant texts, journals, papers and articles, as well as an extensive desktop review of company and government web sites examining:

- company attitudes, policies and written reports, such as annual reports and especially company environmental and social responsibility reports;
- government policies; and
- pilot studies.

Throughout the research stage ongoing document analysis was carried out, both to clarify and extend understandings.

In analysing company, government and non-government organisation (NGO) documents and the substance of interviews, it was important to not simply looking at 'what' was said but also 'how' and 'why' it is said. Bell's (1984) approach of looking at the 'audience', 'purpose' and 'style' of the communication (text or spoken word) is a useful approach, and is utilised in this analysis. For example, documents such as Annual Reports have a particular audience in mind, and therefore there is a particular purpose, namely to convince the audience, often shareholders and financial institutions, that the company is performing well, and hence there is a particular formal style used in these types of documents. This style according Bell (1984) is designed to gain approval from the audience.

In analysing company reports and statements on corporate social responsibility (CSR), the issue of what is suggested and what the company is actually doing, is crucial to the whole exercise of companies taking responsibility for the environmental (and social) implications of those company's decisions and actions. Hodder (2000) and Levin & Behrens (2003) argue that there

is often a clear distinction between what the 'speaker' says and what they actually do. In the case of company documents for example, they often announce 'plans' to do something, not 'actions', hence (mis)leading the audience into the perception that they are doing something, when in fact they are not – or at least not yet.

This misleading approach is often used by companies, for example the use of phrases such as 'encouraging monitoring' or 'developing processes to minimise impacts' is often used to make the audience think that action is being taken, when in fact no action is specified (Levin & Behrens, 2003). Company and even government responses to environmental concerns provide many examples of this phenomenon.

1.3.2.2 Semi-structured, face to face interviews

This thesis does not use interviews to validate any particular theory or hypothesis, but to determine the direction that business and government policy is taking in the area of corporate environmental responsibility that is to seek factual information, and opinions or attitudes (Kvale, 1996), especially in relation to government interventions in the market. Data from interviews were used to make informed comment on, and develop throughout, the possible new directions that corporate environmental responsibility could take, and the policy ideas for business and (particularly) governments for encouraging greater CER, which are summarised in the concluding chapter.

Twenty five senior business leaders were interviewed, all senior managers, from environment, production, recycling and design managers up to Chief Executive Officers (CEOs), from major global and Australian companies from the electrical and electronic industries, automotive industry, and energy sectors. Interviewers were also conducted with six leaders from industry associations, four from the recycling industry, ten Australian and international academics working and researching in the field of environmental responsibility; and four environmental campaigners working in the area of corporate responsibility and accountability (see Table 1.1). For the company position of each interviewee and for an understanding of the interviewees' backgrounds, especially those with a reputation for being 'environmental champions', see Table 1.2.

Some business leaders were selected from seemingly progressive companies, others were recommended by academic colleagues and also by other business interviewees, while others were chance opportunities for interviews at conferences and at the Earth Summit in Johannesburg.

The academics were selected because of their specific areas of academic expertise. Environmentalists were selected based on their previous involvement in the area of corporate environmental responsibility.

The business leaders were assured that it was a confidential survey, that is, that neither the interviewee name nor that of the company would be identified. Every interviewee read and signed RMIT University's two research ethics forms. The interviews were recorded on audiotape, for note taking purposes only. Each participant was specifically asked if they had any concerns about having the interview recorded, and copies of the transcribed interview were provided to those who requested them.

As additional research data a number of presentations by senior business leaders were recorded at high-level conferences and forums. These were also transcribed and analysed using the same process as for the formal interviews. However as they were public presentations, they are not subject to confidentiality and therefore they and their companies are named in this thesis.

Table 1.1 Summary of interviewees

Category	Number
Business	25
Academic	10
Government	4
Corporate analysts	2
Environmental NGOs	6

Referencing interviewees in text

In the analysis to follow, when referring to or quoting confidential interviews, I use the code as set out in the Table 1.2 below, however for ease of reference when citing interviewees in the text the interviewee number is used followed by their position and the industry sector in brackets, for example Interviewee 3 (Senior environmental manager, whitegoods); Interviewee 8 (former CEO, energy). If in the quote, the interviewee names the company, 'XXX' is substituted for the company's name.

For non-confidential interviewees, see Tables 1.3, 1.4 & 1.5 below, mostly academics and environmentalists, the interviewee is named in the text followed with 'interview' and year of interview in brackets, for example, Henry (interview, 2003) or Cooper (academic, interview, 2002).

Table 1.2 Confidential interviewees: position, company information, background and in-text referencing code

Interviewee	Position	Company	Year of interview	Interviewee background
1	Manager of Design	Australian subsidiary of major European whitegoods manufacturer	2003	Recently moved from parent company in Europe to Australia. Did not seem to have a big commitment to environmental responsibility
2	Manager - Remanufacturing plant	Major European based whitegoods manufacturer	2002	Had previously been a manager in an assembly plant. Solid understanding of product, but not a strong environment background
3	Manager Recycling	Australian subsidiary of NZ based whitegoods manufacturer	2003	Recently transferred to Australia from parent company in NZ. Had a strong understanding of and commitment to, recycling.
4	Former Manager, now consultant with same company	Australian subsidiary of global copier company	2002	Champion of remanufacturing and recycling philosophy.
5	Manager Environmental Affairs, Asia-Pacific	Australian subsidiary of major computer hardware manufacturer	2003	Solid commitment to environmental responsibility. Now a global director for same company
6	Design Manager	European based telecommunications company	2002	Solid technical knowledge
7	Former CEO (had resigned from position 6 weeks before my interview)	Global energy giant	2003	Solid understanding of the economic and environmental issues. Now Australian CEO of major global environmental NGO.
8	Environment Manager – Asia-Pacific	Global energy giant	2003	

9	Global Director Corporate Affairs	US based auto manufacturing giant	2003	Solid understanding of marketing, branding, and reputation.
10	Manager Environmental Affairs, Asia-Pacific	Australian subsidiary of major auto manufacturer	2003	Had worked his way up through organisation.
11	Environmental Manager	South African subsidiary of major European auto manufacturer	2002	Solid understanding of social and environmental issues in SA, and balancing parent company's CSR commitments and local conditions.
12	Environment Manager	Australian subsidiary of major auto manufacturer	2003	Had worked his way up through organisation.
13	Director	Office supplies	2003	Formally a State finance minister. Founded the company. Strong committed to ethos of reuse and recycling.
14	General Manager	Australia EEP Recycler	2003	Solid understanding of the difficulties of balancing environmental objectives with bottom line. Although the biggest recycler in the state, still having trouble keeping the company afloat.
15	General Manager	UK based EEP recycler, mainly mobile phones	2002	Enthusiastic about new technologies to dismantle and recycle mobile phones
16	Director	Environmental Consultancy	2003	Strong commitment to environmental responsibility.
17	Director	Environmental Consultancy	2003	Strong commitment to environmental responsibility.
18	Manager Environmental Affairs, Asia-Pacific	Australian subsidiary for global beverage giant	2003	Strong commitment to environmental responsibility. Open and critical of his company's global social and environmental performance
19	Production Manager	Aircraft manufacture	2003	Viewed environmental responsibility from financial perspective.

20	CEO	Industry association for environmental businesses	2002	A business person first
21	CEO	Industry association	2002	Very committed to social and environmental responsibility – especially social.
22	CEO	CEO corporate analyst company	2003	Founder of the company, now largest in Australia and committed to corporate monitoring and reporting
23	Manager	Australian subsidiary major EEP manufacturer.	2003	Also director of industry association and driving product stewardship in sector.

Table 1.3 Non-confidential interviewees - Academic

Interviewee	Organisation	Year of interview
Thomas Lindhqvist	Director, Institute for Industrial Environmental Economics, Sweden	2002
Emil Salim	Professor of Economics, University of Indonesia; Chair of the WSSD Johannesburg, 2002	2003
Chris Ryan	Director, ASCIS - Melbourne University; Eco-Design; former Director Centre for Design at RMIT; member of UN Sustainable Production & Consumption Unit	2003
Helen Lewis	Director, Centre for Design at RMIT	2003
John Gertsakis	Product Ecology; former Director Centre for Design at RMIT	2003
Tim Cooper	Centre for Sustainable Consumption Sheffield Hallam University, UK	2002
Mathew Simon	Design Research Group, Sheffield Hallam University, UK	2002
Stephen Potter	Department of Design & Innovation, Faculty of Technology, The Open University, Milton Keynes, UK	2002
Tricia Caswell	Executive Director, Global Sustainability at RMIT University	2003

Table 1.4 Non-confidential interviewees - Environmentalists

Interviewee	Organisation	Year of interview
Don Henry	Executive Officer, Australian Conservation Foundation (ACF)	2003
Michael Kerr	Former legal advisor to ACF	2003
Ed Mathews	Corporate accountability campaigner, Friend of the Earth-UK	2003
Matt Philips	Corporate accountability campaigner, Friend of the Earth-UK	2003

Table 1.5 Non-confidential interviewees - Other

Interviewee	Organisation	Year of interview
Fernando Almeida	President, Business Council for Sustainable Development deBrazil; former Brazil Government Minister	2002
Bjorn Stigson	President, World Business Council for Sustainable Development	2003
John Ward	Manager of Sustainable Production and Consumption, EcoRecycle Victoria	2003

The interview form

The questionnaires (see Appendices 1, 2 and 3) were semi-structured, containing open response questions made up of a set of general questions and a small number of specific questions designed for a particular industry sector or company, or academic research area, but they were not designed or tailored to suit the particular interviewee. The questions for industry participants were designed to gauge the overall environmental performance of the company; their attitudes to corporate environmental responsibility (CER); types of environmental policies and strategies that existed within their company; the importance of environmental considerations in the decision making processes; attitudes to government policies especially legislative policies; and drivers for and barriers to extending environmental responsibility. However, the nature of the overall interview was flexible in that they were not asked questions that were answered in previous responses, or seemed inappropriate at the time.

To be more specific, each questionnaire contained, using Kvale's (1996) terminology, an introductory question to gain background on the person and the organisation they worked for; followed by a number of direct questions designed to obtain specific information. Probing

questions were used when necessary, to drill in on specific responses given and some interviews were followed up by telephone or email, to clarify or extend interviewee responses.

To minimise the possibility that interviewees' responses may be influenced by the researcher's background, interviewees were only informed of the context of the research and not the current position of the researcher, not any details on the researcher's background or employment history (see below for further discussion on this).

The venue for the interviews is also important. It is important for the interviewees to feel comfortable and relaxed enough to really tell the researcher 'how it is', especially to respond to open-ended questions that may/hopefully elicit revealing responses. While the perfect situation is a venue that is comfortable, offers privacy, an informal atmosphere created by careful attention to decor and seating arrangements, and with appropriate refreshments available, this is not always possible (Kvale, 1996; Mishler, 1986). Most of my interviews took place in a space identified within the interviewee's organisation, often a meeting room (preferable) or sometimes in the participant's office. Some interviews were conducted at conference venues, in which case it was important to find a quiet, comfortable location with limited distractions, often a small meeting room or annex was available, but sometimes interviews were conducted in coffee shops and hotel foyers – both of which present problems in the form of distractions and noise.

It was also important to consider how the researcher was dressed: not too casual, as this may lead to a lowering of respect for the researcher, and also not too formal, since clothes can create a barrier and imply a hierarchical order that might impede the interaction between researcher and participant (Kvale, 1996).

Analysis of interview data

Although the interview data was analysed using a combination of approaches including those described by Parker (1992) and Fairclough (1992 and 2003), the overall methodology best falls within that defined as 'grounded theory approach' (Glaser and Strauss, 1967; Strauss & Corbin, 1990; Strauss & Corbin, 1994). Categorisation of interview data was conducted according to Kvale (1996), while identification of commonalities and trends using Parker's (1992) approach, enabled the development of hypotheses and a broad picture of CER that could then be applied back to the key research questions, and which could form a framework for conclusions as well as any recommendations arising from the research (see below for an outline of these approaches).

While analysing transcripts the position of the subject within the rule structure and hierarchy of the organization, as mentioned previously, can influence the nature of the interviewee's responses (Parker, 1992; Fairclough, 1992; and Fairclough, 2003); this is discussed in more detail below.

The analysis was cyclical in nature, namely there was a search for meaningful themes and categories using immersion in the data, cutting and re-arranging which was repeatedly compared with the original textual data (Kvale, 1996). Careful descriptions of the data were made which enabled categories in which to place responses and processes to be developed. After initial organization of the data, the key themes that emerged were interrogated for "fit" and interpretations refined or completely reformulated where necessary. No preconceptions were imposed but through "constant comparison" of the data and by being alert to the possibility of contrasts and disconfirming data, the processes by which advancement was tackled in different contexts emerged. A more detailed description of the categorisation process, adopted from Kvale (1996) follows.

The steps in my interview analysis can be named and summarised as:

1. Structuring and clarification: a process of 'cutting and pasting' key sections into a separate document to remove superfluous material, such as digressions and repetitions. I also undertook a process of restructuring and ordering the transcript text to relate more to the concepts being investigated and tested.

2. Condensation: where necessary I used a process of condensing the meaning of segments of transcript texts to distil the key points being made by interviewees

3. Categorisation: segments of text, and my condensations were grouped or categorised under a set of headings that reflected the views expressed by interviewees. I initially analysed the transcripts for commonalities, then grouped these and used them to select headings for different categories of responses to key questions, especially the drivers and barriers for CER. I then looked at these in relation to my secondary research questions, the concepts being investigated and tested, and then looked at how they related to the categories as highlighted in the literature on drivers and barriers to CER. Based on this I selected a set of headings which I felt captured the essence of my interviewees' responses but that also reflected those commonly used in the literature. I used these as the basis for a systematic analysis of responses to my questions on drivers and barriers for CER.

4. Interpretation: a broader interpretation process was undertaken to contextualise the interview data into frameworks that could/would lead to possible hypotheses. In other words, this process permitted critical assumptions to be drawn.

Grounded theory

As mentioned earlier, the overall theoretical approach used for all aspects of reviewing and analysing data, especially the interview data, is the grounded theory approach (Glaser and Strauss, 1967; Strauss & Corbin, 1990; Strauss & Corbin, 1994). Throughout this research project, the plausible relationships and links between the researcher's preconceptions, and the ideas and concepts that developed through the process, were explored. As Strauss & Corbin (1994) suggest, grounded theory researchers are interested in the patterns of actions and interactions, this is a key aspect of the theory that appealed. It seemed obvious at the time of embarking on this research that there would be multiple differences in attitudes and policies of stakeholders in the CER agenda, but identifiable 'patterns and interactions' were expected as the analysis progressed.

According to Strauss & Corbin, grounded theory is based on the systematic gathering and analysis of data to be used to permit the development of a theory or theories. Theory or theories can be 'generated from the data' or existing theories or concepts may be 'elaborated upon or modified' according to the research data (Strauss & Corbin, 1994 p 273). It is implicit within this approach that the data are not merely reported but also interpreted, and that the researcher strives toward verification of any theories put forward.

In analysing the transcribed interviews they were considered as texts, and as such, Parker's (1992) methods were considered during the analysis process. One of the key considerations according to Parker is that a text works to position the subject – that is, it locates them in a network of rules; this is especially the case for managers in multi-national companies, the text positions them in the corporate power structures or hierarchies. Therefore, while analysing the interview texts in this thesis, it was important to be mindful of the position of the interviewee in the corporate structure of the organisation. For example, the junior (by age) Australian environment manager from a global car manufacturer was strongly reflecting his position in the corporate hierarchy of the company and was not open in his responses to questions relating to company policy, and was not prepared to proffer personal views, even when requested and reminded that the interview was confidential. By contrast, the CEO of a major energy company was much more prepared to make his personal views known, even when these may have differed from the company's corporate line – reflecting his position in the corporate hierarchy.

Also, while analysing interviews it is important to remember that the researcher is not neutral, and the researcher is also placed in a network of rules, and his/her attitudes and opinions can influence the interpretation the researcher places on the text (Parker, 1992, Fairclough 1992 and 2003). Researchers need also to be mindful of the fact that personal interactions between researcher and the interviewee cannot be ignored when considering explanations for particular responses. As Heiskanen (2005) notes, individuals behave according to the situation they perceive themselves to be in – and the interview situation is obviously one in which the interviewee will be influenced by the context and location of the interview.

> Data collection can be understood as a process of placing research subjects in a specific context, thus generating different forms of interaction between subject and context. (Heiskanen, 2005, p194)

Therefore the researcher's role is not neutral – the interviewees knew the researcher was coming from an academic background of researching environmental attitudes. Some of the academic and environmentalist participants interviewed were also aware of the researcher's long involvement in the environmental movement. Researchers are not merely observers who do not intervene in the reality of their study - as Heiskanen (2005, p195) succinctly states: "When we gaze at the research subjects, they gaze back".

However, my research subjects from companies were not 'people off the street'. Some were 'hard nosed' business people, others exhibited an obvious concern for the environment, while a couple could be called 'eco-champions', but were senior corporate managers, the majority of whom had many years of experience in the world of global business. And while it is certainly possible that some of their responses may have been influenced by their perceptions of the researcher, the analysis of transcripts showed that the majority of responses were those of a corporate business leader first, and members of society second. This suggests that the numerous pro-CER responses from industry leaders can be considered as valid findings.

1.3.2.3 Case studies

A number of case studies were carried out as part of this research. These case studies were undertaken to gain more detailed understandings, to permit the interview research to be placed into an appropriate context and to 'test' the validity of some of the statements of interviewees when it came to the performance of their companies. From a methodological view the case studies permitted the research, both literature and interviews to be placed into a real context, to

avoid as Flyvbjerg (2006) says: "the ritual academic blind alleys, where the effect and usefulness of research becomes unclear and untested" (p.223). The cases were not selected randomly but were selected in line with Flyvbjerg's thinking, on the bases of expectations of the value and information they will add to the research.

The first case study is of the Australian whitegoods industry, as one sub sector of the electrical and electronics products (EEPs) sector. The whitegoods sector was chosen because it represents a major sub-sector of EEPs and represented products of an everyday nature. The purpose of conducting this case study was to gain an understanding of the evolution of this industry sector, the important trends in its development and the key factors that influence these trends. Whitegoods also represents a sector that has become highly globalised and exhibites a high level concentration of ownership, the significance of which will discussed in Chapter 3.

Three companies were selected for specific research - two from EEPs sector and one from the energy sector. The two EEP companies, Electrolux and Fuji-Xerox Australia, where selected for the purposes of gaining an understanding of the production processes and systems that operate, to observe any CER strategies in action, and to question senior staff on-record, about the environmental aspects of their company's operations and specific environmental protection strategies put in place. Shell, the third company, was selected specifically to permit an analysis of how the company's environmental performance stands up against its public rhetoric. Shell would be what Flyvbjerg (2006) calls a 'paradigmatic' case study because it highlights the general characteristics of a major global corporation, that espouses its corporate citizenship, but which is under regular attack from environmental and human rights NGOs for its failure to live up to its publicly promoted image.

1.3.2.4 Archive of research data

I have maintained an archive of all research data including: tapes of all recorded interviews; soft copies of transcriptions of all interviews; hard copies of ethics and approval letters for all interviewees; as well as hard and soft copies of all key papers referred to in this thesis.

1.4. Conclusion and structure of this thesis

This chapter has identified the problem, namely the failure of industry to manage and minimise their environmental risks resulting in serious local and global environmental problems; and presented as possible underlining cause a failure of the dominant economic system to

adequately account for environmental risks. The nature of, and the methodology for collecting the research data, as well as the process used to analyse and use this data, has been set out. What follows in subsequent chapters, is an analysis of the key issues relating to policies for encouraging the business community to take greater responsibility to minimise and mitigate the environmental risks associated with their practices, processes and products, that is, corporate environmental responsibility (CER).

The linear structure of this thesis is:

1. a discussion of environmental risk within 'neo-classical' or 'neo-liberal' economics as well as a review of how some other economic theories and approaches account for environmental risks;

2. a focus on the environmental impacts associated with production systems;

3. a focus on one global product sector, namely electrical and electronic products (EEPs);

4. a discussion on the development and nature of one Australian manufacturing sector - whitegoods;

5. analysis of interviews of senior business leaders to gain some understanding of what companies claim to be doing and the perceived drivers and barriers to greater CER;

6. the case study of two EEP companies - Electrolux and Fuji-Xerox Australia;

7. the use of interviews and literature for an analysis of the degree to which the CER rhetoric of companies in general and the case study companies in particular, as well Shell, matches their actions

8. the use of literature and interviews to look at the role of governance in encouraging greater CER, including analysis of voluntary versus mandatory policies;

9. a discussion of the prospects of more effective governance to encourage greater CER.

Chapter 2 Environmental Risk and Corporate Responsibility: Theories and Approaches

This chapter begins with a brief discussion of several different economic theories and approaches and the importance each places on minimising environmental risks. It then examines the definition for, and evolution of some concepts of corporate responsibility, including CER.

Chapter 3 The World Behind the Product: Production Systems

In order to understand the nature of government and company policies on CER, a key issue posed in this research, it is important to first grasp the nature of the global economic system. This chapter begins therefore, with a general discussion of production systems: what they are; their importance in modern national and global economies; and the environmental risks

associated with production systems. It then focuses on one industry sector - electrical and electronic products (EEPs) - beginning with a description of the sector; analysis of one specific sub-sector, namely whitegoods, highlighting trends within this sector in recent decades, including increasing concentration of ownership and globalisation; the whole of life environmental problems associated EEPs; and a focus on some specific manufacturing companies.

The chapter also looks at product life cycles and answers the questions: What is a product life cycle? What are some of the environmental risks associated with each phase of a product's life cycle?

Chapter 4 Corporate Responsibility

This chapter answers in detail, the first key research questions: *How important is corporate environmental responsibility to some large companies, especially in the manufacturing sector?* It looks at the attitudes, the policies and the actions of selected companies regarding CER. Here the key findings from face-to-face interviews with business leaders, across key industry sectors, and from document research, as well as relevant comments from academics and environmentalists, are presented.

One aspect of the research is what drives those committed businesses to take greater responsibility for the environmental impacts of their operations and products. It also looks at what interviewees identified as the key barriers to CER.

Chapter 5 Case studies

Case studies are presented of two companies involved in electrical and electronic products manufacture. A short analysis of the environmental performance of the two case study companies, Electrolux and Fuji-Xerox, is presented here, as well as a comparison of the environmental performance and rhetoric of the global energy company Shell.

Chapter 6 Government Responsibility

This chapter addresses the second key research question: What are the most effective types of company and government policies for encouraging corporate environmental responsibility? It uses primary research data from interviews, as well as material from available literature, to look at the appropriate role of national governments in encouraging or requiring CER, and how Australia's policies for corporate responsibility compare with those in Europe. It also discusses

what interviewees identified as the most effective types of government policies for environmental responsibility. This chapter includes a case study of an industry-wide producer responsibility initiative, and the continuing failure of the Australian government to provide the legislative underpinning that the companies say they want.

Chapter 7 The Way Forward: Conclusions

The findings of this research and answers to the research questions are summarised in this concluding chapter. It refers to criticism of CER from corporate analysts, environmentalists and academics, particularly its voluntary nature which therefore makes it difficult to monitor and enforce. It reiterates some approaches that governments could take to encourage CER , including monitoring, measuring and enforcing CER, and finishes with some suggestions for further research.

Chapter 2

Environmental risk and corporate responsibility: theories and approaches

"Today we need to think about the relationship between the earth and the economy. The issue now is … whether the environment is part of the economy or the economy is part of the environment." **(Brown, 2001, p3)**

2.1 Introduction

Different economic approaches treat environmental assets and risks differently. The first part of this chapter briefly outlines and compares the main approaches. The second section examines the evolution of and compares a number of approaches and strategies for, achieving corporate environmental responsibility

2.2 Economic Frameworks – looking at environmental risks through different economic lenses

This thesis is not an economic analysis, but it is impossible to discuss global environmental risks associated with products and production systems, and the response from the business community and governments, without at minimum an overview of the more relevant economic theories. This section begins with a brief account of the different explanations for environmental risks according to a number of different economic theories.

There are many explanations for the environmental risks associated with production systems depending on the ideology or school of thought of the commentator (Howes, 2005). The explanations range from the extreme left views of 'deep green ecologists' who blame the anthropocentric nature of the modern economic system that fails to value the non-human environment (Anderson & Leal, 2001; Foreman, 1998; Welford, 1997; Devall & Sessions, 1985), and 'eco-anarchists' who blame hierarchies within the state structure, the market and industry, and advocate small-scale, decentralised communes (Welford, 1997; Light, 1998) through to 'eco-feminists' who argue that the patriarchal society exploits both women and nature (Shiva, 2000; Welford, 1997). 'Marxian economists' blame capitalism and the markets for exploiting workers and the environment; and 'eco-economists' argue that investment

decisions are made before ecological risks are considered (Brown, 2001). At the other end of the spectrum are the 'neo classical' or 'neo liberal' economists who blame market failures and/or interference in the market from governments, which they argue has prevented the market from working properly, thus exacerbating environmental risks (Pearce, 1998; Hanley et al, 1997).

What follows is a more detailed discussion of a several key economic theories or approaches: neo-liberal economics; environmental economics and free market environmentalism; Marxian economics; the political economy approach; and ecological economics.

2.2.1 Neo liberal economics

'Neo-liberal economics' or 'economic rationalism' has its origins in the 18th century's 'Liberalism' (as in no controls), which became famous when Adam Smith, an English economist, published *An Inquiry into the Nature and Causes of the Wealth of Nations* in 1776. Smith advocated the abolition of government intervention in economic matters: no restrictions on manufacturing, no barriers to commerce, no tariffs. Smith said that free trade was the best way for a nation's economy to develop. Liberalism lasted as the dominant economic theory until the Great Depression in 1930s, when the British economists John Maynard Keynes began to advocate a different approach. He argued that full employment is necessary for capitalism to survive and that this can be achieved only if governments and central banks intervene to increase employment when the economy heads into recession.

Keynesian economics held dominance until the late 1970s/early 1980's when a new push to 'liberalise' the markets began in the United States, leading to what is generally termed today 'globalisation', or the 'free market'. This 'neo' or new liberalism according to Stilwell (2002) is a set a policies that advocate the complete liberalisation of the economy.

As mentioned in the previous section, neo liberals blame market failures for negative environmental impacts and argue that environmental risks have not been accounted for, or internalised, and that correct operation of the market coupled with technological innovation, will reduce environmental risks.

2.2.2 Environmental Economics and Free Market Environmentalism

Eckersley (1995; and in Rees et al 1994), Welford (1997) and Boyce (2002) discuss how neo liberal economists have hijacked the environmental agenda, by asserting that environmental risks are a market problem and promoting market solutions. Two approaches or ideologies of neo liberal environmentalism can be identified: *environmental economics* or Welford's (1997) *'eco-modernism'*, which promotes environmental costing and technological fixes, and *free market environmentalism*, which according to Eckersley (in Rees et al 1994) "turns green economics on its head" (p239).

(i) Environmental economics

The discourse, which Welford calls 'eco-modernism' and which other writers call environmental economics, represents according to Welford, a continuation of what went before rather than a break – "it adds an environmental dimension to the development path but does not allow that dimension to radically change the path" (p28).

Welford (1997) argues that industry is firmly wedded to the system that created the world's environmental crises, and claims that:

> It is not surprising therefore that they [industry] have sought out discourse on the environment which fits within their other aims and objectives (p28).

Boyce (2002) suggests environmental degradation is seen by neo liberal environmental economists as "impersonal 'negative externalities', social costs that slip through the fingers of the market's invisible hand" (p7). Jaffe et al (2004) say that environmental economics:

> is based on the idea that the potentially harmful consequences of economic activities on the environment constitute an "externality," an economically significant effect of an activity, the consequences of which are borne (at least in part) by a party or parties other than the party that controls the externality-producing activity (p3).

Jaffe et al (2004) suggest that a factory owner has an economic incentive to only employ the resources it needs, material labour, because to employ more would impose a cost on the firm. That is the cost to society of having some of its materials and labour used by the factory are 'internalised' by the firm, but if the factory pollutes the air, water and land, these costs are not borne by the factory – there is no economic incentive to internalise the costs of pollution. One

way of minimising environmental risks therefore espoused by environmental economists as well as neo liberals, is by accounting for environmental costs, through the use of cost-benefit analyses (Pearce,1998; Boyce, 2002; Jaffe et al 2004).

In theory environmental costing sounds fine, but many writers have agued that it is very difficult to place an accurate monetary value on environmental risks, and when it is done the values vary widely (Sagoff, 1988; Keats, 1998). This is not to say that cost benefit analysis and the multitude of tools available for doing this, such as life cycle assessment (LCA), have no place in mitigating environmental impacts, but there are serious problems when neo liberals proffer these as the panacea.

To be done properly, placing a monetary value on environmental risks, according to Sagoff (1988) should involve consideration of values, beliefs and desires. Putting monetary values on these is very difficult and involves making judgements and being preferential (Foster, 1997). For example, is a river running through an unpopulated outback area of any lesser value than one running through a wealthy residential area in a major city? But a cost benefit analysis of plans to release small amounts of industrial pollution into such rivers, would probably place a higher value on the river in the wealthy suburb, where many voices would be probably raised to assert the rivers intrinsic values to the community. As Sagoff (1988) notes "when they [cost benefit techniques] go beyond the confines of determining efficiency, in the narrow sense, [they] do not provide useful information" (p 37).

The fact that neo liberal economics places economic growth ahead of environmental and social concerns is the reason why many environmentalists are reluctant to leave it to market measures to managing environmental risks and solving environmental problems according to Stilwell, (2003), Foster (1997) and Pearce (1998).

Another criticism of neo liberal economics when it attempts to place a monetary value on the environment comes from Boyce (2002), who asserts that even when the environment is valued as part of the economic system, it is those people who are relatively wealthy and powerful who generally "reap more benefits from the uses of the environment" (p1). He argues for a more "democratic distribution of power and equitable distribution of wealth" (p 1) which will help the environment.

Cairncross' (1995) argues that spending on environmental protection has to compete with other priorities: "if companies are forced to spend heavily on cleaning up toxic waste, they are less likely to invest in developing new products" (p20). Further she argues that governments and society should prioritise environmental problems and the top of that hierarchy should be

environmental problems that harm human health, such as dirty drinking water and air pollution. Her approach places a lower priority on habitat destruction and species loss.

The other tool in the environmental economist's tool box is technology. Cairncross (1995) suggests that there are only two ways to reduce the impact of economic development on the environment, one is through changing people's behaviour, the other is by changing technologies, and as changing behaviour is difficult, she strongly asserts the role of technology in fixing environmental problems. Cairncross (1995), Jaffe et al (2004) and other writers point out that many new technologies are cleaner and greener, especially in terms of energy efficiency and materials use, and they can and do contribute to making the market more environmentally sustainable. However Jaffe et al make the observation that without effective environmental policies, especially economic incentives such as carbon taxes, investment in environmentally beneficial technologies is unlikely to occur at the level that society would desire and that would be necessary to offset increasing environmental problems.

Kemp (2004) and Manahan (1997) explore the benefits of green technology, as well as the negative impacts of modern technology, from a scientific/engineering rather than an economic perspective. Problems associated with industrial processes, manufacturing, energy generation, resource extraction, transport and agriculture are raised by both, as well as new technologies that are available and may be developed and employed to minimise air, water and solid waste emissions, as well as increasing resource efficiencies. Manahan (1997) for example explores a number of technologies that are and/or have great potential, to reduce environmental risks, such as state-of-the-art computer control systems for industrial processes and regulating energy and water use; innovative materials to improve insulation and for light-weighting; new waste management and recycling technologies; biotechnologies and nano-technologies; and lasers for precision machining. More recently we see strong advocacy and high levels of investment in, so called 'clean coal' technologies such as geo-sequestration of carbon dioxide.

Chapters 3 and 4 look at some of the negative impacts of modern manufacturing and industrial processes and discuss some of the innovations in product design that are certainly helping to reduce environment impacts, especially of consumer products.

Not all writers however are as enthusiastic about the so-called 'technological fix' for environmental problems that neo liberals advocate. Welford (1997) says that the business community sees no alternative to business continuing to set the agenda and controlling the greening of development through technology. Any other model of environmentalism he argues would need to break with business-as-usual and would therefore:

challenge the pillars of free trade, scientific and technological domination and the orthodoxy of continuous improvement and economic growth (ibid p29).

(ii) Free market environmentalism

Free market environmentalists see environmental externalities such as resource depletion, land degradation, pollution and species extinctions not as failings in the market's operation or the self interested search for short-term gains, but rather from:

> an absence of well defined, universal, exclusive, transferable and enforceable private property rights in respect of common environmental assets (Eckersley in Rees et al 1994, p240)

In other words, if the environment was privately owned, then there would be a market for unpolluted rivers, rainforest, clean oceans etc. and hence no need for government environmental policies. Further, free market environmentalists argue that the private property approach is preferable to government regulation because it is less political and more democratic because private property holders are better informed about immediate consequences of actions than governments and that governments are ill-informed about individuals' preferences.

This approach to reducing environmental risks may sound workable but in practice one simple example illustrates its fundamental flaws. If a fisher owns an unpolluted river, the fisher can deny use of the river by a potential polluter such as a factory operator. Alternatively he/she could charge a fee for use of the river, and if the river is polluted could demand damages. If however the river is owned by the polluter, the fisher would probably not be able to afford to pay to the polluter a price that is more than the cost saving in continuing to pollute (Eckersley, in Rees et al 1994). Put another way, the distribution of property rights in environmental assets will have environmental outcomes that are affected by the initial distribution of all wealth.

Another example is the purchasing by private environmental organisations such as the US Nature Conservancy, of areas of land to reserve habitat for endangered animals. Return on investment comes from some form of capitalisation from the land, which could involve charging for bushwalkers and campers, to selling access to 4WDrivers, to shooting rights to hunters. This approach appears to be having undoubted success in various countries such as Africa and Central America, and also in Australia where habitat areas have been purchased by private conservation companies especially in South Australia and Western Australia. However, Eckersley argues that there is never an intrinsic environmental responsibility on the part of the holders of these environmental property rights, and that at some time it may become necessary

due to economic pressures, or it may just make economic sense, to liquidate the environmental asset.

Free market environmentalism does not achieve an optimal environmental outcome, indeed proponents argue this is not the point, rather it is to achieve optimal allocation of environmental resources. Because of this, Eckersley asserts that for environmental and social policy makers, the approach can only ever achieve limited outcomes because it takes no account of property and income distribution. Further more, she argues that the role of government in environmental protection and minimising environmental risks, under free market environmentalism is contracted to:

> the point where it takes on the slender features of the classical nightwatchman state, protecting and policing private property rights and upholding the rule of law (ibid p 239).

Despite this obvious failing, Western governments are increasingly adopting policies involving market solutions for environmental problems. As Eckersley (in Rees et al, 1994) points out:

> ..in lieu of 'imposing' rules of conduct and performance standards and applying criminal sanctions to environmental offenders, environmental policy makers are increasingly looking in the direction of bureaucratic streamlining, economic incentives, market based instruments, tradable permits and the privatisation of environmental assets and wastes.

However environmental governance in Western countries, involving free market approaches such as those discussed above, is not completely *laissez-faire*. Market based instruments such as carbon pricing and carbon trading schemes, 'green' taxes, waste levies, deposit refund schemes, as well as some environmental labelling schemes, eg energy ratings, which are often actively promoted by environmental NGOs, and which are becoming increasingly adopted by governments, especially in Europe and some states in the USA, require an active role by governments in setting financial incentive or disincentive levels to encourage desirable environmental outcomes. At the most basic level, all functioning markets require a robust government, especially in guaranteeing a set of property rights.

The planned introduction by the Australian government in 2010, of a national emission-trading scheme is the big environmental policy debate at the time of this final re-write. The question of the impacts this will have not only on high emission industries such as energy generators and aluminium refiners, but also on low income households as prices rise, is being hotly debated in Parliament, the media and the broader community.

<u>2.2.3 Eco-Economics</u>

Brown (2001) advocates a form of environmental economics that places ecology and the planets ecosystems ahead of the economic system. He says that economists see the environment as part of the economy, while ecologists see the economy as part of the environment. Brown points to the increasing strain on the planet's environment from economic growth and argues that if the operation of the sub-system, that is the economy, is not compatible with the operation of the larger system, namely the earth's eco-system, then both will suffer. He suggests that eco-systems in economic terms functions like an endowment, but accuses the economy of slowly destroying its support systems – that is it is consuming its endowment. He advocates for an environmentally sustainable economy in which the principles of ecology form the framework for economic policy, with ecologists and economists working together to fashion this eco-economy.

Norton & Noonan (2007) take a similar line and argue for a "new approach to evaluating change, an approach that takes into account insights from both economics and ecology" (p 665). This new economic approach has been termed 'ecological economics', which Common (2007) says is unlike traditional economics because it is:

> "informed …by the understanding that human beings are, whatever else, a species of animal requiring material and energetic inputs which must ultimately be drawn from the natural environment, to which the wastes from economic activity are ultimately returned" (p 93).

Common (2007), Norton & Noonan (2007) and Brown (2201) assert that this use of the environment as a receptacle for waste means that it is providing a service to the economy and as such should be costed into the costs of producing products and services. In this sense it is similar to environmental economics, which also advocates the costing of environmental externalities (discussed in 2.2.2 above). However, unlike proponents of environmental economics, there is much conjecture as to how and indeed if it's possible to reasonable and accurately determine such costs.

Common (2007i) asserts that there are dangers associated with accounting of such costs in an imperfect word. He says that "ideally, all of the environmental impacts of economic activity would be included, as would be all of its effects on human well-being" (p 239), but he asserts, this is impossible in reality. He argues that while accurate costing of non-renewable resources for example is possible and of course done already, it is much more difficult to cost renewable resources, and even harder, if not impossible to cost ecosystems, populations and species of

flora and fauna. Norton & Noonan (2007), suggest that seeking to place a momentary value on the environment,

> "discourages a more profound re-examination of how one might create a rational process of policy evaluation that truly takes into account both economic and ecological impacts of our decisions" (p 665)

In other words Norton & Noonan (2007) are suggesting that an over-emphasis on environmental costing detracts from the development of a truly enlightened approach to ecology and economics. Perhaps Browns (2001) assertion that prices in the economy need to reflect the 'ecological truth', and advocating a restructuring of the tax systems: reducing income tax, removing perverse subsidies and increasing taxes on activities that are damaging to the environment, is closer to this enlightened approach.

2.2.4 Marxian economics

Because Marx came to economics via his explorations of sociology, and especially his work on 'labour', his economic theory is strongly couched in terms of society and labour (Howard and King, 1979). Through his explorations of labour, Marx developed an understanding and appreciation of the impacts of labour activities on the environment:

> Labour is in the first place, a process in which both man and nature participate, and in which man of his own accord starts, regulates and controls material reactions between himself and nature. (Marx from *Capital* quoted in Howard & King, 1979).

For Marx', the fundamental failing of capitalism is the alienation it creates by its complete expropriation of the mass of the population from ownership and control of the means of production, and the monopolisation of production into the hands of the capitalist class (Howard & King, 1979; Morishima, 1977). This alienation also means alienations from nature, and hence less respect and caring for nature. For Marx alienation meant dehumanisation.

Marx identified that capitalism greatly increased dependence of members of society on material objects, which has continued to this day and exhibits itself now as over consumption, with environmental risks associated, especially depletion of resources and waste problems – see Chapter 3 for a more detailed analysis of resource depletion.

2.2.5 The Political Economy Approach

The political economy approach argues that the economy is much larger than the neo-liberal idea of goods and services exchanged in market transactions. Boyce (2002) asserts:

> [The economy] takes into account all of the assets, or forms of wealth, that provide the foundation for our livelihoods; it encompasses the many dimensions of well-being that matter to us; and it embraces the full range of activities by which we derive well-being from assets at our disposal (p2)

In his criticism of neo-liberal economics, Wheelwright in Rees, Rodley & Stilwell (1993) asserts that neo-liberal economics is more than simply an old academic discipline,

> but a powerful system of belief, strongly supported by a variety of vested interests, which includes the media, transnational corporations, especially finance, and key so-called 'international' institutions such as the World Bank, IMF and the OECD (p17).

Boyce (2002) and Stilwell (2003) blame failures of the market, especially the failure to internalise environmental costs, and the harmful interventions by the state such as perverse subsidies, for environmental harms. According to these writers, this failure to internalise environmental costs is more than just an oversight, but a deep-seated failing of neo-liberal economics – a failure to even consider the environment. This a view strongly argued by Lowe (2005) and one that surfaces regularly during this discussion.

Stilwell encapsulates the concept of the political economy approach when he says, "[p]olitical economy is distinguished by its emphasis on the broader view of economic enquiry – the social purpose and its political application" (p 36).

The social thread

Stilwell (2003, p 35, 36) defines the economic system as "the means by which goods and services are produced, exchanged, and distributed among members of society", and that the social purpose of this system is "human betterment". But, he claims, modern mainstream economics - the 'free-market system' - has in effect abandoned this social mission. "Political economy emphasises that economic issues cannot properly be studied independently of their social context" (p36).

This abandonment of the social mission has direct consequences for the environment. As Boyce (2002) points out, neo-liberal economics creates winners and losers, thus massive inequalities exist within and between countries, with the classic example being between wealthy Western or Northern countries and poverty stricken, so-called 'Third World', 'Developing' or 'Southern' countries. And it is often the case, according the Boyce (2002), that inequality and poverty go hand-in-hand with environmental degradation such as in the case of forest clearing by impoverished villagers in PNG and Indonesia. Therefore, according to the political economy approach, an economic system that actively works to mitigate negative social impacts, will also be better for the environment.

The political application

In the free-market system, based on neo-classical economic theory, decisions on what is produced, how it's produced, how much is produced and for whom, are made not by the state or a central authority, but by individual producers and consumers in markets acting in response to prices (Haveman, 1970; Stilwell, 2003). This system Stillwell says, is seen as self-regulating and a self-equilibrium system, and is characterised by the "liberalisation of trade, the deregulation of capital and labour, the privatisation of public enterprises, and the extension of user pays principles to the public services that have not been privatised" (Stilwell, 2003, p3). And importantly, the role of the government has been reduced to that of an "adjunct to the free market" (ibid p 4). The role of national governments, especially in monitoring and regulating the market in order to encourage private players to actually reduce the negative environmental impacts of their activities, will be explored in detail later in this thesis.

2.3 Corporate responsibility: Theories, approaches and strategies

This thesis concentrates on corporate environmental responsibility (CER) which according to Vogel (2005) is "complex and multi-dimensional". CER Vogel says

> Encompasses corporate practices ranging from natural resource management and use to waste generation and disposal, recycling, the marketing of environmentally friendly products, and pollution prevention and control (ibid p110).

This section looks briefly at the history of corporate responsibility, and defines, and where possible contrasts, some of the more commonly used theories, approaches and strategies for companies improving their corporate responsibility.

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2.3.1 Evolution of corporate responsibility

The development of the concept of corporate responsibility has been traced by a number of writers including Davis, 1994; Clark, 2000; Woodward et al, 2001; Keijzers, 2002; Marlin, A & J, 2003; Glavic & Lukman, 2007; and Vogel, 2005. An awareness of the environmental impacts of company operations, and of the need to take action to minimise these risks, developed mainly during the 1960s and 1970s. Western governments at this time, responding to community environmental concerns, mostly regarding pollution, introduced various pieces of environmental legislation to try to minimise the environmental impacts of industry. Companies, under these legislative regimes were required to comply or face fines – the 'command and control' regime, as it is often termed. During this period a culture of compliance developed within many companies.

In the late 1970s and early 1980s a different 'corporate culture', defined by Robbins, (2001, p32) as a "set of norms found in an organisation", began to develop within some companies, for example Fuji-Xerox Australia, who began taking photo-copiers back for reuse and recycling (discussed later in this thesis), and The Body Shop by sourcing more natural ingredients and reducing packaging. In other words there was a move away from mere compliance to one of recognising some responsibility for social and environmental impacts (Clark, 2000; Vogel, 2005).

In the late 1970s, a few companies included small sections on social and environmental performance in their annual reports, and the practice continued informally through the 1980s. According to Marlin, A & J (2003), there are a number of key factors or drivers during this period that influenced some companies to take greater responsibility. One such driver was the increasing awareness of the importance of reputation, their image and their branding, and how these can be damaged by perceptions of poor social and environmental performance. At the same time there were increasing demands from the community for information on environmental performance, and increased awareness and pressure from consumers for companies to show that they were being socially responsible. The growth of 'ethical' or 'socially responsible' investment in OECD countries, and pressure from insurance companies concerned about their increased exposure to environmental risk also drove some companies to report on the social and environmental responsibility. In chapter 4, the key drivers for CER as identified by senior company managers interviewed for this thesis, will be discussed in some detail.

The awareness of corporate responsibility was spurred on by the establishment by the United Nations (UN) in 1983 of the World Commission on Environment and Development (WCED). The UN appointed an international commission to propose strategies for 'sustainable development' – "ways to improve human well-being in the short term without threatening the local and global environment in the long term" (www.unep.org). The four-year process culminated in 1987, with the release of the report 'Our Common Future', widely known as the Brundtland Report after its lead author Gro Brundtland. The Report was primarily concerned with securing global equity and redistributing resources towards poorer nations, whilst encouraging their economic growth. It highlighted three fundamental components to sustainable development: environmental protection, economic growth and social equity, and highlighted the excessive rate of use of the planet's resources (Brundtland, 1987).

2.3.2 <u>Concepts of corporate responsibility</u>

This section defines and compares a range of concepts that have emerged within the broader category of 'corporate responsibility'.

2.3.2.1 Corporate governance' and 'corporate sustainability'

'Corporate governance' is defined by the OECD (1999, p7) as

> the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as, the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs.

It certainly has implications for social and environmental responsibility but it places greater emphasis on economic performance and much less on environmental or social performance, or responsibility. Monks and Minow (1995) talk about corporate governance in terms of the overall management structure within a corporation and particularly with regard to the shareholders, the management and the board.

'Corporate sustainability' on the other hand, is a far more interesting term in its implications for environmental responsibility. In combining the 'sustainability' with 'corporate', it would appear to link with the overall global debate on sustainable development, however Zadeck (2001) makes the case that corporate sustainability is primarily about sustaining a company as a corporate entity, irrespective of its social and environmental performance. He notes that the

business community prefers the term 'corporate sustainability' over corporate social responsibility.

2.3.2.2 'Corporate citizenship' and 'corporate social responsibility'

A search of literature, including web sites, suggests there are few if any differences between the terms 'corporate citizenship' and 'corporate social responsibility', both refer to corporations behaving in a responsible manner within society, that is, minimising their negative impacts and maximising their benefits (Rondinelli and Berry, 2000), and they are often used interchangeably. CSR implies real social responsibility and Collins and Porras (1994) argue that if CSR is implemented it will also lead to company economic sustainability.

Corporate social responsibility (CSR) is widely used and accepted by companies, governments and mainstream non-government organisations including the OECD, and the last two decades has seen a rapid increase in the currency of the term. To illustrate this, a simple search on 'corporate social responsibility' on www.google.com for example, comes up with more than 2,630,000 results. However, as will be discussed in more detail later, CSR is a voluntary, business led agenda, and as such implies little or no government role.

The voluntary nature of CSR is affirmed by the European Union's definition of CSR contained in its Green Paper on CSR: "CSR is a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis" (EU, 2001, p4).

CSR is defined by the United Kingdom government as follows:

> The Government sees CSR as the business contribution to our sustainable development goals. Essentially it is about how business takes account of its economic, social and environmental impacts in the way it operates – maximising the benefits and minimising the downsides.
>
> Specifically, we see CSR as the voluntary actions that business can take, over and above compliance with minimum legal requirements, to address both its own competitive interests and the interests of wider society.
> (http://www.dti.gov.uk/sustainability)

While the Confederation of British Industry (2001) says "CSR requires companies to acknowledge that they should be publicly accountable not only for their financial performance but also for their social and environmental record", and goes even further stating that companies

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"should promote human rights, democracy, community improvement and sustainable development objectives throughout the world".

CSR is currently the dominant business paradigm or framework within which policies and strategies for minimising social and environmental risks exist (Vogel, 2005; Hay et al (2005). CSR has been increasingly accepted by national governments, the United Nations and mainstream NGOs, and it is promoted by key business and government organisations such as the Organisation for Economic Cooperation and Development (OECD), the United Nations, the International Chamber of Commerce (ICC), and the World Business Council for Sustainable Development (WBCSD).

According to the WBCSD (www.wbcsd.ch), CSR was the business community's response to the increasing calls from social and environmental NGOs in the lead up to the 1992 World Summit on Sustainable Development (WSSD) for more government action to address the escalating social and environmental problems facing the planet. However the environmental organisations Greenpeace and Friends of the Earth accused the business community of using CSR as an attempt to hide their environmental impacts behind a screen of 'green' sounding words, that is they wanted to 'greenwash' their activities and to argue against the need for more direct government intervention including legislation to force corporate responsibility (Bruno & Karliner, 2002). The concept of 'greenwash' is discussed in greater detail in Chapter 5.

Vogel (2005, p2) defines CSR as "practices that improve the workplace and benefit society in ways that go above and beyond what companies are legally required to do". But he points out that it is difficult to determine what constitutes a responsible company: Is McDonalds responsible because it uses sustainable packaging or irresponsible because it participates in broad-scale agriculture? Is BP responsible because it accepts that climate change is real, or irresponsible because it continues to sell petroleum?

Portney in Hay et al (2005) picks up an important aspect of CSR, that of going beyond compliance, an aspect raised by several interviewees and discussed later, when he defines CSR as a

> consistent pattern, at the very least, of private firms doing more than they are required to do under applicable laws and regulations governing the environment, health and safety, and investments in the communities in which they operate. (p108)

Vogel argues that CSR is a niche rather than a generic strategy. He says that CSR makes sense for some companies in some circumstances, but it should not be assumed that because some companies are behaving responsibly in some areas, that others will behave responsibly in other areas. He asserts that while there is a place in the market economy for responsible firms there is also a place for less responsible competing firms.

While environmental responsibility is a high profile and important dimension of CSR, Vogel points out a number of weaknesses with CSR when it comes to managing environmental risks. He discusses the emphasis often placed on labour standards and asserts that environmental management has a lesser significance. But it is in the application of environmental responsibility within CSR in developing countries that represent the most serious weaknesses. Vogel (2005) says that far fewer industry or company codes govern environmental practices than labour standards in developing countries. Although environmental problems are more serious in developing countries there are far fewer voluntary corporate programs for minimising environmental risks. In developed countries there is more extensive government legislation or the prospect of it, which affect business practices.

Some environmentalists continue to be highly cynical of CSR, perceiving it as an elaborate 'green wash' exercise by the business community, pointing to the fact that many of those companies most loudly trumpeting their responsible citizen credentials, are being repeatedly caught out breaching their own standards, especially when their operations in developing countries are examined (Bruno & Karliner, 2002; Beder, 1997). It is clear that many companies are still involved in socially and environmentally damaging projects despite their voluntary codes. This will be discussed in more detail in Chapter 4.

There is also great deal of opposition among conservative or neo-liberal economists, to the CSR agenda, especially now that it has been adopted by a large section of the NGO community, as well as many governments, the World Bank, OECD and the United Nations (The Economist, 2005). Neo liberals argue that there is nothing wrong with companies concentrating on the core responsibility of business, namely the pursuit of profits, and that this does not threaten environmental or social wellbeing. They argue that CSR would only be necessary:

> if a narrow focus on profits really did endanger the environment., systematically infringe the rights of workers and stakeholders, and in general fail to serve the public interest (The Economist, 2005, p 10)

The business' number one objective should be the pursuit of profits, neo-liberals claim. They argue that Adam Smith's economic theory proves that the self-interested pursuit of profits by companies does ultimately serve the public good, and that this means there is no need for "thought-leaders in CSR armed with initiatives and compacts" (The Economist 2005, p 11), and that:

> Capitalism does not need the fundamental reforms that many CSR advocates wish for. Better that CSR be undertaken as a cosmetic exercise than as a serious surgery to fix what doesn't need fixing. (The Economist, Jan 22, 2005, p 4)

Such statements reinforce the scepticism of the critics of CSR.

Neo-Liberals argue that social interventions, such as social 'safety-nets' and labour rights, by some governments, for example Japan and some European countries, are a barrier to growing prosperity (Schaefer, Hwang, & Kane, 2004). Regarding government regulation, neo-liberals argue that it is a hidden tax that imposes a burden almost as heavy as income taxes. It hinders innovation, and causes substantial economic harm they assert (Gattuso, 2004).

They take a particularly hard line against socially responsible managers, arguing that company managers are responsible only to the company owners – for public companies, read shareholders – and as such:

> They are employed by the firm's owners to maximize the long-term value of the owner's assets. Putting those assets to any other use is cheating the owners, and that is unethical .

And, that:

> If a manager believes that the business he is working for is causing harm to society at large, the right thing to do is not to work for that business in the first place (The Economist 2005, p 14).

2.3.2.3 The 'Triple Bottom Line'

'Triple bottom line' (TBL) was first coined by John Elkington (1998) in *Cannibals with Forks*, and according to Elkington it means that corporations' should focus on environmental and social values and not just financial return. At its narrowest Elkington (1998) says it is an accounting framework for measuring performance against economic, social and environmental parameters. But at its broadest it implies a system of values and processes for companies - an integral component of corporate social responsibility – without it companies cannot fully take responsibility for the environmental impacts of their products and processes.

McDonough & Braungart (2002) talk about the growing awareness and acceptance in corporations, of 'triple bottom line' thinking. They discuss the development and the uptake of TBL as a gradual process of awareness within companies. The first step for most companies involves consideration of employee wellbeing, resource efficiency issues and 'end of pipe' initiatives, such as waste management. They point out that while these are important first steps, that is identifying problems and trying to minimise negative impacts, they argue that these steps aim for 'mere sustainability' – which is an inadequate total response.

McDonough & Braungart (2002) claim that meeting the triple bottom line is seen by many in companies as a balancing act, that is, a compromises between competing interest, and that it is often played out in product and process design. They go on to argue for the creation of a whole new 'sustaining industry system', deliberately using the term 'sustaining' rather than 'sustainable'. They claim that sustaining implies a fuller agenda, namely making necessary fundamental changes to a system that continues to damage the global environment, rather than sustainability, which they argue implies the maintenance of a damaging system.

Liversey (2002) is highly critical of TBL and says that by trying to fit complex problems of ecology and social justice into business discourses, TBL has failed to challenge key neo-liberal fundamentals such as consumerism, growth and efficiency.

Neo liberal economists on the other hand condemn TBL, arguing that "measuring profits – the good old bottom line – offers a pretty clear test for the success of a business. The triple bottom line does not." (The Economist, 2005, p10). The problem they argue is that measuring profits, is straightforward, but measuring environmental protection and social justice is not:

> The problem is not just that there is no one yardstick allowing the three measures to be compared with each other. It is also that there is no agreement on what progress on environment or progress in the social sphere, actually mean (The Economist, 2005, p10).

Research conducted for this thesis suggests that neo-liberal thinking is incorrect in this respect - it is not only possible for companies to operate successfully and to account for the triple bottom line, it is acceptable to many corporate leaders and above all, it is an essential step toward a truly sustainable future. And as evidence for the increased acceptability of TBL, there are sustainability indexes such as the Dow Jones Sustainability Index and FTSE4G which rate the financial performance of leading sustainability-driven companies, and leading financial consultancy companies such as SKM and Deloitte, will conduct TBL ratings of companies.

2.3.2.4 Extended producer responsibility

The term 'extended producer responsibility' was first coined in the early 1990s by the Swedish professor of environmental economics, Thomas Lindhqvist. He used it to describe a public policy movement that was emerging in Europe, and defined it as "making the manufacturer of the product responsible for the entire life-cycle of the product and especially for the take-back, recycling and final disposal of the product" (Lindhqvist, 2000, p ii). He also states that it is "implemented through administrative, economic and informative instruments". In effect it is a requirement for CER.

In fact the scope of EPR tends to be narrowed. Academic and former Director of the Centre for Design at RMIT, Chris Ryan (personal interview, 2003) confirms that the real meaning of EPR implies that:

> responsibility will also cover other life cycle phases in a product where impacts occur, such as use. And yet it has been interpreted all too frequently as only pertinent to end-of-life phase and has been [used as] just another term for product take-back.

That is, EPR has mostly been used to describe the process of shifting responsibility for products discarded at the end of their useful life, especially packaging, to the producers rather than local governments, and incorporating the costs of product disposal or recycling into product price (Fishbein et al, 1994). In consequence, the entire life cycle, particularly up-stream aspects such as product design, have had less emphasis in actual industry and policy development.

2.3.2.5 Extended producer responsibility verses product stewardship

The terms product stewardship (PS) and extended producer responsibility (EPR) have been used widely over the last decade, to describe policies covering life cycle impacts of products. They tend to be interchanged and treated as though they are essentially the same, although they are used on opposite sides of the Atlantic - EPR is the preferred term in Europe, while PS tends to be the preferred term in North America and Australia.

This thesis argues that while the stated environmental objectives of each may sound similar, namely to minimize environmental impacts over the life-cycle of a product, there are definite differences, particularly in the emphasis placed on the role of producers, and the issue of voluntary versus mandatory approaches.

There are definitional differences between EPR and PS, mainly associated with the subtle difference in the meaning of the words 'stewardship' and 'responsibility'. Responsibility is defined in the Shorter Oxford English Dictionary (1993) as a 'duty, obligation or burden for' as well as 'accountable' and 'answerable', while the Macquarie Dictionary (1991) implies a 'legal or financial' burden. Stewardship is defined by the Shorter Oxford English Dictionary (1993) as 'administration, supervision or management of'. That is, there is not the same level of burden associated with 'stewardship' as with 'responsibility'. Lindhqvist (personal interview, 2002) backs up this definitional difference, when he said, "stewardship is a totally different thing [than responsibility]. The steward decides what to do. The one who's taking responsibility, has to look at what the others want, and society wants".

The two key operational differences between the terms relate to the voluntary versus mandatory nature of each, and the allocation of responsibility. I argue that EPR describes a policy process that is predominantly regulatory while PS is self-regulatory. This is related, I believe, to the origin of the terms: product stewardship was coined by industry, while EPR was first coined, as mentioned before, by an academic environmental economist (Fishbein et al, 1994).

PS is a self-regulatory approach, whereby producers voluntarily introduce measures to minimise the environmental impacts of products. This voluntary nature has added significance when it is remembered, as earlier mentioned, that the key emphasis of PS (and in practice, EPR) is on end-of-pipe issues. Hence, the larger environmental impacts associated with resource use and production processes, and those associated with the use stage, are given less if any emphasis. This means that companies can introduce measures 'if they wish', and that when they do, the measures tend to target end-of-life issues, where the environmental impacts are usually less and where, as I will argue below, it is easier to shift the burden to other stakeholders. And as Lindhqvist (personal interview, 2002) claims, the voluntary approach "just has not worked" in solving the planet's overwhelming environmental problems resulting from production.

The other key difference between EPR and PS is in the allocation of responsibility. EPR proposes the shifting of most if not all of the physical and financial responsibility for negative environmental impacts to the producer. PS on the other hand, proposes a 'shared approach', with all stakeholders – producers, retailers, consumers and government - taking some of the responsibility for and bearing some responsibility for the costs of, environmental impacts. The

only existing national policy for PS in Australia is the National Packaging Covenant (NPC), which is a "self-regulatory agreement between industries in the packaging chain and all spheres of government based on the principles of shared responsibility" (www.deh.gov.au/industry/waste/covenant/).

Shared responsibility has been criticised by some academics, environmentalists and even local governments. The then Director of the Centre for Design at RMIT University in Melbourne, Helen Lewis in a personal interview (2002) said, "I think a lot of companies are hiding behind the idea of shared responsibility". NSW Local Government and Shires Association (LGSA), which still refuses to sign onto the Covenant, criticises the NPC for passing the burden for the collection of packaging, including the financial burden, onto local governments.

2.4 EPR in Australia

The Australian government, as with most national governments around the world, favours voluntary measures by the business community. At the same time, as John Gertsakis, former Director of Centre for Design at RMIT and now an environmental consultant (personal interview, 2003) argues, government agencies express their frustration at the lack of action by companies in addressing product environmental impacts, particularly those associated with end-of-life, but they still promote self-regulation and voluntary agreements. This is illustrated by the fact that in 2000 the Australia Government released a discussion paper entitled Developing Product Stewardship Strategies for the Electrical and Electronics Industry in Australia (Environment Australia, 2001). This paper canvassed possible public policy measures to encourage PS in the electrical and electronic industry in Australia, however the title of the paper infers the voluntary approach promoted in the discussion paper.

At the start of 2003, the NSW government published a discussion paper via its Environmental Protection Agency on EPR (NSW EPA, 2003), and in March 2004 a Ministerial press release (Debus, 2004). Both warned industry it could face "tough new regulations if more responsibility isn't taken for the environmental impacts of products". The Victorian and South Australian governments have signalled their willingness to use regulations in a number of key areas such as forced take-back, levies and landfill bans, if producers fail to take more responsibility. A discussion paper was released by the South Australian government (Gol, Heidenreich & Nafalski, 2000) looking at EPR opportunities to manage waste from the electrical and electronics (EEP) sector in that state, which strongly advocated the need for a legislative approach.

The Victorian government has produced a zero waste strategy (ERV, 2003), which contains very strict waste reduction targets for industry. The strategy, developed in consultation with industry, aims to shift towards waste avoidance, to bring about gains in materials efficiency and sustainable consumption, through measures to increase materials efficiency and reduce solid waste generation; increase the sustainable recovery of materials for recycling and reprocessing; and reduce the environmentally damaging impacts of waste. Although the term product stewardship is used in the document rather than EPR, and the plan involves voluntary agreements between manufacturers and government, the fact of the tight targets, combined with the definite language used, such as "the strategy and plan deliver a robust statewide framework for waste reduction and enhanced resource recovery" (p 5), suggests the government will not tolerate poor performance from industry and may intend to follow-up with legislation forcing EPR, if the strategy does not achieve expected outcomes. At the time of this re-write, no legislative actions have been taken by the Victorian government.

2.5 Considering environmental risks at the design stage

There is an increasing awareness of the importance of designing products and production processes to reduce environmental risks – that is moving up the life cycle to address what are commonly termed 'beginning of pipe' issues. It has been estimated that up to 70% of a products environmental and waste impacts are locked in at the design stage (Ashley, 1993 and Lewis & Gertsakis, 2001). Therefore, designing products to minimise environmental risks is an important strategy that producers can use to take greater responsibility for the life-cycle impacts of their products and these green designs can be green marketed (Bhat, 1993).

Designing products so that they have minimal environmental impacts in areas of material use, energy and water use, and for end-of-life management through reuse and/or recycling, Cooper (1999) calls 'design for sustainability' (DfS) and notes that DfS is not practiced widely yet and that a narrower approach called eco-design or design-for-environment (DfE) is more common. Polonski & Rosenberger (2001) suggest that designers and product developers should use life-cycle analysis to evaluate a product's ecological impact for each production stage, which would allow them to identify alternative methods of designing or producing goods.

Sustainability Victoria, a Sate government agency with responsibility for actioning the Victorian Government's sustainability policies and strategies, especially in the areas of materials, energy and water efficiency, has a design for sustainability program, the only one of its kind in Australia. The aim of this program is to engage with Victorian design professionals, manufacturers, marketers and the community to promote design for sustainability.

The Centre for Design at RMIT (1997, p 6) includes other strategies in what it terms EcoReDesign, "a systematic way of identifying appropriate and achievable design strategies to improve the environmental performance of a product". The Centre for Design identifies a number of key areas for design strategies including resource conservation; energy and water efficiency; pollution prevention; durability; disassembly; re-useability; and recyclability. The Institute for Design, Mechanical Engineering and Environment (ENSAM) at the Institute of Chambery, France, uses the term design for recovery (DfR) to encompass strategies for design for disassembly, re-use and recycling.

2.6 Integrating policies

Research for this thesis has shown that while there are a number of examples of EPR policies, there are, as Davis observes (1995), few examples of comprehensive and cohesive policy frameworks. In other words, there is little policy development in the area of integrating sustainable design, producer responsibility and sustainable consumption – the triple bottom line of product environmental management. The only attempt at integrating polices that was uncovered in researching for this thesis is the European integrated product policy (IPP), which attempts to develop a more integrated and holistic approach to product environmental policies, that also factors in consumption. IPP is discussed in more detail in chapter 5.

2.7 Conclusion

This chapter started with a brief synopsis of some economic theories and approaches and how environmental risk management is considered. It then went on to introduce and define a number of key terms, including CER and CSR, differentiated between the concepts of extended producer responsibility and product stewardship, and briefly discussed sustainable design and integrated product policies. Some of these terms and how they are used in the CER debate will be discussed further in subsequent chapters. The next chapter looks in detail at the nature of production and products, especially electrical products, and the interrelated environmental impacts associated with the stages in the life cycle of products.

Chapter 3

The World Behind the Products: production systems and environmental risk

"Products can be considered as the embodiment of the harm caused by production, consumption and disposal." **(Heiskanen, 1999, p62)**

3.1 Introduction

The previous two chapters outlined the context of this study, the environmental crisis facing the planet and humankind, and went on to discuss environmental risks through the lenses of several economic theories and approaches. This chapter looks at the nature and causes of environmental risks from the perspective of production systems. It is not meant to be a detailed and by no means an exhaustive analysis of the environmental issues surrounding production and products, but to present a broad picture of the life-cycle environmental risks associated with products generally. As the lead quote from Heiskenan (1999) asserts, production systems are key contributors to global environmental problems, and as stated by a senior manager at Sustainability Victoria - the Victorian Government's agency that has responsibility for the carriage of the government's sustainability policies and that provides information and advice to business, government and community on sustainability strategies: "products are what circulate in the marketplace. It is what actually connects the community to business" (personal interview, 2003).

This chapter begins with a general discussion of environmental risks associated with production and consumption, and the global nature of production systems and environmental problems. It then discusses the concept of a product life cycle - a concept that is key to both understanding, and addressing the environmental risks associated with products at all stages of their existence. It then goes on to look more specifically at the electrical and electronic products (EEPs) sector and focuses on the whitegoods industry: the nature of the industry in Australia and globally. Using the case study approach described in Chapter 1, the Australian whitegoods industry today is analysed – how it has evolved in recent decades into being concentrated in the hands of two

multi-national companies, with no large Australian manufacturers and with the majority of appliances being imported from overseas. This concentration of ownership and increased production occurring overseas, means it is difficult for national governments, such as Australia's to influence the environmental performance of the industry. Traditional command and control measures are less effective in this industry environment. Hence governments need to look at other policy measures that can work. The discussion then looks at the specific environmental problems created at all stages of a whitegood's life cycle.

3.2 Production and consumption

The manufacture and consumption of products is the basis of the global marketplace, but the manufacture, consumption, use and disposal of these products is the source of the major environmental and social problems confronting the planet today (Heiskanen, 1999 and 2000; Fishbein, 2000; McEachern, 1999; Howes, 2005). An indicator of the scale of the problem is the fact that global consumption doubled between 1973 and 1998 (Clark, 2006), but Clark adds that during the corresponding period in Africa, consumption decreased by 20%. To this end then the environmental risks associated with unsustainable production and consumption present the major challenge to sustainable development.

It is important at this stage to define some key terms: namely 'product' and 'sustainable, development' and 'sustainability'. Much of the theoretical work on environmental risks associated with products has been done with the generic 'product' in mind, and using product specific case studies. Therefore, it is important to define a 'product'. A short definition, used with slight variations in many sources is *a tangible object or commodity produced to be sold to suit or fulfil consumer needs* (Geedkoop et al, 1999; Mont, 2000; Cooper, 2000). However, some writers define a product more broadly to include less tangible items such as an insurance policy and even extend the definition to include 'services' in the definition: the term 'product' is understood to cover goods and services (ISO, 2001). For the purposes of this thesis, I will limit my discussion to tangible material products and not be looking at 'services'. In simple terms, therefore, I will limit my definition of products to '*something you can drop on your foot*'.

Probably no other group of terms in the environmental debate arouses as much controversy as 'sustainable', 'sustainability' and 'sustainable development'. Although there may only appear to be subtle differences in the language between a definition proposed by a business organisation, and that of an environmental NGO, it is the interpretation that varies markedly. These terms are used repeatedly throughout this thesis, and in almost every other discourse on global

environmental issues over the last two decades, therefore it is important to look at some definitions.

The Concise Oxford English Dictionary (1990) defines sustain as to 'support, bear the weight of, especially for a long time' and to 'maintain or keep going continuously'. Similarly the Macquarie Dictionary (1995) defines it as 'to keep up or keep going'.

The most widely quoted definition of sustainable development is that of the World Commission on Environment and Development (WSCD, 1987, p43),) from the *Our Common Future* report referred to previously. Sustainable development is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. The idea of catering for the needs of future generations is a key one in many definitions.

Friends of the Earth (www.foe-scotland.org.uk/campaigns/sustainable) argue that sustainability 'encompasses the simple principle of taking from the earth only what it can provide indefinitely, thus leaving future generations no less than we have access to ourselves'.

By placing economic prosperity at the beginning of its definition of sustainable development, the World Business Council for Sustainable Development (www.wbcsd.ch) places the emphasis on development: "Sustainable development involves the simultaneous pursuit of economic prosperity, environmental quality and social equity. Companies aiming for sustainability need to perform not against a single, financial bottom line but against the triple bottom line".

Although many of its finding have been and still are contested, the publication in 1972 of The Limits to Growth is still widely seen as a pivotal publication in drawing the world's attention to the global issue of uncontrolled growth resulting in unsustainable use of the planet's resources. The updated version, published in 2004, and referred to in the previous chapter, suggests that the planet is already operating beyond its limits, an argument also stressed by the United Nations in UNEP's Global Environmental Outlook (2000 & 2002), and is the underlying premise to Stern's (2006, p iii) assertion that *[T]he scientific evidence points to increasing risks of serious, irreversible impacts from climate change associated with business-as-usual (BAU) paths.*

Also 1972, *The Ecologist* published its 'Blueprint for Survival'; and the United Nations held its first environmental conference in Stockholm – the 'United Nations Conference on the Human Environment'. It was at the Stockholm conference that the concept of sustainable development, with its current connotations, was first used.

In 1987, in the report of the World Commission on Environment and Development (WCED) (Brundtland, 1987), attention was drawn to the problem of unsustainable use of resources fuelling environmental problems. At the 1992 World Summit on Sustainable Development (WSSD) the role of unsustainable production and consumption was highlighted, and a plan of action, 'Agenda 21', was developed in an attempt to set up bodies and develop strategies to address this global problem (UN, 1992). One action was the establishment of the Production and Consumption Branch within the United Nations Environment Program's (UNEP) Division of Technology, Industry and Economics.

The UNEP Production and Consumption Branch web site states that the goal of the Branch is to work

> with international agencies, industry associations, and institutes to promote global awareness and understanding of sustainable production and consumption by:
> • studying and analysing trends in current consumption and production patterns;
> • addressing key industry sectors with high environmental and safety impacts;
> • assisting environmentally sound technology transfer and product choices through information exchange, capacity building, and the development of sound environmental management procedures;
> • ensuring the integration and co-ordinated implementation of production and consumption issues in environmental conventions and agreements; and
> • establishing and maintaining international expert networks and linking with technical and policy bodies and government agencies"
> (http://www.uneptie.org/pc/pc/overview.htm)

Within the Production and Consumption Branch, a separate Sustainable Consumption unit has been established, with key reports such as Ryan (2002), stressing the need to rein in unsustainable consumption and the importance of adopting measures to encourage sustainable consumption. Cooper (1998, p 2) defines sustainable consumption as "patterns of consumption through which the purchase and use of goods and services meet people's basic needs while minimising any environmental degradation". While recognising that unsustainable consumption is a crucial element in the debate and one driver of unsustainable production, to discuss it in detail here is beyond the scope of this thesis.

The developed world's idea that prosperity is related to growth, that is per-capita consumption based, according to UNEP (http://www.uneptie.org/pc/pc/overview.htm), on lifestyles of unsustainable consumption, is being 'globalised' by media images and advertising (Cooper, 1998). The advent of satellite television means that images of life in the Western World now reach Developing countries, creating the likelihood of largely un-attainable aspirations and fuelling global aspirations: according to UNEP (http://www.uneptie.org/pc/pc/overview.htm) this is proving to be a major driver of unsustainable consumption in the developing world, and will be a major obstacle to global sustainable development.

The UNEP web site (UNEP http://www.unep.org/unep/program /sustprod) says:

> The utilization of inappropriate technologies and the widespread adoption of
> unsustainable production and consumption patterns, lead to high waste yields, are
> inefficient in the use of renewable resources, and wasteful in the use of energy.
> The resultant pollution and natural resource degradation have in turn a negative
> impact on human health and welfare as well as on nature itself.

UNEP urges affluent countries to take responsibility and adopt sustainable strategies:

> As the world population grows and resources are taxed beyond their carrying
> capacity, societies, particularly the affluent must strive to establish an improved
> rationality in their consumption patterns and to move towards the adoption of low
> waste, energy efficient technologies. (UNEP http://www.unep.org/unep/program
> /sustprod)

The World Business Council for Sustainable Development (http://www.wbcsd.ch) also
acknowledges the role over-consumption plays in global problems when it says:

> [r]ecent history suggests those living in wealthier countries do not intend to
> consume and waste less. Given that the other 80% of the planet's people seek to
> emulate those consumption habits, the only hope for sustainability is to change
> forms of consumption.

But the WBCSD then goes on to promote 'innovation' as the answer. This illustrates the
dilemma for the WBCSD, namely as a business organization it cannot promote a reduction in
consumption, because current business models are based on the doctrine of 'growth'. They
promote the concept of 'innovation', but innovation that is based solely on design of products
and production processes, which, though a crucial component of any business/government
model to address environmental problems caused by over consumption, cannot alone bring
about 'sustainability' as argued by UNEP (see previous references to UNEP reports) and
Cooper (1998), Ryan (2002).

Polonski & Rosenberger (2001) suggest that as part of the design/product development process,
designers/product developers should ask the fundamental question: Can new processes be
developed to satisfy consumers' needs? They argue that consumers may not have to buy goods
if they can purchase the use of the need-satisfying capacity instead. This innovation in consumer
patterns is termed 'product/service systems', in which the leasing or selling of a service is
substituted for products, for example Fuji Xerox is now the "copier company" (see the detailed

discussion of Fuji Xerox in Chapter 5). Product/service systems have the potential to lead to reduced consumption of some products and therefore reduced resource use, and can also be profitable for companies (Cooper & Evans, 2000). This thesis does not discuss product/service systems as this is beyond the scope of this investigation.

The issue of over-consumption must also be addressed. This would probably require, for one thing, a change in global media images of what an affluent, successful lifestyle looks like. However another problem arises here, that is, many of the world's large media organisations are owned by the same multi-national corporations that also control most of the world's production systems (Beder, 1997; Monbiot, 2000), making a new paradigm of consumption, as proposed by these writers, very difficult to achieve. It is much easier politically, to change consumption patterns (that is what people buy) than the equally important change to the volumes that they buy (1995 Oslo Roundtable: www.iisd.ca/linkages'consume/oslo004.html).

Peters and Hertwick (2006) point out that it is becoming increasingly evident that focusing on production is a necessary but not sufficient means of reducing global environmental impacts. It is necessary to place increasing emphasis on consumption, and they argue that consumers play two key roles in generating environmental impacts. Firstly, they direct impacts from their daily activities such as energy use in their houses, fuel use in cars and household waste, and secondly they cause indirect impacts through their consumption choices, ie they initiate production of products due to these choices.

While the consumption side cannot be overlooked, there is however, a risk if the consumption side of the production/consumption equation is stressed, that is blaming the consumers more than producers - which may be occurring as evidenced by recent UNEP material (http://www.uneptie.org/pc/) - that some of the pressure will be removed from producers to rein in unsustainable production.

Another example of this type of blame shifting is the current response to the water crisis gripping Southern and Eastern Australia. Households are being encouraged to conserve water, and in some cities enforceable restriction have been enacted, but households use only 9% of water (www.abs.gov.au/), while the big users, industry and agriculture, have few restrictions and as yet are not being targeted as much by governments.

Von Weizacker (1997) argues that eco-efficiency leads to sustainable consumption and theorises that greater eco-efficiency could allow a doubling of consumption with environmental impacts being halved, that is a factor 4 improvement. Hawken, Lovins and Lovins (1999) supports this factor 4 concept, and present strategies for an economy where factor 4

improvements in the use of resources and energy are possible with little or no decline in living standards. However a factor 4 reduction may not be enough, Schmidt-Bleek (1999, p5), in a paper delivered at the United Nations' Zero Emissions Forum argues that:

> [i]n the future, western style processes, products, buildings, infrastructures, and services would therefore need to be dematerialised by an average factor of 10 (compared to present conditions) in order to move reliably toward sustainability.

As evidence he claims that:

> 90 % of the biomass harvested as well as more than 90 % of the natural abiotic (non-renewable) materials disturbed by machines in their natural settings are wasted on the way to making products available to the end-user (p 1).

He goes on to suggest that as the world's population increases, and if the trend of people living by themselves continues, and increases, then the factor would have to grow. Ryan (1998) asserts that a factor 4 improvement is achievable today using today's basic environmental design strategies and technologies, but he goes further than Schmidt-Bleek and argues that a factor 20 improvement may be necessary for a sustainable system for the next 30 to 50 years. Clark (2006) adds a salutary note when he warns that environmental gains made through more efficient production processes over the past decade have been offset by increasing populations, changes in consumption patterns, an increasing standard of living, and individual desires to consume more products and services, now being greatly exacerbated by the rapid economic growth in China and India.

3.3 Global products, global problems

3.3.1 Global nature of environmental problems

There are very few environmental problems that respect national boundaries, as numerous writers on global environmental crises point out (Alpin et al, 1996; Elliot, 1998; Mol, 2001; Lowe 2005; Flannery, 2005). Many of the environmental problems associated with the manufacture, use and disposal of products, are global, especially those of pollution and resource depletion. The damage to the environment is occurring to what is commonly referred to as 'public goods', such as waterways, forests, and soil that are shared and jointly consumed by a number of different agents. When this public good is global, such as the air or oceans, it becomes a 'global common good' or part of the 'global commons' (Mikler, 2003).

Mason (2005) identifies four types of transnational environmental risks associated with human activities in one or more nation-states:

1. *Border impact risks* from economic and industrial activities on one or both sides of a border. Where a border is a river, the risks are obvious and river pollution can mean the impacts move well beyond the immediate source area.

2. *Point-source transboundary risks* are where one or more point sources, for example emissions from a chimney stack result in the risk crossing borders to other nation-states. For example sulphur and nitrogen oxides from UK ending up as acid rains in Scandinavian countries. Mason claims accidents like Chernobyl are also an example of this type of risk.

3. *Structure or policy transboundary risks* resulting from state policies or economic structures, and which are less identifiable and more diffuse in their distribution pathways. Decisions to permit genetically modified crops, and nuclear wastes are examples that Mason sites.

4. *Global environmental risks* which are human activities in one country or region that "register their effects in changes to globally functioning bio-geo-chemical systems" (Mason, p7). Greenhouse gas emissions and its affect on the climate system, and depletion of the ozone layer are the most obvious examples.

3.3.2 The global marketplace

The consumer market place is becoming increasingly globalised, matching and exacerbating the global nature of the environmental problems associated with the production and consumption of products. No longer are major manufacturers solely producing products for individual national markets – increasingly they are producing 'global products' - products that will sell in several or many countries. This is especially true of products such as household electrical appliances, motor vehicles and computers (McGrath, 1995; van Deursen, 1995). And to quote McDonough & Braungart (2002):

> every product, whether or not it is designed with environmental health in mind, is produced and used in an interconnected world. This is the fundamental insight of ecology.

According to senior managers from three major car companies (interviewees 10, 11 & 12, 2002, 2003) producing global products means major cost savings for manufacturers with the result that different products in a company's range can be produced in different countries and exported around the world. The global vehicle industry is a good example, and one doesn't have to look

beyond Australia to see examples of global vehicles. Mitsubishi and General Motors Holden both produce models for multiple markets besides Australia, and many vehicles on the Australian market are imported from manufacturing plants in other countries with only minor changes made to comply with local regulations or to sometimes satisfy local tastes. Some vehicles, according to interviewees 10 and 12 (2003) are merely re-badged for local markets. The development of global products may have advantages for the global environment and is discussed again in Chapter 5, in relation to international environmental standards.

However, it is not just that products have become global, of greater potential concern is the global nature of supply chains. The flow of raw materials and components is truly global. The United Nations Environmental Program's (UNEP, 1999) executive director, Klaus Kopfer claims:

> The emergence of global corporations and brands, the convergence of global consumer tastes, the growth of the Internet and the trade-liberalisation programme of the World Trade Organisation (WTO) have all combined to build global markets. These markets are increasingly serviced by global supply chains and by increased outsourcing of manufacturing to the developing world. This has raised concerns about the impacts on the environment and societies of less industrialised countries, reflected in Seattle and other protests against the WTO since 1999. There is growing scrutiny of 'the world behind the product (UNEP, Press release, August 1999)

Because of the global nature of many environmental problems and the global nature of the market place, international co-operation is essential for developing effective policies to tackle some of the world's serious environmental problems, such as global warming, ozone depletion, air pollution, resource depletion and habitat destruction. But, as Koehane and Nye (1989) argue, and as recent negotiations of the Kyoto Protocol and the failure of Australia, until late 2007, and the United States, to sign illustrates, international co-operation is not always easily achieved.

3.4 Product related environmental impacts

This section looks at product life cycles, beginning with a definition of product life cycle, discusses life cycle environmental impacts, then discusses the concept of cradle to cradle or closed loop material systems.

In its Technical Report for draft ISO 14062, a new standard for integrating environmental management aspects into product design and development, the International Standards Association (ISO) states that environmental impacts are largely determined by the material and

energy 'inputs,' and the 'outputs' generated at all stages of a product's life cycle. This is a useful and convenient way to consider environmental impacts of products (ISO, 2001). Hundal (2002) also refers in some detail to the inputs and outputs of products, and suggests that inputs-outputs form a basis for successful life cycle assessment (LCA) procedures.

Material inputs are associated with environmental impacts related to resource use such as resource depletion; environmental degradation; habitat destruction and biodiversity loss; emissions and discharges to air, water and soil; and waste issues. Energy inputs occur at all stages of a product's life cycle: raw material extraction and processing; production; sale and distribution; use; and end-of-life. The source of most energy inputs is fossil fuels and these account for major environmental impacts most of which are global in nature, including pollution of air, water and soil; climate change and land degradation (Simmons, 1991). After fossil fuels the next prominent fuel source is nuclear. There are major environmental impacts associated with nuclear energy, namely those associated with radiation discharge and radioactive wastes and indirectly through increased risk of nuclear weapons proliferation.

Outputs during product life cycles include the product itself; by-products and wastes; and emissions and discharges into the air, water and soil. The environmental impacts of these outputs include air, water and soil pollution; accumulation of toxic substances; acidification; climate change; ozone depletion; noise pollution; radiation.

3.4.1 Product life cycle

According to Heiskanen (1999), products can be thought of as an "embodiment of the harm caused by production, consumption and disposal" and as mentioned earlier, few of these environmental impacts associated with products actually respect national borders. Environmental impacts occur over the entire physical life cycle of products, from resource extraction to production, through sale, distribution and use, and finally to end-of-life. De Leeuw (2005, p8), says that "everything is linked, from the product's cradle until its grave, from the water issue to the waste issue". While Tukker & Jansen (2006), referred to earlier, argues that environmental effects result directly from the use phase of products, and indirectly, as a result of effects from the system producing the products, and from waste management.

This chapter and later chapters refer to 'product life cycles', therefore it is important to define the term here. While many writers refer to the physical stages in a product life cycle, few writers actually define it as such. A report prepared in the United States called the Electronics Industry Environmental Roadmap (www.ce.cmu.edu/GreenDesign/comprec/ eier94roadmap1.pdf) has

one of the few definitions: it is "a sequence of transformations in material and energy that includes extraction and processing of materials, product manufacture and assembly, distribution, use and waste disposal or recovery". McDonough and Braungart (2002) talk about products being designed in a linear, one-way cradle-to-grave mode, meaning materials are extracted, products produced, and sold, and which eventually are disposed in a 'grave'. Increasingly the term 'cradle to grave' is being replaced with 'cradle to cradle' to reflect the concept of a 'closed loop' (Elkington, 1997; Burall, 1991; McDonough and Braungart, 2002).

Heiskanen (2000, p50) describes the product life cycle as the "environmental burden of a product (or process, or activity) [that] accrues through participation in the flow of materials and energy in its physical life cycle". Hundal (2002) says the life cycle of a product includes not only the product but also all activities associated with it, such as the manufacturing process, suppliers and distribution and "encompasses extraction and processing of raw materials; manufacturing; transportation; use, reuse, maintenance; recycling; and final disposal". Ciambrone's (1997) differs only in that he substitutes reuse/disposal for disposal, while Lewis and Gertsakis (2001, p 41) prefer to use 're-use, remanufacture, recycling, treatment and disposal' as opposed to merely 'disposal'. The stages of a product life-cycle can be grouped into five broad headings: 'pre-production'; 'production'; 'sale'; 'use'; 'end-of-life', which are used during this discussion – see Fig 3.1.

Heiskanen (2000) also discusses the importance of life cycle thinking, and argues that it justifies the application of policies for the reduction or elimination of environmental risks of products and production processes because it is the link between economic activities and environmental problems. It is, she argues, the strong justification for environmental authorities to 'meddle' with products and production, which are the heart of the economy, rather than the more traditional and conventional concerns of pollution, emissions and wastes. Life cycle thinking is a key concept in this thesis.

3.4.2 Life cycle environmental impacts

Every product has negative environmental impacts at some stage during its lifecycle; most have impacts at all stages (Heiskanen, 1999). Some impacts are obscure and are not obvious to consumers. A simple example is to look at the impacts of a packet of crisps. In an article in the Sydney Morning Herald about an exhibition at the Sydney Powerhouse Museum, Kettle chips provided details on the "remarkably complicated and environmentally costly journey required to turn a spud into a brightly packaged product" (SMH, 2001).

The environmental impacts of a packet of potato crisps are associated with the various stages in growing, transporting, washing and processing of 11,000 tonnes of potatoes annually; growing, transporting and processing of sunflower seeds to produce nearly 2 million kilograms of sunflower oil; energy use at the processing plant where the potatoes are sliced and fried; the collection and drying of salt and transport to the plant; as well as the production of aluminium foil and polypropylene for the packets; and the production of inks for printing the pack and the actual printing process (SMH, 2001) - and this analysis does not look at environmental impacts association with disposal of the crisp's pack.

However, as numerous writers attest (e.g. Lewis & Gertsakis, 2001; Tukker & Jansen, 2006) and LCA studies confirm, there is no rule on what stage of a product's life cycle is responsible for most environmental impacts, however for many products that require the input of energy during their use stage, such as EEPs with the exception of computers (see below), environmental impacts; especially climate impacts, are greater during the use stage than in other stages. However, recent studies, which will be discussed in detail below, are showing that as more and more semi conductor technology is used in particularly electrical products, but also cars, the balance between impacts during use versus production stage is changing.

A study of vehicles, found that between five to ten times more energy is consumed during vehicle use than during its manufacture (MacLean and Lave, 1998). The researchers used LCA to trace the environmental impacts of a car purchase not just through the actual manufacture of the vehicle, but also through its various suppliers - raw materials, parts, chemicals – and through the use stage. They also analysed services associated with the sale and operation of vehicles, such as insurance and vehicle servicing. They chose not to analyse end of life environmental impacts (the recycling and disposal stage) because they agreed with earlier studies indicating that the environmental impacts of manufacture and use greatly outweighed those of disposal. The key finding was that in terms of energy use, 90% is associated with the use stage (see Fig 3.2).

Fig 3.1 Stages in the life cycle of products (linear)

Pre-production
Extraction, including:
- exploration
- recovery - mining, drilling, logging
- transport

Refining/processing, including
- mechanical processes
- chemical processes
- energy and water use
- additional materials
- transport

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Production (or manufacture) including:
- Components manufacture
- Supply chain
- Assembly
- Packaging

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Sale, including:
- Distribution
- Transport to sale point
- Wholesaling/retailing

↓

Use

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End-of-life
- Disposal
- Incineration
- Reuse
- Remanufacture
- Recycling

MacLean and Lave also analysed toxic release during manufacture and use, which tend to correlate more closely to direct human health impacts, rather than environmental impacts, and found that toxic releases was split fairly evenly between manufacture and use, in contrast to energy, which is dominated by the use stage (see Figure 3.3).

Another recent study, this time of the energy intensity of computer tape drives (Matthews, 2002), also found that much more energy is consumed during the use phase than manufacture, and the author noted that this is pretty characteristic for all electrical and electronic appliances and suggests that if firms are seeking to minimize energy use of these products, they should focus on the energy consumption of the product in the use phase, rather than the energy needed to manufacture it. In addition Mathews argues that small design changes leading to increased energy efficiency during product use can have significant benefits over the whole of the life cycle
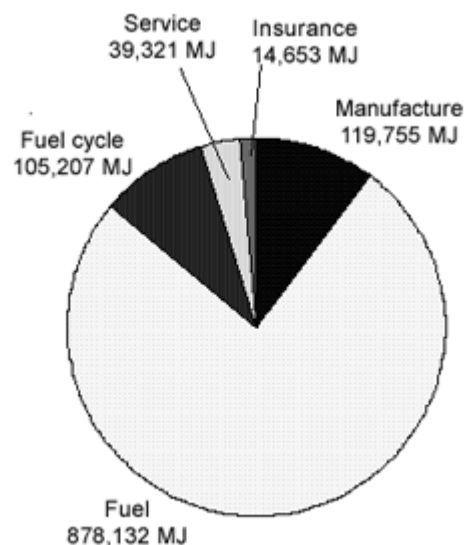
Fig 3.2 - Energy consumed over the lifetime of a typical car. The total amount of energy represented by the pie is 1.2 million MJ. [Source MacLean and Lave, 1998]
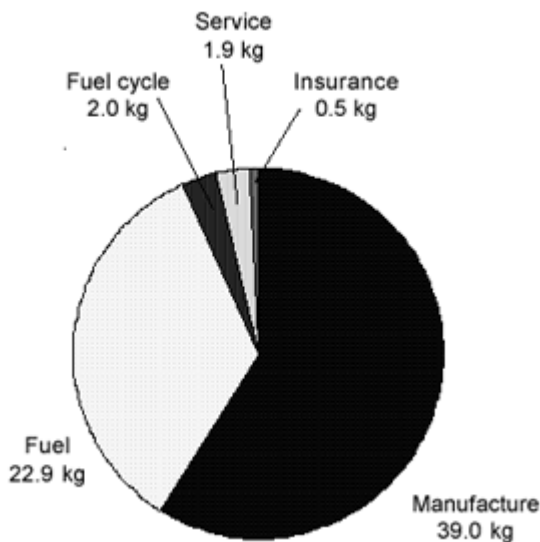
Figure 3.3 - Toxic releases over the lifetime of a typical car. The total releases represented by the pie are 66.3 kg. [Source MacLean and Lave, 1998]

Recent LCA studies of the production and use of semi conductors and of whole desktop computer systems, found that the energy footprint of a computer is far more significant than its physical size would suggest (Williams (2004). And importantly, in comparing energy consumption during the production and use stages of a typical desktop computer (purchased in 2000 equipped with Pentium III 733 MHz processor, 128 MB DRAM and 30 GB hard drive) Williams that found energy used in production (6400 MJ) was far greater than in the use stage (1500 MJ). The situation with respect to computers and other products utilising semi-conductor technology appears to contrast with life cycle impacts of many other manufactured products. Williams et al (2002) findings regarding the environmental impacts of the manufacture of semi conductors is discussed in detail in section 3.5.2.4 below.

3.4.3 Closing the loop

Closing-the-loop or cradle-to-cradle (Fig 3.2) thinking is beginning to gain more prominence as academics explore the concept, governments promote its potential and producers ponder the possibilities. McDonough and Braungart (2002), Hawken (1994) and Schmidt-Bleek (1999) refer to the statistic that more than 90% of the materials extracted to make products in the United States become wastes almost immediately - a serious indictment of the West's over consumption of resources and indicative of the desperate need for policies or measures of

constraint. This is the situation that the United Nations, as referred to earlier, has identified and condemned (UNDP, 1998). McDonough & Braungart (2002); Hawken (1994); Burall (1996); and Schmidt-Bleek (1999) among other writers proffer a future based on resource restraint, where materials move in a closed-loop, with little if any being lost from the loop – mirroring the natural cycles of the biosphere.

Fig 3.4 'Closed loop' or 'Cradle-to-cradle'
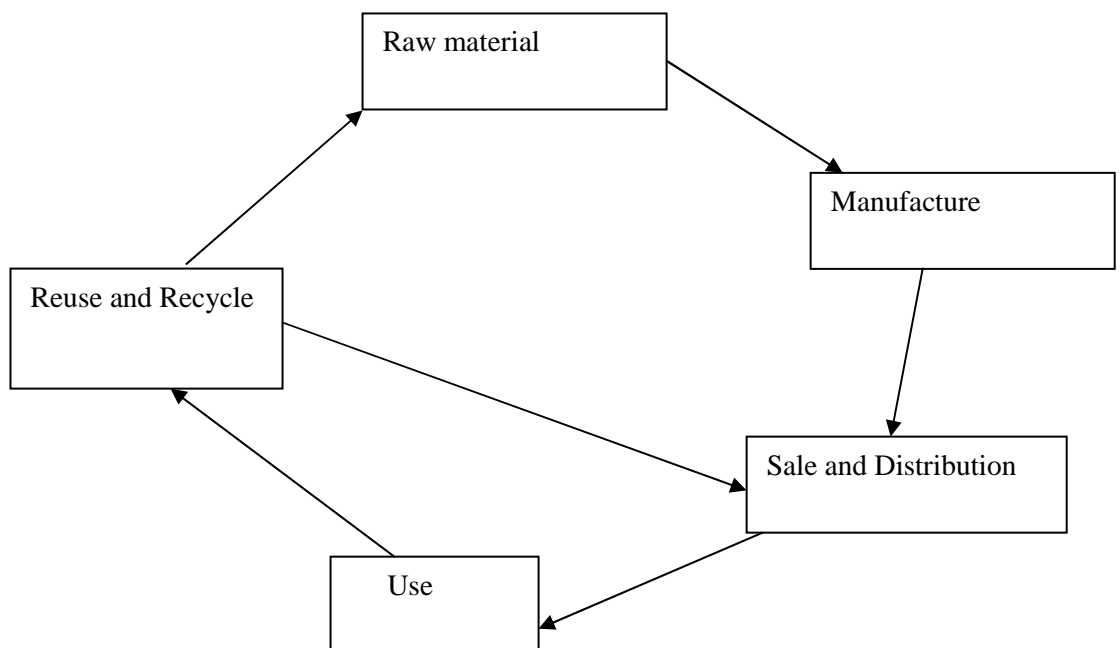
Burall (1996, p 10, 11).) sums this up when he asserts that what is needed is a new production paradigm - one that is truly sustainable, a 'closed-loop' system that makes efficient use of resources and energy, with a minimum being lost from the system in waste and pollution, and most importantly encourages CER. He refers to the ideas such as eco-efficiency and sustainable development and says they all are about promoting a switch from "a linear system of resource use, where materials and energy are used then cast aside", to a circular system that aims to minimise the use of energy and resources without "sacrificing the well-being of people".

3.5 Electrical and Electronic Products (EEPs)

While this thesis discusses corporate environmental responsibility in companies in a number of sectors, and the key research refers to major companies across all sectors, the electrical and electronic products (EEPs) sector is targeted here as a case study. Also because the Australian Government and the Australian EEP industry have been and are currently in the process of developing separate product stewardship strategies for electrical and electronic products in Australia, focus is given to the whitegoods sector as a sub-sector of EEPs.

A criticism here that will be discussed in Chapter 5, is that the Australian government's draft strategy concentrates on end-of-pipe solutions to an end-of-pipe problem, namely waste, rather than taking a 'whole-of-life-cycle' approach to both the problem and the solutions. The only other truly national product policy in Australia, at the time of writing in late 2007, is the National Packaging Covenant (NPC), a voluntary agreement between stakeholders involved in packaging – manufacturers, retailers, and local government. The NPC will be discussed in greater detail in Chapter 5. It must also be pointed out that the Australian national government changed in November 2007, and there are expectations that the new Government may be more proactive in addressing environmental problems, especially through legislation.

EEPs include all products that need electricity to work including whitegoods (or major household appliances); home entertainment products such as TVs, VCRs, Hi Fis and DVDs; computers and telecommunications equipment; small appliances such as power tools, hair driers and toys; and lighting and metering equipment (EA, 2001). Whitegoods, or major household appliances as they are also termed, include refrigerators, washing machines, stoves or cookers, freezers, dishwashers, clothes driers, hot water heaters, and microwave ovens.

The EEP industry is important because it is fundamentally a global industry that is dominated by MNCs, and as such this means that national governments are dealing with problems created by a truly global industry. The whitegoods industry in Australia exemplifies this global/MNC-dominated sector, which I will discuss in greater detail later in his chapter. Research conducted into the nature of the Australian whitegoods market and industry, shows that over 50% of all whitegoods sold in the Australian market are imported (EA, 2001). Few of these are specifically manufactured for the Australian market, but are global products sold in many countries. While there are opportunities for national products or niche marketing of whitegood products, to cater for people's differing tastes and lifestyles, there is an increasing use of common inner components if not always the outer casing.

Electrolux, the largest manufacturer of whitegoods in Australia (and the world), and market leader, produces a range of 'Australian models', under brand names familiar to Australian consumers: Simpson, Kelvinator, Westinghouse, Chef, Hoover and Dishlex. These brand names have become the property of Electrolux through a process of concentration of ownership (see discussion below). Electrolux also imports 'Electrolux' branded whitegoods models from its European plants, mainly for the top end of the market (www.electrolux.com.au).

The discussion that follows focuses on the whitegoods industry in Australia, detailing the major developments and drivers in that sector, which is important as it illustrates the complexity of product sectors and therefore the difficulties for governments in developing policies to minimise environmental impacts especially through encouragement of greater corporate environmental responsibility. The discussion then goes on to look in some detail at the life cycle environmental impacts of whitegoods products.

3.5.1 The Australian whitegoods industry

The whitegoods industry is a manufacturing sector that has undergone major changes in the past few decades. It and the changes that have occurred are analysed in some detail here, especially the rapid concentration of ownership and movement of production offshore, even before globalisation, because it illustrates why command and control policies are less effective, and hence why there is a need for government policies to encourage greater CER discussed in detail in Chapter 6, and which may be more effective in this changed manufacturing sector and which is typical of trends in production around the world.

3.5.1.1 Major drivers of change within the Australian whitegoods industry

3.5.1.1.1 Economic deregulation

One of the key drivers of change within the Australian whitegoods industry was economic deregulation (Lambert, Gillan & Fitgerald, 2005), a process that began in the 1970s and involved deliberate government measures designed to open the Australia economy to international competition. Although deregulation began in the mid-1970s, substantial reforms didn't really happen until the mid-1980s. The Australian whitegoods industry, like the rest of the Australian manufacturing industry, was heavily regulated until well into the 1980s. According to the Productivity Commission (PC, 1998), market prices were heavily influenced

by import barriers, the centralized labour system (wages and conditions), and the lack of consistency in product approval requirements between States and between trading partners.

3.5.2.1.2 Trade Liberalisation/Globalisation

Trade reform has had a major impact on the Australian whitegoods industry and its markets, by greatly increasing competition and placing cost and price restraints on manufacturers. It has forced restructuring within the industry and encouraged concentration of ownership (PC, 1998).

Until the 1970s the Australian whitegoods industry was protected by high levels of tariffs. The first tariff reductions began in 1973, with a 25% reduction across the board. This resulted in a substantial increase in competition, forcing the Government to introduce tariff quotas. The quotas were removed in 1978 and replaced by a single 45% tariff, to be reduced to 30% over 4 years, giving the industry time to restructure. In 1988 a process of phased tariff reductions began with tariffs being reduced to 15% by 1991. This was followed by a further phasing of rates down to 5% by 1996 - See Table 3.2.

Further trade liberalization occurred through the 1990s with the Australian Government being a key proponent of free trade and a key supporter of the General Agreement on Tariffs and Trade (GATT). In 1995 it passed legislation giving effect to the free trade provisions endorsed at the WTO Uruguay Round. Among others, the key outcomes of the Round that affected manufacturing were: around a one third reduction in most tariffs on industrial goods, with much deeper cuts in some sectors; and measures to limit adverse trade effects and provide more effective international rules on subsidies, anti dumping and countervailing rules, safeguards and standards (WTO, 1994).

3.5.1.1.3 Concentration of ownership

Increasing globalisation is reflected in the fact that whitegoods manufacturers are becoming concentrated into a small number of multinational corporations (MNCs). This concentration of manufacturers has been occurring over the last four or five decades in Australia, with the number falling from 40 firms in 1954, to 20 in 1971, to 15 in 1978 (PC, 1998). Further acquisitions and mergers occurred through the 1980s and 1990s with the number of manufacturers falling from 15 to just 3. It culminated with Email acquiring Southcorp in 1999, and the European based MNC Electrolux acquiring Email Whitegoods in 2000 - see Tables 3.1, 3.2 and 3.3 below.

There are now just two main whitegoods manufacturers in Australia, both of which are foreign owned companies, Electrolux, and New Zealand based Fisher and Paykel, which manufactures refrigerators and washers in Brisbane (EA, 2001). There is one other player - St George Appliances, a small Australian company. It manufactures St George cookers and Kleenmaid washers, dryers and dishwashers.

Concentration of ownership has been a major trend worldwide in the whitegoods sector - the five largest corporations now control 30 percent of the market with a combined turnover of 45 billion US dollars in domestic appliance revenues in 2002 (Euromonitor, 2003). Lambert & Gillan (2005) point out that the present status in the industry is that the two leading producers, Electrolux and Whirlpool now dominant the global whitegoods sector. They are currently about equal in global size, but Whirlpool is the stronger in America, and Electrolux is more dominant in Europe and Australia. Both achieved this pre-eminent position, according to Lambert & Gillan, through an aggressive acquisition and merger strategy, and through lean production restructuring and an engagement with cheap labour zones often in Developing countries, where more relaxed environmental regulations, and less efficient production processes can mean more environmental impacts during manufacture of the products. Environmental regulation in Developing countries is discussed further in Chapter 4.

Table 3.1   Company sales share of market, 1980-1981
[Source Productivity Commission, 1998]

Major supplier	Fridges %	Washers %	Driers %	Electric stoves %
Simpson	14	57	69	23
Email	51	15	14	25
Hoover	-	28	25	-
Philips	13	-	-	10
Rank-GE	21	-	-	-
Vulcan	-	-	-	14
Other	-	-	-	13
Total	100	100	100	100

Table 3.2   Company share of market, 1994

[Source Productivity Commission, 1998]

Appliance	Email	Southcorp	Fisher & Paykel
Fridges	55	9	16
Washers	30	29	14
Dryers	39	36	20
Air conditioners	38	15	-
Electric stoves	45	42	-
Gas stoves	28	68	-

Table 3.3 Units supplied to Australian market in 2000, showing percentage imported

[Source: Australian Electrical and Electronics Manufacturing Association and the Australian Bureau of Statistics]

Product	Total supplied	Imported	% imported
Washing machines	568,216	293,183	51.5
Refrigerators	661,912	395,275	59.7
Dishwashers	248,507	132,592	53.3
Clothes dryers	276,556	92,508	33.4
Deep freezers	112,603	15,697	13.9

3.5.1.1.4 Imports

As the whitegoods market place has become increasingly centralised into the hands of a few MNCs, the number of whitegoods imported to Australia has increased. Data provided by Environment Australia, (EA, 2001) showed that over 50% of whitegoods sold in Australia are imported. See Table 3.5. A report to the Productivity Commission (PC, 1998) suggests this is likely to remain constant, but the report was written before Electrolux acquired Email. The subsequent EA report Major Appliances Materials Project (2001), suggests that imports will continue to increase. The implications for national governments, including Australia, of the such enormous increases in products being imported, is that national legislation may not affect

imported goods and therefore it is more difficult for national governments to act alone to reduce environmental impacts of products.

Table 3.4 Changes in tariff rates, 1973 – 1996

[Source Productivity Commission, 1998]

Period	Refrigerators % 200- 450litres	Freezers % <450litres	Washers %	Driers %
Before 7/73	37.5	37.5	55	45
General 25% tariff cut 9/73	28	28	41	34
From 4/74	25	25	35	25
From 4/75	25	25	30	25
Tariff equiv. of quotas 12/75	47.5		45	45
From 6/78	45	45	45	35
From 6/80	40	40	40	30
From 6/82	35	35	35	30
From 6/84	30	30	30	30
From 7/87				
From 7/87	23	23	23	23
From 7/89	21	21	21	21
From 7/90	19	19	19	19
From 7/91	17	17	17	17
From 7/92	15	15	15	15
From 7/93	12	12	12	12
From 7/94	10	10	10	10
From 7/95	8	8	8	8
From 7/96	5	5	5	5

This massive increase in imports is not confined to whitegoods, but as Dark & Hawkins (2005) discuss there has been rapid increase in the percentage of imported products in the Australian marketplace in every product sector including food. The volume of products produced overseas has important implications for policies and strategies to address environmental impacts of products, not just because it makes it harder for governments to regulate and monitor compliance with national environmental regulations, but also, according to an important study carried out by Peters and Hertwick (2006), there is often more embodied environmental impacts in imported products than locally produced ones. There is not just the energy usage and potential green house impacts associated with transportation of imported products, but the research found that there is a disproportionately large amount of pollution embodied in imports from developing countries, due to less efficient and less regulated production processes in many such countries. They also found that due to the often less efficient manufacturing process in developing countries, there is more material used and wasted in the production of products. The study found that this is particularly true for food, business services, clothing, chemicals, and most manufactured products.

3.5.1.1.5 Technical and safety regulation

The Australian whitegoods industry is subject to a range of Federal and State imposed safety, product and environmental regulations. Until the late 1980s these regulations differed between States, and Australian standards did not align with international standards (PC, 1998).

(a) Safety

All States have safety legislations covering electrical goods, for example in NSW there is the Electrical Safety Act, 1945 and the Electrical (Equipment Safety) Regulation Act, 1994. Under these State acts the majority of household appliances, including all whitegoods except air conditioners, are classed as 'declared' articles, which means that before sale they must have a Certificate of Approval based upon safety testing standards (PC, 1998).

(b) Regulatory Compliance Mark

In 1996, all States, industry and importers agreed to a common Regulatory Compliance Mark (RCM) similar to the European CE mark. The voluntary RCM is based on mandatory essential

safety requirements. The system replaces the need for declared and non-declared electrical goods, and reduces the variety of markings used to show regulatory compliance.

Safety regulators will accept the RCM as one of several options to indicate electrical safety compliance (others include certificate numbers and manufacturer codes), however it is the only mark commonly acceptable to more than one regulator. The RCM is a registered trademark, owned by Australian and New Zealand regulators. The conditions for its use by suppliers are set out in a Standard, AS/NZS4417, that is "the supplier must ensure that the product complies with applicable regulations, by the means required by the regulator" (ComTest, 2001). The supplier of a product marked with the RCM, that does not meet regulatory requirements would be subject to penalties under the relevant State act.

This section emphasised some of the trends that have influenced the development of the whitegoods industry in Australia and internationally. As discussed the greater concentration of ownership and global reach of corporations makes it very difficult for national governments to regulate corporate activities and ensure compliance. It makes co-operation between governments necessary. On the other hand, it can make compliance easier across a sector as governments only need to get agreements from a few giant multi-national corporations.

3.6 Environmental Impacts of Whitegoods

Product environmental impacts as discussed previously are often global. Although it could be argued that some issues associated with disposal of waste materials are mainly local problems, many impacts, especially pollution and resource depletion, can become global problems. Pollution from wastes, especially atmospheric and water pollution can spread well beyond the local area because air and running water do not respect national borders (Papanek, 1995; Burall, 1996; Alpin et al, 1996; Elliot, 1998; Mol, 2001, Dunphy et al, 2003). Habitat loss and the resulting loss of bio-diversity, also have clear global impacts, especially the worldwide destruction of rainforests and old growth forests - the IPCC (2007) and UNEP (2000, 2002) have attributed between 15 - 20% of greenhouse emissions to land clearing.

What follows is a detailed discussion of the life cycle environmental impacts of whitegoods, looking at the environmental impacts at the five main stages in the linear life cycle of a whitegood product: Pre-production; Production; Sale and distribution; Use; End of life (see Fig 3.1). However, as discussed earlier in this chapter, LCA research illustrates that there is no hard and fast rule on what stage of a product's life cycle is responsible for most environmental impacts. For many whitegoods it is in the use stage, as discussed in 3.5.2.4 below, when energy

inputs to operate may run for 20 years or more. But, as is also discussed below and noted earlier, as more and more whitegoods are being manufactured with sophisticated computer controls using semi conductors, the balance between energy use during operation and the embodied energy in production, is changing. With increased requirements for companies to recycle EEP waste, their may also be a shift of energy balance toward the end of life of products.

It is also difficult to accurately classify environmental impacts of a specific product or class of products, such as whitegoods, as the impacts are mostly interrelated, for example, an impact that may be categorised as a waste issue could also be categorized as a pollution issue or a resource use issue. However, as in the general discussion above, this thesis will discuss environmental impacts of whitegoods where appropriate, in terms of either resource depletion; energy use; pollution; waste; or land degradation and ecosystem disturbance. The discussion on resource depletion issues will be limited as it has been covered earlier in this chapter and in Chapter 1.

Lewis and Gertsakis (2001) identify the key global environmental threats as global warming, ozone depletion, resource depletion, biodiversity loss, land degradation, air pollution, water pollution, acidification and solid waste, and relates each of these impacts to a typical whitegood. Table 3.5 summarises the links between whitegoods and these global problems.

3.6.1 Pre-production

In the case of whitegoods, pre-production involves resource extraction and refining/processing, including recovery of raw materials for and the production of, synthetic materials. The three main raw materials used in whitegoods (see Table 3.6 and 3.7 below) are firstly metals, used in outer casings, inner workings such as washer bowls, and electrical components. Plastics, which are increasingly replacing metals, even in casings, are also used in packaging. Glass is the third of the main materials, and is used in washer, drier, cooker and micro-wave windows, shelves, cook tops and used to make fibre glass, which is used, along with foam, as insulation in many whitegoods. As well as these materials, timber must be included as a major raw material, because it is used in the production of packaging. The key environmental impacts from resource extraction and refining are resource depletion, land degradation/ecosystem disturbance, energy use and pollution.

Table 3.5 Global environmental impacts of whitegoods

(adapted from Lewis and Gertsakis, 2001)

Global impacts	Link to whitegoods
Global warming	Production of electricity to manufacture materials • Production of electricity to run the appliance • Clearing of forest (carbon sinks) to make cardboard packaging
Ozone depletion	• HCFCs used a refrigerants • Blowing agent used to make foam insulation
Resource depletion	• Iron ore • Other metals eg copper • Oil • Gas • Coal • Timber
Biodiversity loss	• Forest clearing for cardboard packaging
Land degradation	• Mining of iron ore and other metal ores
Air pollution	• Emissions from refining of ores eg iron ore to steel • Emissions form manufacture of plastics • Emissions from electricity production
Water pollution	• Waste from electricity production • Waste (tailings and overburden) from mines • Hazardous discharge from refining of metals • Discharge from making plastics • Toxic discharge from waste appliances in landfill
Solid waste	• Waste from manufacturing • Waste from packaging • Waste from mining/refining – eg slag • Waste from electricity production – ash • Disposal of appliance at end-of-life
Acidification	• Burning of fossil fuels for electricity production

Table 3.6 Composition of a typical refrigerator (average capacity 380-400 litres)
(Source: Dummett 2003, p10)

Materials	Composition (kg)
mild steel & zincanneal	70
copper	2
aluminium	5
plastics (ABS, polystyrene, HIPS)	10
compressor	10
motor	2
fibreglass	5
foam	5
lead, PCBs & other potentially hazardous materials	no information available
CFCs/HCFCs/HFCs in cooling circuit	0.1
CFCs/HCFCs/HFCs in insulation material	0.3
other materials	10
Total	119

Table 3.7 Composition of a typical washer (Average capacity 6 kg)
(Dummett, 2003)

Materials	Composition (kg)
stainless steel	5
zincanneal	10
aluminium	1
mixed metals	10
galvabond	3
plastics (ABS, polystyrene, HIPS)	11
motor	4
concrete	20
lead, PCBs & other potentially hazardous materials	no information available
other materials	2
Total	65

3.6.1.1 Metals

In the production of whitegoods some metals are consumed in large quantities such as iron, copper and aluminium, while others are used in trace amounts such as metal hardeners like titanium and wolfram. The major environmental issues surrounding metal recovery, and refining are land degradation and ecosystem disruption, pollution and energy use.

In terms of land degradation and ecosystem disruption, mining is one of the planet's most destructive productive activities. According to Fishbein et al (2000) the mining industry now moves more soil and rock each year - they estimate 28 billion tons - than all the erosive forces of the world's river systems. Simmons (1991) claims that 0.2% of the planet's land surface is moved each year during mining. He argues that 60% of the disturbance is due to extraction and the rest to disposal of mine wastes and subsidence of land. While land degradation in the immediate area around a mine can be enormous, especially from open-cut operation, the predominant type of mine, the impacts to surrounding areas can be even greater and more long-term. Overburden from open-cut mines can devastate the environment for kilometres around the mine site, and tailings are capable of polluting waterways and seas for hundreds of kilometres.

The Ok Tedi and Freeport mines on the island of New Guinea, are good examples of mines which have and are still having, an enormous impact on the surrounding environment (Fishbein et al, 2000; Murray et al, 2000; Ghazi, 2003; Leith, 2003; www.mpi.org.au).

Fishbein et al (2000) point out that as ore qualities around the world decline, the environmental impacts increase. For example, copper ore grades now are 1%, where 100 years ago they averaged 8%. This means that environmental impacts are many times greater: eight times as much ore needs to be refined to produce the same amount of copper as 100 years ago; mines are bigger and the wastes – overburden and tailings – are now 8 times greater; energy required to refine the copper is greater; and more transportation is required to move the increased quantities of ores, meaning greater fuel use.

Refining of metals, especially smelting processes are responsible for high levels of pollution, for example sulphur, that is a common pollutant from metal smelting and greenhouse gases (Bodsworth, 1994). According to Simmons (1991) a large copper smelter can emit more than 7000 tonnes of sulphur a day. Apart from sulphur plumes impacting seriously on plants and animals in areas surrounding smelting plants, the health impacts for humans can for example, be very serious (Simmons, 1991).

Waste water from refining plants producing metals can contain potentially hazardous metals such as lead, mercury, copper and zinc as well as fluorides, cyanide, and hydrocarbons in the form of oils and greases (Bodsworth, 1994).

The production of metals is a highly energy intensive industry. The production of iron and steel for example, consumed 4.1% of total global energy in 1997 (WRI, 2000). Energy consumption has wide spread and interrelated environmental impacts, including depletion of fossil fuels, the main source of energy used in metal production; ecosystem destruction from mining of fossil fuels; and pollution from generation of energy, including carbon dioxide emissions and subsequent green house impacts. Metals production in Australia accounted for 56% of the industry's 4.8% contribution to Australia's total greenhouse emissions in 2002 (AGO, 2002).

3.6.1.2 Plastics

As mentioned earlier, plastics are rapidly replacing metals in EEPs, and whitegoods are no exception. Even outer casings for whitegoods are increasingly being made from plastics, because, as quoted earlier, plastics are cheaper, lighter, easier to mould and often have other properties that suit the product better than metals (PIA, 1992; Azapagic, Emsley & Hamerton,

2003). The production of plastics can result in the release into the air, waterways, soil and ground waters, of toxic chemicals, many of which are known carcinogens and eco-cumulative poisons, that is they accumulate in food chains.

Emissions and wastes from plastic production vary according to the type pf plastic, due to differing raw materials and production processes (PIA, 1992). Some common toxic emissions include trichloroethane, acetone and benzene from the fossil fuel feed stocks, as well as other emissions during the production processes including sulphur and nitrous oxides, methanol, ethylene oxide, and volatile organic compounds (VOCs), and dilute aqueous caustic solutions (www.ecologycenter.org). As well as the above substances, carbon dioxide and carbon monoxide are released from plants as waste gases are burned in 'flares'. In Australia, the plastics industry contributes about 1.5% of the total carbon dioxide emissions to the atmospheric (AGO, 2002).

PVC or vinyl, the second most widely used plastic in the world, is used as electrical insulation in whitegoods and in packaging, and although there are conflicting views, especially from the plastics industry, PVC is a probable source of contamination by dioxin, categorised as a Class 1 carcinogen by the US EPA (EPA, 1994). Dioxin is also present in PVC and released, along with hydrogen chloride, when PVC is burned in open fires, incinerators or landfill fires (CSIRO, 2001). Hydrogen chloride is an irritant to skin, eyes and respiratory tract and readily dissolves in rain to become hydrochloric acid that is one form of acid rain (http://www.cdc.gov/niosh).

The other, and often more visible and therefore more widely discussed environmental impact of plastics use, especially in electrical and electronics products, is the problem associated with waste plastic at the end of life of products. The most serious environmental impact of plastic waste, especially in human health terms, is the toxic cocktail – mainly hydrogen chloride, heavy metals and dioxins (Stevens, 2002) - released when plastics are incinerated.

3.6.1.3 Glass

Although it does occur naturally, glass has been made by people and used for containers and as a building material for more than 5000 years. The main environmental impacts of glass are land degradation and ecosystem disturbance associated with recovery of its raw materials; the large amounts of energy used in manufacture; and emissions from processing of raw materials and from glass production processes (Lewis and Gertsakis, 2001).

The raw materials used in glass manufacture are sand, soda ash (sodium carbonate), limestone and feldspar. All of these materials are obtained by mining. Sand is mined from beaches, sand dunes and dredged from lakes, rivers and the sea. Limestone and feldspar are recovered from pit or open cut mines. The impacts of mining for metals, discussed in detail earlier, are similar in nature to the environmental issues from mining for other minerals such as limestone and feldspar, with resource depletion, ecosystem destruction and pollution being the dominant categories of impacts. Soda ash is refined from limestone.

Glass manufacture is a highly energy intensive process. In Japan for example, the glass industry accounts for nearly 4.5% of all energy consumed by industry in that country (http://web-japan.org/stat/stats/07IND33.html). As with energy use in other industry sectors, such as metals discussed above, the main environmental impacts from energy use are resource depletion; impacts from mining fossil fuels; and pollution. Due mainly to the massive energy use, emissions of greenhouse gases is also a major impact. Australia Greenhouse Office (AGO, 2002) figures show that production of non-metallic minerals (mainly limestone) contributes 19.6% of total industry greenhouse emissions in Australia, and the chemical industry (mainly soda ash) contributes 14.2%.

The main gaseous pollutants from glass production are nitrogen oxides (NOx) released into the atmosphere. NOx are a major contributor to acid rain production.

3.6.1.4 Timber

Although at first one would think little or no timber is used in electrical and electronic products, such as whitegoods, the issue here is that timber is the raw material used to produce paper and cardboard, the main materials used for producing packaging. Globally, most of the fibre used to make paper comes from timber, and mainly timber obtained from virgin forests rather than plantation forest. Hawken et al (1999) point out that although timber use is currently split approximately equally for lumber and paper products, paper use is increasing faster than lumber. Currently 62 percent of all paper produced in Australia is used in the manufacture of packaging according to Australian Bureau of Agricultural and Resource Economics (ABARE) data (http://www.abareconomics.com), and 36% of all packaging is made from card or paper (Packaging Council of Australia, http://www.packcoun.com.au).

Environmental impacts from timber recovery include habitat destruction and biodiversity loss and a major contributor to the greenhouse effect due to the reduction in carbon sinks, and the release of CO_2 when waste timber decomposes on forest floors and when the timber, or

packaging material, decomposes in landfill or is incinerated (Selke, 1994). There are also waste issues, which will be discussed in the section on packaging below.

3.6.2 Manufacture

The major environmental impacts during the actual manufacture of whitegoods, are resource depletion; pollution of air and water; and energy and water use. A convenient way to consider environmental impacts from manufacturing is to consider them from the point of view of impacts associated with 'inputs' and those associated with 'outputs' (see section 3.4.2). These inputs and outputs are summarised in Figure 3.3.

Figure 3.5 Summary of inputs and outputs during manufacturing of whitegoods
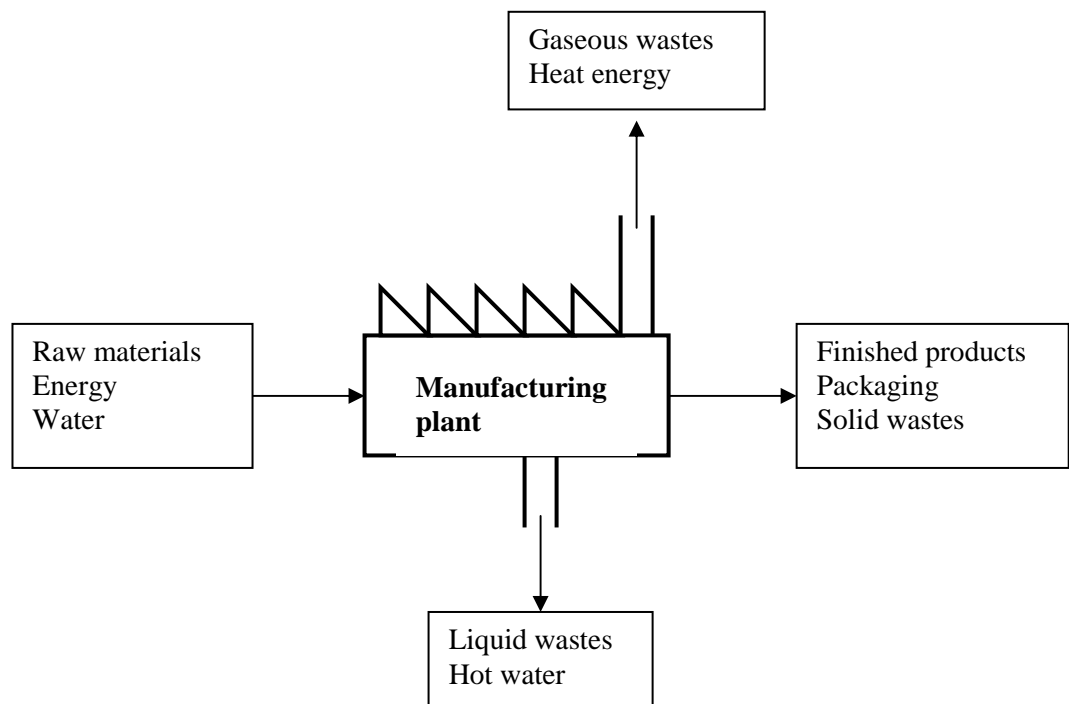
Most of the environmental impacts directly attributable to the production process are those associated with the 'outputs' side of the process. These impacts include pollution of the atmosphere, waterways, ground water and soils; heat emitted into the air and waterways; and solid wastes. A 2004 report into the EEP sector blames inadequate waste treatment facilities for most pollution and says that this results in "waste from production leaking into the surrounding environment, leading to groundwater and air pollution, soil contamination, hazardous air emissions and disruption and/or damage to biodiversity" (ISIS, 2004, p 22). The main impacts associated with 'inputs' are resource depletion; energy and water use; and pollution from transport involved in carrying raw materials to the plant.

In any analysis of impacts during manufacture it is crucial to consider the product's supply chain. A senior manager at EcoRecycle Victoria told me (personal interview, 2003) that in the supply chain "you look at what is being built, the design issues – that sort of broader engagement. And I think that engagement with the whole supply chain is where you start to think about this manufacturing process being really sustainable". Increasingly, products such as whitegoods are 'assembled' from numerous components that may be made at different plants belonging to the same company, or increasingly components are made by completely different companies, that is, the supply chain may involve several different companies. Often, in the global market place we now inhabit, components will be imported to the assembly plants (Meinhardt, 2001). This means that for a whitegood, environmental impacts must be considered at multiple plants in multiple countries where components are manufactured, and with respect to the transport and logistic systems utilised (see 3.6.3 for more discussion on transport issues).

An important area of environmental concern during the production stage of all products, not just whitegoods, is the packaging component of solid waste output. It is this issue that dominates discussions on product stewardship for whitegoods. Lewis and Gertsakis (2001 p110) claim that packaging has "probably received more attention in the environmental debate than any other product". Packaging is the last step in the production process, and is designed to protect the product during distribution, and also to promote it during sale. Unfortunately, as Lewis and Gertsakis (2001) point out, most packaging is designed to be used once. Herein lies the major environmental impact: packaging, certainly as it is currently utilised, is highly wasteful of resources and energy, and is unsustainable in the long term (Lewis and Gertsakis, 2001).

The reason packaging is a high level environmental concern is due to the fact that packaging is highly visible in the waste stream - studies show it consistently makes up half of the household waste stream by volume and 25 % by weight (DEH, http://www.deh.gov.au/soe/2001). Packaging also makes up a very large proportion of the commercial and industrial (C&I) waste stream. The C&I contribution to the total waste streams varies greatly across Australia. In South

Australia it accounts for approximately 18% (DEH, SA) while in Tasmania it accounts for nearly 50% (DFIWE), and averages 26% Nationally (DEH) – all these percentage figures are by weight, they would be much higher if the percentages were by volume, as packaging usually takes up a large volume but has relatively low weight.

As was discussed earlier, a large percentage of packaging is made from paper, therefore there is a direct contribution to the greenhouse effect, due to forest clearing for timber used as the raw material to make paper – that is the removal of carbon sinks and the release of CO_2 at end of life. There is another way that paper-based packaging contributes to the greenhouse effect, that is, through the release of methane as it decomposes in landfill (Selke, 1994; Lewis and Gertsakis, 2001; AGO, 2003).

There are also serious environmental problems relating to packaging materials, associated with the release of toxic substances into the environment. These problems arise during the refining/processing of raw materials, during the production processes and due to liquids that leach from packaging materials in landfill – in particular see discussion on plastics above.

There are many strategies available to producers to minimise and even eliminate the environmental impacts of packaging. These include light-weight packaging, use of recyclable and recycled materials, and avoidance of potentially toxic packaging materials such as PVC or packaging that contains other toxic substances.

There are other environmental impacts associated with the manufacturing plants, which are rarely if ever discussed, namely the actual buildings; the siting of buildings; and the impacts associated with utilities such as roads and drainage. Impacts associated with manufacturing plant buildings relate to the materials used in construction, including resource depletion, pollution and energy and water use, as well as impacts associated with klmaintenance, upgrading and renovation. Thee siting of buildings impacts directly on the physical environment and can have ecosystem impacts, especially when built in underdeveloped areas, as well as affecting energy use and therefore greenhouse emissions.

3.6.3 Sale and distribution

This section will by necessity be brief, not because there are few environmental problems at the distribution and sale stage of whitegoods, but because many of the impacts have already been discussed, and also because some impacts are generalised ones associated with urbanisation, the

capitalist economic system, and community lifestyles and aspirations, and therefore beyond the scope of this study.

During sale and distribution of products, it is the environment impacts, such as fossil fuel use, pollution, land clearing and habitat destruction for roads, rail lines and sea ports, and materials recovery for road construction, associated with transportation of products either from manufacture to points of sale, or from point of sale to purchaser location, which are the most important issues here. While I do not intend to discuss these impacts in detail here, they have been covered in general terms in preceding sections in this chapter.

After production, whitegoods need to be transported to the point of sale, or to warehouses for storage prior to sale. Transport, which because of globalisation of market places and production, increasingly means exporting to other countries, can be by road, rail, ship, air, or a combination of these. By far the most serious global environmental impact is the massive contribution of transport to the greenhouse effect as a result of the use of fossil fuels. The other two main types of environmental impacts are other pollution from exhausts of vehicular transport, pollution of aircraft, and oil spills from ships; and land degradation and ecosystem destruction caused by the construction of roads and rail lines, shipping ports and airports.

The highest profile environmental impact from transport is its contribution to the greenhouse effect and global warming, as a result of the emissions of mainly carbon dioxide, from motor vehicles. Currently in Australia the transport sector contributes 14.6% of total emissions of carbon dioxide (AGO, 2002). Motor vehicle emissions also emit many toxic and damaging substances into the atmosphere such as lead, nitrogen oxides (NOx), sulphur dioxide, volatile organics compounds (VOCs), carbon monoxide (also a greenhouse gas), and unburned hydrocarbons. NOx and unburned hydrocarbons combine in the presence of sunlight to produce photochemical smog, a serious air pollution problem confronting most of the world's cities, while VOCs and NOx react in sunlight to form another pollutant, ozone (EPA, Vic, 1994).

3.6.4 Use

The major impacts at use stage are energy and water use. All whitegoods require energy to operate, usually electricity, but sometimes gas. While there are energy conservation issues associated with this use, it is the generation of electricity in fossil fuel power stations, that poses the greatest environmental threat, due mainly to the contributions to atmospheric greenhouse gases, other pollutants emitted during generation, depletion of fossil fuels and recovery impacts.

Studies conducted on life-cycle consumption of energy have shown that for many products more energy is consumed during use of products than during the production stage, this is certainly the case for most whitegoods, as discussed by Gertsakis (1998). However, as mentioned earlier, due to increased semi-conductor use, the degree to which energy consumption at use stage outweighs energy use during manufacture, may be rapidly changing (Williams et al (2004).

Williams et al point out that semi conductors, although small, valuable and used in an increasingly wide variety of applications, have large environmental impacts. Their study found that semi conductor production uses large quantities of energy and water, and perhaps thousands of chemicals, many of which are toxic with potential impacts on soil, air water and health risks for workers. They found that environmental impacts are far greater during production than the use stage; in fact the production of a 2-g memory chip requires 530 times its weight in fossil fuels and chemicals, orders of magnitude higher than the manufacture of cars of whitegoods. Fig 3.4 below summarises the results in terms of energy use at various stages of production of a silicon semi conductor and the use stage.
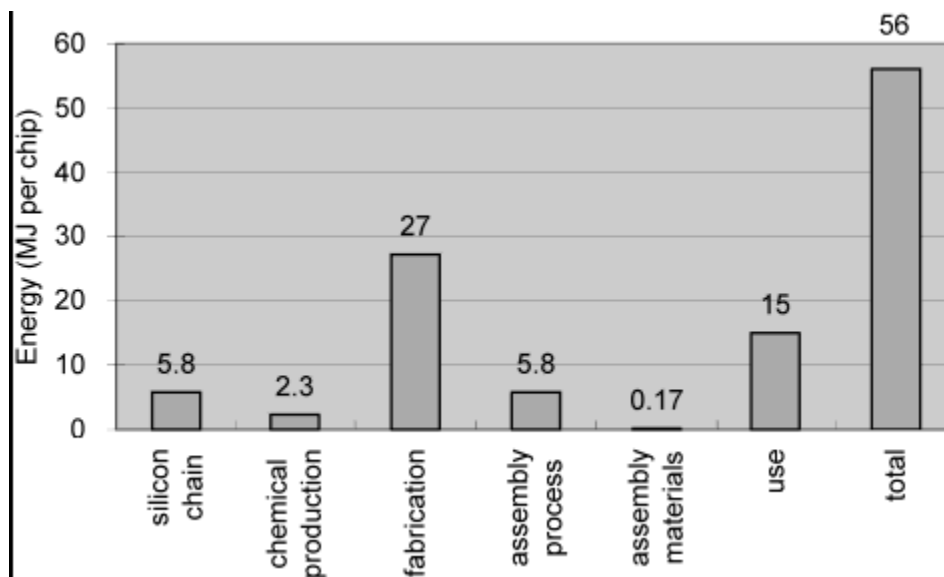
Fig 3.6 Energy consumption in production and use of a 32MB DRAM chip.

[Source: Williams et al, 2004)

<u>3.6.5 End of life</u>

The most obvious and visual environmental impact of end-of-life of products is solid waste, that is, the disposal and/or storage of whole whitegoods or of components or parts of whole units. However, there are two other related end-of-life issues - pollution from the waste materials and resource depletion, both of which have been covered in more detail in the previous sections on 'Pollution' and 'Resource depletion'. While the waste issues associated with the actual disposal and/or storage of end-of-life products could be regarded as mostly local problems, the associated pollution and resource depletion issues are certainly not. The disposal of waste material such as plastics from a whitegood, are mostly a local problem, but what of the disposal of a whole refrigerator or a computer? Both contain hazardous materials - older refrigerators contained ozone-depleting coolant gases which eventually leak from disposed refrigerators into the atmosphere, and computers contains heavy metals that can contaminate ground water, which in turn can enter aquifers leading to rivers, thereby potentially crossing borders and entering oceans (Lewis and Gertsakis, 2001).

In fact, many items disposed of in landfill are toxic chemicals or contain potentially toxic substances that can pollute not just the local area, but spread well beyond the local area into the atmosphere or ground and surface waters, and from there into neighbouring countries. Waste from electrical and electronic appliances often contain high levels of toxic substances such as heavy metals (lead and cadmium), arsenic in circuit boards and chlorines and dioxins in plastics and flame-retardants. Many of these toxic substances are known carcinogens. The incineration of waste adds another dimension – the release of potentially harmful pollutant gases, for example greenhouse-causing gases like carbon dioxide, poisonous and acid-rain-causing gases such as nitric oxides and sulphur dioxide (Lewis and Gertsakis, 2001).

Even the so-called environmentally-preferable recycling of waste materials, can often have major environmental impacts, especially, as is increasingly the case, when the recycling happens in developing countries. Many products sent to Developing countries for recycling contain materials which are hazardous to people or the environment because they are toxic, poisonous, explosive, corrosive, flammable, eco-toxic or infectious (Kruegar, 1999). The negative environmental and health effects associated with poor processing techniques in Developing countries has been well documented, and resulted in the of the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal, which was adopted in 1989. The Convention was the response of the international community to the problems caused by an estimated 400 million tonnes of wastes generated every year worldwide. The Convention provides obligations to Parties to the Convention, for ensuring their environmentally sound management, in particular their disposal (www.basel.int/).

3.7 Conclusion

This chapter began with a general discussion of production systems and their associated environmental risks, followed by a more specific discussion of the life cycle environmental impacts of electrical and electronic products, narrowing in to a more detailed focus on whitegoods. It provided background information on the market changes within the whitegoods sector in Australia, the major drivers within the Australian industry, namely market concentration and trade liberalisation. It also discussed in detail the local and global life-cycle impacts of whitegoods, namely impacts associated with construction materials, packaging, use stage and end of life management. It also discussed an emerging trend for far greater use of semi conductor technology in whitegoods, and it's potential to change the energy equation, namely that the more and more energy is being used in the manufacture stage, and requirements for end of life management with potential to shift energy balances toward end of life,.

No attempt was made in this chapter to consider what some companies are doing to reduce their environmental impacts and to increase their environmental responsibility, nor to suggest solutions to the problems posed. Chapter 4, which is the key analysis chapter of research findings, looks at what some companies are saying and doing about minimising some of the life cycle environmental impacts identified in this chapter.

Chapter 4

Producer responsibility

"It is after all, industry that converts raw materials and energy into products. It is the consumption of raw materials and energy that creates pollution" **(Turner et al, 1994 p240)**

"We are satisfied with nothing less than the very best in everything we do. We will continue to raise the bar for everyone. The great fun here will be for all of us to discover just how good we can really be." **Enron (http://www.enron.com)**

4.1 Introduction

Chapters 1 to 3 have given the context and the framework for this study. This chapter is a key chapter in that it analyses the findings of the bulk of primary research, namely interviews with senior business leaders from major Australian and international companies, as well as interviews with some key academics, environmentalists and corporate analysts, and integrates these findings into a discussion of what companies are saying and doing about environmental responsibility; what drives them; major barriers to CER; and their attitudes to government involvement in the CER agenda.

As mentioned in the Methodology section in Chapter 1, although some company interviewees were comfortable with being quoted in this thesis, all interviews with business leaders, except the two case study companies, are strictly confidential, both in terms of the name of the interviewee and of the company. When referring to companies of the interviewees, only sector/nature of the company will be used, ie the company will not be named. In the general discussion of what companies across the globe are doing, drawn mainly from web sites and other publicly available information the companies are named.

Significantly, this research showed that many business leaders admit that voluntary measures and agreements do not always achieve the desired environmental (and social) outcomes, which concurs with other writers. Despite comments by some national governments to the contrary, such as those of Australia and the United States, many of the business leaders interviewed seemed to be at odds with the position of the Australian conservative government (1998-2007) and actively advocated greater government leadership and policies - even regulatory policies. Many also called for greater global governance, even support for ratifying controversial multi-lateral environmental agreements such as the Kyoto Protocol on Climate Change, which Australia eventually signed in late 2007, and some even went further and supported more Multilateral Environmental Agreements (MEAs).

Many of the business leaders interviewed, clearly stated their desire to see national governments taking a more active and leading role to encourage and even force greater corporate responsibility. While there was fairly general opposition to 'prescriptive' type legislation, most business leaders interviewed expressed support for government legislation, albeit 'performance based' or 'enabling' which they argue 'creates certainty' and a 'level playing field', and catches the so-called 'free-loaders'. Yet national governments, especially in Australia and the United States, seem determined to go even further down the voluntary agreements and initiatives path. What some national governments are doing and could be doing, to encourage social and environmental responsibility is the topic of discussion in Chapter 5.

A note of caution here regarding the senior managers interviewed for this study. Although many of these senior managers stated their personal and their company's support to becoming more environmental responsible, it has to be remembered, as Reich (2008) reinforces, that often the people in the corporation most committed to being more environmentally responsible are not the same people who are effectively lobbying governments against laws and regulations that would require the company to become more responsible.

4.2 The interrelationship between industry and government

The relationship between environmental problems and industry, especially the production of products has been highlighted earlier in this thesis. Howes (2005) stresses that industry is the interface between the environment and society, and concurs with Stilwell (2002) and Heiskenan (1999) in asserting that it is the essential basis of the economy. Industry provides

> The equipment and energy needed for agriculture, fishing, mining, forestry,
> energy production and distribution, manufacturing, transport, construction,
> communications, retailing, entertainment, finance etc (Howes, 2005, pxxvii)

However industry does not operate without creating serious environmental risks, that is the benefits of industrial development come at a cost to the environment, as discussed in Chapter 1.

There is no doubt that most Western governments recognize this, and have introduced certain regulations, incentives and policies to try to change the way companies behave, to minimise these risks. At the same time however, according to Howes (2005), Western governments know that economic growth and employment growth are popular with electorates, and, they need the tax revenue generated to maintain public services. In order to maintain these benefits they adopt policies designed to keep GDP growth levels high. Howes suggests that the desire of governments to maintain economic growth mean that they don't just favour the overt demands of business, but try to anticipate what it needs. Thus, according to Beder (2002) and Reich (2008) business and industry are in privileged position of power and are not just another pressure group, especially in relation to environmental governance. Reich (2008) contends that a major reason why governments are failing to provide leadership in the environmental area, is because big corporations have become so effective at preventing governments from doing so.

But the power of industry is not absolute, Western governments have introduced legislation to, for example, reign in emissions from cars and increase their efficiency and safety, despite the enormous power of the global auto industry. Simialrly, despite its size and obvious power, Shell was forced to back down to community pressure over its plans to dump the Brent Spar (see Chapter 5) and large multi-national chemical companies could not prevent global bans on the use of CFCs in 1980s.

4.3 The importance of CER – an initial view

As discussed in Chapter 2, most company CER policies and strategies are business initiated and closely linked to, and integrated with, the concept of triple bottom line (TBL) thinking, which urges companies to look at the social and environmental consequences as well as the financial outcomes of their business activities.

Dunphy et al (2003) argue that because corporations have contributed to the environmental problems, they have a responsibility to be involved in the solutions. It is also important to remember that corporations act within society and that they do fulfil useful roles - employing people and producing products and services. But they also make their profits from society: from the use of society's resources – raw materials taken from the 'global commons' and often very cheaply (Mikler, 2003), and human resources, that is the labour of society's members. Also of

course, the products and services they produce are purchased by society – the basis of company profits. This thesis does not challenge the right of corporations to exist, and the right to use resources, however it reinforces the arguments of many writers who assert the need for them do so in a socially and environmentally beneficial manner, and to produce socially and environmentally responsible products and services. This is reiterated by Dunphy et al (2003) when they state that corporations must cherish individuals, support communities and nourish the natural environment.

Many believe that corporations have no choice but to take, or at least to say that they are taking environmental responsibility. Lindhqvist (personal interview, 2002) said:

> Can you imagine being the industry leader who stands up and says, 'No, I don't want to take responsibility, our company should not be responsible'? You can't say that, because that's against the way we look upon society.

Porter (1991) proposed that good environmental performance is a potential source for competitive advantage as it can lead to more efficient processes, improvements in productivity, lower costs of compliance and new market opportunities. Vogel (2005) and Howes (2005) also discuss the financial benefits of CER, as well the reputational and therefore financial costs associated with a failure to take environmental responsibility.

Some academic studies have shown that there are definite economic advantages for companies in embracing social and environmental responsibility. A landmark Harvard study (Kotter & Heskett, 1999) suggests that good cultural management within a company has a positive correlation with good economic performance. The study, conducted over 11 years, and involving 207 large US companies from 22 industry sectors, found that companies that emphasized good stakeholder management, including staff relations, rather than just shareholder management, had sales growth 4 times and employment growth 8 times, that of more traditionally focused companies. Another study by Collins and Porras (1995) made similar findings. This study compared the historical data on economic performance of 18 companies the researchers identified as 'visionary' and compared to those of 18 similar more traditional companies. The economic performance of the visionary companies was substantially better than the other companies.

A later study by Balabanis et al (1998) using data on CSR and economic performance of 56 UK companies, found that while there was a definite positive correlation between economic performance and CSR, the correlation was weak and inconsistent. They found that CSR disclosure, especially in the area of philanthropic activities, was closely related to a firm's past

and current financial performance, however they found a negative correlation between a company's involvement in environmental protection activities and subsequent financial performance.

While the previously discussed studies looked at the economic benefits of corporate responsibility, they did not look at the cost of failing to take responsibility. Frank Convery, Professor of Environment Studies, University of Dublin, speaking at the Environmental Policy Integration and Sustainable Development Conference, (Canberra, Australia 12/13 November 2003), when discussing the need to internalise environmental costs, conveyed a clear massage to the business community audience that "every single day that you damage the environment costs you".

Dean of the Macquarie Graduate School of Management, Chair of the RepuTex Rating Committee and the former Australian Liberal Party leader and Australian Federal Opposition Leader, Professor John Hewson (speech, 2003, p1) acknowledges that corporate social responsibility is now an "accepted part of corporate practice in most developed economies". He claims that in Europe, "there is such concern about sustainability that companies simply cannot operate unless they can demonstrate their social responsibility credentials".

At the time of finalizing the rewrite of this dissertation my attention was drawn to a study I believed was important to include here. The study conducted by the Economist (Kielstra, 2008) is based on a worldwide survey of more than 1200 company executives. The study found that most executives (57%) confirmed that there is a definite economic advantage from pursuing sustainable practices, and specifically that sustainable practices can help reduce costs (particularly energy expenditure), open up new markets and improve a company's reputation. The report however acknowledges that at this time at least, increases in profits directly linked to improved sustainable performance were still modest, with annual profits increases found to range from 7 to 16%. The reason for these attitudes is not discussed, so it remains a matter of conjecture as to whether these results support a 'leave it to the markets' view or a real change in attitudes perhaps driven by fear of legislation, reputation loss, or even a genuine desire to take responsibility for a sustainable future

Don Henry (personal interview, 2003, the Executive Officer of the Australian Conservation Foundation (ACF), claimed that because environmental degradation is growing at such a rapid rate "it is essential and urgent for corporations to take responsibility for their environmental impacts". In fact he calls for a regulatory framework for corporate environmental responsibility). Similarly, a former corporate campaigner with Friends of the Earth-UK, Ed Mathews (personal interview, 2004) agues:

because corporations are playing a more powerful role in society than they have ever done before, they are having a bigger impact on the environment than they have ever done before. Therefore it is more important than ever before that they act responsibly. And that's something that even the corporations themselves would acknowledge.

Emil Salim, the Chair of the Johannesburg Earth Summit, Professor of Economics at the University of Indonesia, Head of the Indonesian Bio-diversity Foundation, and former Indonesian Minister for Population and Environment, believes that it is now vital for companies to take environmental responsibility. He went further, challenging global civil society to form pressure groups:

to hit hard through the media, through parliaments, and through the elected bodies, to sell the idea, to get them [companies and governments] thinking, and force them to correct the policies, correct the institutions, and internalise the externalities related to environmental and the social development (personal interview, 2003).

The Chairman of Anglo-American, one of the world's largest mining companies Melbourne conference (2003, p2), and former CEO of Shell and a current member of Shell's Board, Sir Mark Moody-Stuart, in a speech at a stated that there is "no way to absolve a company of its responsibilities – companies and the people who work in them are essential parts of society". Anglo-American's Vision states that "[i]t is our objective to provide superior returns for our shareholders in a socially and environmentally responsible manner", and quotes it's key environmental aims as being to: "Conserve environmental resources; Prevent or minimise adverse impacts arising from our operations; Demonstrate active stewardship of land and biodiversity; Promote good relationships with, and enhance capacities of, the local communities of which we are a part; and Respect people's culture and heritage" (www.angloamerican.co.uk).

The home page of Shell's web site states that they are conducting business in a "socially & environmentally sustainable way". In the Environment and Society section, among other social and environmental claims, Shell says they are: "meeting the rapidly growing demand for transportation in more environmentally and socially responsible ways; actively managing greenhouse gas emissions in [their] worldwide operations"; taking a "responsible attitude to product stewardship; finding innovative ways to reduce waste water; and protecting and promoting biodiversity" (www.shell.com).

It needs to be remembered, of course, what Bell (1984) says about the 'audience' and 'purpose' of these two multi-national companies' web site statements. The audience, that is readers, would be shareholders and prospective shareholders, financial institutions, governments, NGOs, researchers and interested members of community. For all of these members, especially shareholders and prospective shareholders, financial institutions, governments and NGOs, it is vital that they sound like the companies are being responsible corporate citizens.

Interviewee 7, the former CEO of another global oil company stated in a personal interview (2003), that environmental responsibility is not new, "people were building buns around oil tanks back in the nineteenth century, let alone the twentieth century, because inevitably they had oil spills". He went on to say that "now of course it has moved on to the point where oil spills are unacceptable, and therefore companies have to decide how to make sure they never happen". His comments are consistent with the global corporate giant's PR statements on its web site:

> Our goal is no damage to the environment; our challenge is to achieve this while continuing to deliver energy products that support growth and social development around the world.

Regarding this oil company Vogel (2005) points out that it was the first energy company to acknowledge that global warming was real and among the first to commit to reducing its own emissions, pledging to reduce its GHG emissions by 10% from 1990 levels by 2010. The company met its target 9 years ahead of schedule.

However Vogel (2005) does point out that the company made savings of $650 million for a cost of just $20 million, and he suggests that the company may have exhausted the 'low-hanging fruits' because it discontinued its internal emissions trading program when it threatened to cause distortions in the company's overall capital allocation and investment strategies. Future reductions are unlikely according to Vogel.

Interviewee 10, the Australian and Pacific environment manager for the Australian subsidiary of a global vehicle manufacturer, stated that "from a social or an environmental perspective, the argument is potentially more compelling to take full responsibility for the life cycle of its products" (personal interview, 2003). His company's Environment and Health policy states:

> Sustainable economic development is important to the future welfare of XXX Company, as well as to society in general. To be sustainable, economic development must provide for protection of human health and the world's environmental resource base. It is XXX's policy that its operations, products, and services accomplish their functions in a manner that provides responsibly for protection of health and the environment.

They also have an Environment and Public Policy Committee that advises the Board, both in Australia and globally. This, according to Howes (2005) and Vogel (2005), is the type of approach that is needed from major companies to avoid both the top down approach, which is fraught with problems, and the approach of leaving CER in the hands of someone with lower status in the organisation, such as a environment manager.

The South African environmental manager for another global car-maker (interviewee 11), claimed that environmental responsibility "affects us on all levels, starting right from design, through to the operational level on a day-to-day basis" (personal interview, 2002). The company's web site states: "As an international company, we here at the XXX Group feel socially, politically and ecologically responsible for everything we do, everywhere in the world".

Their environmental manager highlighted that the company believes that all of its subsidiaries should behave as if they are operating in the home company – that is they have international standards of responsibility regardless of where the company is based. This is another key requirement for CSR and CER as it addresses a key concern of environmental NGOs regarding the behaviour of MNCs in Developing countries (this will be discussed further later in this chapter). Similarly interviewee 12 (automotive), also an environmental manager, said that environmental responsibility was "critical", and that it has "top-level support and commitment, and we have developed appropriate vision statements, and have tried to integrate that through everything that we do".

The Australian environment manager for a global computer manufacturer, interviewee 5, claimed that CER has a "very high level of management commitment, and shareholder commitment, globally and locally" in her company (personal interview, 2003). The company's Australian web site states it "has a long-standing commitment to protecting the environment and ensuring the safety and health of employees. We recognise that the environmental footprint of our business extends beyond our employees to our suppliers, customers and the wider community".

A senior manager for Electrolux, the world's largest whitegoods manufacturer, interviewee 1, stated that CER was "extremely important". The company's web site (http://www.electrolux.com/) states, "the environment is global. Just as air and water know no national borders, neither do the substances that can pollute them'. It goes on to claim that they work to "improve energy efficiency, reduce waste, limit emissions and encourage recycling of

our products when they are no longer useful". Electrolux will be discussed in greater detail later in this chapter.

Another whitegoods manufacturer claims in its policy documents that they have a "commitment to energy efficiency, and preservation of the environment is a corporate guideline and an integral part of the culture of XXX". The Australian national recycling manager (interviewee 2) backed up the company's claim and said that CER "is the philosophy and the culture of the company - they put a lot of effort into considering the effect on the environment".

The above interview extracts from business leaders cover a range of views on, and assertions about, their companies' environmental credentials. As discussed earlier, there are obviously a number issues that must be considered when deciding the level of veracity of these claims. The discussion on PR and corporate responsibility in chapter 5, looks at the credibility of companies' CER and CSR claims, and how they are often used for promotional or image purposes, and may not have solid actions to match the rhetoric. In addition, as mentioned in chapter 1, there is the issue of interviewees saying what they think the interviewer wants to hear – see chapter 1 for more detailed discussion on this and strategies utilised for avoiding this behaviour. A number of my interviewees were environmental managers and it must be recognised that their comments may not be the views of their company's CEO or Board. Indeed some in the environment movement argue that some companies appoint environmental managers so they can 'appear' to be doing something about CER.

4.4 What drives some companies to embrace CER?

The research conducted for this thesis, both of the literature and of interviews, shows that there are a number of key influences, which, either acting separately or in concert with one or more other influences, are the key drivers for CER. Mason (2005) summarised the formative influences on companies to embrace CER as a consequence of negotiations between internal members of the firm and external actors – governments, consumers, NGOs, competitors. For the purposes of this analysis the influences are grouped into 'society', 'the market' and 'government policies'.

What drives CER is a key issue, and one that has attracted a fair degree of attention from researchers in recent years (for example Polonski & Rosenberger, 2001; Emtairah et al, 2002; Hemingway, 2004), and the discussion in Chapter 2 referred to what drove companies that were early leaders in taking social and environmental responsibility (Marlin, A & J , 2003).

The list of drivers below was developed mainly from those raised by interviewees, but also after talking to academics in the field and extensive reading of the literature. While they are not exactly the same in wording as those identified in other studies, they do cover the range of factors, which may drive some businesses to become environmentally responsible. The relative importance that researchers and business leaders place on these factors varies greatly, but most would identify the key ones as (not in order of importance):

- government legislation or threat of legislation
- cost savings
- market advantage
- protection or enhancement of reputation and brands
- avoiding risk, or responding to accident or environmental threat
- a 'champion' within the organization
- pressure from shareholders
- pressure from consumers
- pressure from non-government organization
- societal expectation

Obviously, for some companies, it is a combination of some or even all of these drivers that influences corporate behaviour. This section looks at each of these in turn and discusses how it works as a driver and the relative levels of importance that business leader interviewed, as well as academics, environmentalists and corporate analysts, placed on it. A quantitative summary of the responses of interviewees to my question on what drives company decisions to become more environmentally responsible is provided in Tables 4.1 and 4.2 below. Some interviewees nominated more than one driver.

4.4.1 Government legislation

This study found that government legislation or the threat of legislation is the number one driver of CER, concurring with the views of writers such as Vogel (2005) and Howes (2005), and who assert that government regulation is the dominant influence on corporate environmental performance, and that in the absence of extensive government regulation, few corporations would undertake voluntary environmental initiatives. Vogel (2005) makes the interesting assertion that many of the companies that have acted voluntarily to improve their environmental performance have already picked the 'low hanging fruits', and therefore without additional government legislation being imposed, we may see their environmental performance decline.

The results also support the findings of two other academic studies of the drivers of CER. A Swedish study (Emtairah et al, 2002), of 70 companies with good environmental credentials, found that when asked what drove those companies to take environmental responsibility, 70%, said government legislation, with all other drivers being well down the list. Another study Faruk (2002) found that 79% of 700 mostly UK-based senior business managers surveyed said that government needed to encourage business to behave responsibly. Most business leaders I interviewed cited government legislation or threat of legislation, as the main driver or at minimum, as an important secondary driver, while all but three of the other interviewees – academics, analysts and environmentalists - cited it as the number one driver (see Tables 4.1 & 4.2).

Table 4.1 Relative importance of drivers to business leaders interviewed

Driver	Major importance	Secondary importance	Total
Government legislation or threat	13	4	17
Government incentive policies	0	1	1
Cost savings	2	3	5
Market advantage	0	2	2
Protect or enhance reputation and/or brand	3	5	8
Avoiding risk or response to accident	1	4	5
Champion	1	3	4
Pressure from shareholders	0	2	2
Pressure from consumers	1	5	6
Pressure from NGOs	0	0	0
Societal expectation	0	2	2

Moody-Stuart (2003) says, "we need intelligent government regulatory frameworks within which the market can operate". President of the World Business Council for Sustainable Development (WBCSD) Bjorn Stigson (interview, 2003) said companies are driven by "public

policy agendas" and "the companies that are exposed most to this agenda are the ones that move first".

Interviewee 4, the former head of environmental programs for a major global EEP company was unequivocal when he said the only thing that will make companies take environmental responsibility seriously is government regulation, "there's just no other way". The environment manager for an Australian subsidiary to a global aircraft manufacturer, highlighted the role of legislation when he stated in an interview (2003) that the "greatest impact on us recently has come about through state protection policies - for air in particular. We're Australia's largest user of trichlorethylene, so there's a huge legislative driver for us to change that particular nature of our operation". According to the World Health Organisation and the US EPA, exposure to trichlorethylene can cause damage to the respiratory, nervous and immune systems, as well as damage to the heart, liver and kidneys (see references for WHO and US EPA web sites).

Table 4.2 Relative importance of drivers to academics, environmentalists and analysts interviwed

Driver	Major importance	Secondary importance	Total
Government legislation or threat	10	2	12
Government incentive policies	1	3	4
Cost savings	0	3	3
Market advantage	1	0	1
Protect or enhance reputation and/or brand	0	3	3
Avoiding risk or response to accident	1	3	4
Champion	0	1	1
Pressure from shareholders	0	1	1
Pressure from consumers	0	1	1
Pressure from NGOs	0	4	4
Societal expectation	0	5	5

Former Australian Opposition Leader, John Hewson (2003) identified the importance of legislation as a driver when he said that it is "clearly evident that where a legislative, regulatory and compliance framework is present, companies, because they are required to comply, tend to perform better in terms of social responsibility". UK academic Stephen Potter (interview, 2002) said that industry needs the certainty of regulations otherwise they risk commercial disadvantage.

> Most industries won't go too far ahead of regulation, so you tend to get compliance reactions, rather than 'compliance plus' reactions because most industries feel it would be too risky to go too far ahead of legislation and maybe put at a commercial disadvantage or that legislation might go off in a different direction (Potter, interview, 2002).

Potter raised an interesting example to illustrate the disadvantage for companies of running ahead of legislation:

> In the 1980s Rover cars invested a vast amount of money in clean burn engine design as a technically better alternative to the catalytic converter for reducing vehicle emission in engines, and then regulation went for catalytic converters. All the money they put into that was totally wasted. And I think this is an example of where industry sometimes welcomes legislation because it makes it clear, and actually pulls up the laggards. So you don't tend to get many people going that far beyond compliance.

Australian academic Chris Ryan (personal interview) is unequivocal, "what drives them [companies] is regulation. I don't think anything else works". Ryan was involved in the Swedish survey, referred to before, of 70 companies with good environmental credentials, which asked, among other things, what drove those companies to take environmental responsibility.

The manager director of an Australian EEP product recycling company (interview, 2003) and the Director of a UK based recycler (interview, 2002), as well as the head of a leading Australian 'green' office supply company (interview, 2003), were all equally unequivocal in citing government legislation, not only as the major driver for companies to 'do the right thing' environmentally, but they also argued strongly that legislation was essential for growing the recycling industry. Without it, they all asserted, they will have limited producer involvement and commitment to recycling and the volumes of products will be unsustainable to their industry.

Heretier & Eckert (2008) argue that if companies believe that government is considering either introducing legislative measures where there have been none before, or tightening existing legislation, then companies will be more willing to engage in self-regulatory actions. And the more credible this threat is, the more likely it is that industry will resort to voluntary action to pre-empt such measures. Rupesh et al (2003) take the pre-emption argument further and suggest that business actions to avoid legislation may sometimes be merely symbolic gestures without actually making much difference.

The threat of legislation as a driver was raised by several business leaders. Interviewee 3 (Recycling manager, whitegoods) said that there is a:

> realisation that we either wait for something to happen, or else we make it happen. We know that if we don't do it, the government is going to make us anyway. If we do it then we're controlling it. If we don't do it, then government might come down with something untenable and distasteful to the industry.

Of course for companies, as mentioned earlier, there is a risk in trying to predict and pre-empt future government action, or in going too far or spending too much money, as government legislation or policies may target different aspects or measures, with negative consequences for a company.

Helen Lewis, the then Director of the Centre for Design at RMIT, (interview, 2003) when talking about reuse and recycling of products as opposed to land filling, claimed that industry will listen to governments if for example the latter threatened to ban a sector's products from landfill in five years, then "they tend to sit up and take notice". Vogel (2005) and Heretier & Eckert (2008) discuss the importance of the threat of legislation in encouraging CER.

Of course not all industry leaders agreed that legislation was the number one driver, or, while acknowledging the importance of legislation in some contexts, argued that other drivers were equally or more important. Interviewee 8 (Energy) admitted that in Australia it is "really state government legislation, and a little bit of federal government legislation" that drives Australian companies, but argued that for multi-nationals he thought it was more the "corporate entity that's driving those organizations than the local government legislation". Interviewee 5 (Senior environmental manager, EEPs) concurred with this view and said that it was more to do with 'reputation and responsibility' than government legislation.

4.4.2 Government incentive policies

Neo liberal and environmental economists, as discussed in chapter 2, recognise the importance of economic incentives for encouraging CER; Jaffe et al (2004) suggest that there is little dispute among these economists that flexible, incentive-oriented policy approaches are more likely to foster low-cost compliance paths than even prescriptive regulatory approaches. Yet despite this, only one business interviewee nominated government incentives, especially economic, as a driver. He was the head of a leading Australian company that provided green office supplies and consulting services, and he mentioned government programs that educated business on the benefits, including financial, of recycling. Perhaps the fact that he was a former state government Finance Minister meant he had a greater grasp of government priorities.

However, a number of interviewees did highlight the importance of government incentives when asked about the best types of government policies for encouraging CER. Using economic incentives to 'create a level playing field' and giving a clear indication to the business community of the direction that government would like to see society moving, were two such policy strategies that were mentioned by several interviewees. Stigson (interviewee, 2003) said governments have a "very strong responsibility to show the direction they want society to develop". Interviewee 5 (Senior environmental manager, EEPs) said, "marketing incentives would be a very positive thing. Ideally marketing incentives for good performers, and disincentives for bad performers".

The current argument in Australia, at the time of this re-write in 2008, over compensation of for hard hit industries: the level of compensation; who should get it: and for how long; when a national emissions trading scheme is introduced in 2010, is a good example of how government economic incentives can potentially be used to encourage good performers and force poor performers to do more.

Similarly a number of academics did identify government incentives as a key driver. Cooper (interview, 2002) claimed, "economic incentives and deterrents have a massive role". Gertsakis (interview, 2003) argued that governments have "different tools they can use to engage and stimulate industries to do the right thing". Similarly, Ryan (interview, 2003) argued for the removal of perverse subsidies (discussed in Chapter 3), the use of tax incentives, and public funding for R&D.

The apparent low priority given to economic incentives was interesting, especially in light of the role given to these measures in the European 'new environmental policy initiatives (NEPIs),

discussed in Chapter 6, along with other policies and tools available to governments to encourage CER, in greater detail also discussed in Chapter 6.

4.4.3 Cost savings

Undoubtedly an important driver is the potential for cost savings associated with measures such as energy, materials and waste reductions, especially for manufacturing companies, where this can mean sizeable savings in production costs for companies. According to Vogel (2005), Dupont has saved $2 billion thanks to energy efficiency practices; BP made $650 million in savings thanks to its energy reduction strategies between 1998 and 2002; IBM saved $792 million between 1990 and 2002. Polonski & Rosenberger (2001) also discuss cost savings quoting the case of Dow which saved $2.4 million a year for an investment of $250,000 to capture part of a waste stream at a plant for reuse in another part of the plant.

Reich (2008) talks of Wal Mart's cheaper packaging, that also happens to be 'greener'; and Alcoa's $100 million annual savings from energy efficiencies. Reich (2008) reminds that cost saving measures such as those discussed above are not undertaken to be socially responsible. He says,

> To credit these corporations with being "socially responsible" is to stretch the term to mean anything a company might do to increase profits if, in doing so, it also happens to have some beneficial impact on the rest of society (p 171).

According to interviewee 18 (Beverage) the major driver was

> "very much cost reduction. Every time we take a couple of grams out of a PET bottle, it's worth over a million dollars to the company. We work very closely with our major packaging suppliers to develop lighter weight packaging, which creates a lot of saving for us".

He also talked about the savings from energy reduction in the beverage plant.

John Ward (interview, 2003) from EcoRecycle Victoria, the State government's agency for providing information and advice to business, government and community on waste reduction and recycling, claimed that some companies have realised that there is a saving in production materials to be had from minimising waste and recycling, and that therefore this becomes a "bottom line outcome" and that there is a "business reason to do it" he reasoned.

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Interestingly, a number of business leaders did not refer to cost savings until specifically asked if it was a factor. Then, if their company was experiencing cost savings from environmental measures, they enthusiastically discussed them, particularly those savings arising from energy conservation measures, and from reduction in materials use - particularly important for packaging - and from waste minimisation. Perhaps they were hesitant to mention this as a driver until prompted, because they thought for reputational reasons, it was better to appear to be embracing CER for more altruistic reasons.

4.4.4 Market advantage

The question of market advantage gained by firms taking on environmental concerns has not yet reached a high profile level, certainly among the business leaders I interviewed. But as Porter (1990) asserts, "social concerns such as the environment are increasingly differentiating factors in advanced markets" p129, and Cairncross (1995) asserts that given the right incentives, environmental responsibility from companies can lead to new opportunities and new markets.

A report by the Confederation of British Industry states that there are long term benefits in the form of increased profits for companies that conduct business in an ethically and a socially responsible manner (CBI, 2002).

Some academics I interviewed argued that although not prominent right now, environmental performance, especially of a company's products, will in the future become a major differentiating factor in the market place. Polonski & Rosenberger (2001) assert that some companies with strong environmental credentials prefer not to market this. For example they discuss the huge cleaning products producer S.C. Johnson, which has a strong environmental ethos and has won numerous awards for this, yet it does not market the 'green' credentials of itself or its products. Market advantage is closely linked with reputation and brand enhancement, identified by interviewees as the second most important driver, see 4.4.5 below.

Interview 5 (Senior environmental manager, EEPs) however did stress that her company sees "some leverage in terms of marketing" in environmental responsibility:

> Not that we have aggressively marketed ourselves as an environment leader, but they [the Board] see it as part of the quality of what we do; that we have products that are designed a certain way, and perform a certain way, and are managed a certain way (Interviewee, 5).

Interviewee 22 (corporate analyst) was certain that many companies are embracing CER because "they see it as a way of differentiating themselves in the market place". She used Australian packaging and recycling company Visy Industries, as a good example of a company that has positioned itself through CER. However, it must be stated here, that as a company whose core business is recycling packaging and manufacturing of packaging using recycled materials, there would be an expectation in the market and the community for Visy to embrace CER, and also not to engage in collusion to fix prices. Visy was found guilty in 2007, of colluding with its main competitor to fix prices, and was fined $38m.

But environmental responsibility does not always lead to market advantage, Vogel (2005) points out that while Shell and BP spent $127 million and $45 million respectively on their solar businesses, Exxon-Mobil, one of their main competitors, had a price-earnings ratio one third higher than both BP and Shell. This suggests that: "investors were more optimistic about Exxon-Mobil's growth prospects than its 'greener' competitors" (Ibid, p 127).

4.4.5 Protecting or enhancing reputation or brand

Neo liberal economists argue that to be successful and profitable companies need to take account of how they are perceived (The Economist, 2005). It therefore came as no surprise that protecting reputation was not only the second most important driver identified by those industry leaders interviewed, but it was the most enthusiastically discussed. Many interviewees stressed the reputation of their companies and the need to protect and enhance it. None illustrates this point better than interviewee 4 (former senior manager, EEPs) who said:

> it's integrated into that bigger picture of reputation and responsibility. XXX prides itself on doing the right thing, and is here for the long haul, and has no intention of allowing itself to fall over in this regard. It is supported at a corporate level, and then through the global business, is a very real aspect of how we do business. Pristine comes to mind. They really want to have that image for their products, with their employees, with their market place. That is how the brand is placed, if you like. I think it's integrated into the whole functionality of the business.

Interviewee 19 (Production Manager, aircraft manufacture) asserted that his company wants "most to protect its reputation", while interviewee 3 (Recycling Manager, whitegoods) said that CER is "part of the philosophy and culture of the company". Interviewee 1 (Design Manager, whitegoods) said "brand promise" is a major driver. "We say that we will make life easier, more comfortable and safer, and of course that extends into environmental responsibility as well".

Vogel (2005) states that reputation of the most admired companies is still based on factors such as customer satisfaction, innovation in technology and strong financial performance, which are far more important than environmental performance. Hart (1997) discusses in detail the reputational benefits associated with CER, while Chamorro & Banegil (2006) discuss the finer points of green marketing, branding and reputation and say that the "product and firm together are the total product" p 12. Hemmingway & Maclagan (2004) assert that social and environmental responsibility can be viewed in terms of managing a corporation's image.

A number of business leaders told me that CER makes good business sense. Interviewee 4 (former senior manager, EEPs) said that from a business point of view it is "smarter to be a leader in environmental action than to be a follower". Interviewee 8 (Senior environmental manager, Energy) agreed and said that CER was "fundamental to XXX, and it's basically good business practice to deliver that".

According to some interviewees, enhancing reputation came through good corporate governance policy and practices. Moody-Stuart (2003) asserted that: "sound governance systems are essential". And the former CEO of Shell went on to highlight during the same address, how easily a global corporation's reputation can be dragged through the mud, when he referred to the damage done to Shell's reputation following the much-publicised events in Nigeria, when human rights activist Ken Saro Wiwa was murdered with the Nigerian military implicated in his murder; and the Brent Spar incident, in which Greenpeace drew the world's attention to Shell's plans to dispose of an old oil drilling platform by sinking it in the North Sea. Clothing giant Nike's reputation suffered a similar fate when it's use of contracting firms in Developing countries that used sweatshop labour, was exposed to the global community. Shell's environmental performance is discussed again in Chapter 5.

Australian academic Ryan (interview, 2003) said there are some companies that see CER as "part of their future strategy, their future survival - not just their corporate social responsibility, but as a competitive and economic decision". Ryan discussed a 1996 global survey conducted by Philips to understand the nature of its brand. He claims this was "the biggest single industry survey ever conducted". According to Ryan, Philips was "astonished by the results of that exercise", and this "really drove a whole series of major changes in relation to ecodesign; and the way that they structure production and research internationally, representing the cultural and social side of the company". Don Henry (CEO, NGO, interview, 2003) claimed that there is an "advantage to their brand, their [to a company's] credibility, in moving [toward CER] – or a disadvantage if they don't"; and EcoRecycle Victoria's John Ward pointed out that some businesses have a "corporate ethos that is leadership" (interview, 2003).

4.4.6 Avoiding risk, or responding to accident or environmental threat

This was identified as an important driver by some business leaders, as well as by other interviewees. The business leaders closely linked it with reputation protection and enhancement, and discussed the desire to avoid reputation damaging incidents and accidents that had afflicted other companies in their sector. Interviewee 7 (former CEO, Energy) strongly pointed out the importance of the environmental disasters such as Bhopal and the Exxon Valdez (see Chapter 2) in corporate decisions in his company, designed to safeguard them from similar reputational damage.

> One of the watersheds for us was in 1984 with Bhopal. That sent a shock around the world. We realised that it could happen to us somewhere, so in terms of the safety and environmental effect, there was a complete microscope laid on the company's operations everywhere in the world - then in 1988, Exxon Valdes.

Mason (2005) identifies Bhopal and Exxon Valdez as key triggering events for the formation of global guidelines on corporate responsibility. He discusses the CERES Principles for corporate responsibility, formulated by the Coalition of Environmentally Responsible Economics, and points out that they were originally termed the Valdez Principles.

Interviewee 7 went on to discuss a social controversy that was a watershed for his company: "probably the biggest one for us, more of a social one, was a challenge in the media that we were running a private army in Colombia". While his company denied that its private security guards were acting as a private army, NGOs and local community members accused the company's security guards of numerous human rights violations.

Interviewee 7's analysis of how companies respond to these challenges was enlightening. Historically, he argued, many companies like his own, took the view that because these sorts of accidents and incidents caught companies "on the back foot", the common reaction was to "keep your head down, keep yourself clean, do what you can, but whatever you do don't talk about it". But he says that from 1994 on, they:

> decided to be on the front foot. You see a genuine watershed, and you see the company in about 1997 beginning to talk about climate change and global warming as a key issue that we were going to be involved with. We decided we were going to be definitely part of making the agenda rather than just keeping our heads down. You could no longer keep your head down.

According to interviewee 12 (Environment Manager, automotive), global environmental crises were a key driver for CER.

> It's an awareness that things had to change. You're going to go through a world crisis, where gasoline is going to become a lot shorter, global warming will become more of a significant issue again unless we get the technologies coming through a lot earlier. So if you are going to be providing products to the market, you've got to be embracing environmental considerations. If you don't, then you won't be in business. It's as simple as that.

This he said drove them to develop the world's most successful hybrid passenger vehicle to date. This is endorsed by Polonski & Rosenberger (2001) who discuss what drives his company's commitment to developing more sustainable vehicles.

Mathew Simon, Helen Lewis and John Gertsakis (interviews, 2002 and 2003) all cited the example of the shortage of landfill particularly in Europe, as an indirect driver for companies to minimise waste and to start to think in terms of closing the loop, because it was this shortage of landfill that has driven governments to introduce legislative measures to force waste reduction.

4.4.7 'Champion' within the organization

Several interviewees raised the concept of a 'champion' or 'champions' within the organization, driving them toward environmental responsibility. In some cases the champion was the CEO, supporting Vogel (2005), who states that: "many companies expressing environmental commitments are really expressing the philosophy of the CEO" (p135). Furthermore he goes on to assert that when these executives leave, the environmental performance of the company often deteriorates.

Hemmingway and Maclagan (2004) discuss the personal role of senior managers in corporate responsibility in detail. They claim that social and environmental responsibility can be the result of championing by a few managers in companies. Indeed they define CSR in terms of individual manager's roles: CSR may be viewed as "a process in which managers take responsibility for identifying and accommodating the interests of those affected by the organization's actions" (p 34). But they do also make the counter point that this means that unethical managers can also influence company practices.

The views of Wilson (2002) are important to consider regarding champions. He suggests that a new younger generation of managers is emerging that is educated in community values and the importance of considering the needs of a planet in environmental stress. Many of the managers interviewed here would fit into Wilson's new generation of managers.

Interviewee 10 (Senior Manager, automotive) said their CEO "has a strong commitment to being a good corporate citizen" and that he drives the environmental and social agenda. Moody-Stuart (2003) discussed his commitment to environmental and social responsibility, and interviewee 1 (Design Manager, whitegoods) stressed the "personal drive of the CEO that can go through the whole organization". Interviewee 5 (Senior Environmental Manager, EEP) said that "at the end of the day it's a few key people around the world" in key positions who move the company forward. Don Henry (CEO, NGO, interview, 2003) believes the role of individual champions in companies is "very important when it's not a mandated activity".

In recent times a number of CEOs have been identified as 'environmental champions', who appear to have taken environmental responsibility seriously and made changes within their organizations to reflect the community's apparent desire for greater responsibility from corporations, as well as building financially thriving companies. Ray Anderson, CEO of Interface the world's largest floor coverings company, is discussed widely for his innovative sustainability strategies within his company (Hawkins, 1994). Other CEO champions include Crispin Davis, CEO of publishing and finance giant Reed Elsevier who has established a strong environmental responsibility ethic within his company; Leon Davis, past CEO of Australia's WestPac Bank, is widely considered responsible for turning around the Bank's poor reputation in the community and making it a leader in CSR and winner in 2003 and 2004 of Reputex's (2004) highest rating; and the late Anita Roddick's reputation as the head of the Body Shop was well known. She built up a cosmetics giant based on social and environmental responsibility (http://www.time.com/time/europe/hero2004/roddick.html).

4.4.8 Pressure from shareholders

Surprisingly, shareholder pressure was not identified as a key driver by many business or academics interviewees, despite the recent collapses of Enron and WorldCom in the United States, and HIH Insurance and OneTel in Australia, and the obvious effect on share prices of environmentally disastrous operations such as the BHP's Ok Tedi mine in PNG. Pressure from large institutional investors, when targeting social aspects of a companies performance, can force share prices down and hence impact on companies.

Public interest proxy resolutions, though rarely adopted can have an effect on companies, especially when the sheer numbers of these resolutions is high (Graves et al, 2001; Sparkes & Cowton, 2004; Vogel, 2005). According to Vogel, resolutions on labour rights against companies such as Wal-Mart, Home Depot and American Electric Power resulted in improvements to labour practices, as did resolutions on environmental performance of companies such Gillette, Reebok and Shell, and on human rights issues such as those against Shell over Nigeria, discussed in more detail in Chapter 5.

Graves et al. (2001) state that shareholder resolutions on social and environmental issues have become commonplace in the U.S. over the last thirty years. Sparkes & Cowton (2004) describe a process where by NGO's purchase small share holdings in companies they wish to influence and use shareholder rights to attend a company's annual general meeting simply in order to complain in a public forum about a company's activities; or in more extreme cases NGOs may want to cause financial harm to a company, perhaps by encouraging consumer boycotts. According to Sparkes & Cowton, NGOs see this as the most effective way to achieve their aims, and it is done in a non-violent way in accordance with the law.

In a similar way pressure from social or ethical investment funds can have an impact on firms and can encourages changes in practices. Sparkes & Cowton (2004) define socially or ethically responsible investment (SRI) as "the exercise of ethical and social criteria in the selection and management of investment portfolios, generally consisting of company shares" (p 47). While previously SRI issues could be ignored by corporate executives when they were limited to a fringe minority (Sparkes & Cowton), now with SRI growing at a 'staggering' rate (Friedman and Miles (2001) and with large institutional investors such as banks and super funds increasingly offering SRI products and hence raising social concerns with companies, this is no longer possible.

The growth and increasing influence of, ethical investments is further discussed by Berry (2002) who points out that in 1999 $2.16 trillion or one in every eight dollars invested, was invested in socially responsible investments in the United States, although Reich (2008) strikes a salutary note when he reminds that SRI still only amounts to around 2% of the total investments in the US stock market, and that companies dealing in products that may be deemed 'socially offensive' such as weapons, tobacco, alcohol, gambling and pornography, have no difficulty raising investment. However, the importance of SRI is reflected in the development in 1999, of the Dow Jones Sustainability Index, which tracks the financial performance of the leading sustainability-driven companies and which enjoys ongoing credibility.

While the tactics of socially responsible investors and NGO company advocacy are similar in that both employ shareholder activism, SRI activism has developed a recognised code of procedure (Sparkes & Cowton, 2004). It begins, according to Sparkes & Cowton, with initial dialogue by the socially responsible investor, increasingly as stated before, an institutional investor, with executives from the company concerned, to raise certain social issues. This discussion can sometimes take a couple of years and if agreement cannot be reached, a proxy resolution is presented to the company's AGM for shareholders to vote upon. Often, according to Sparkes & Cowton, this is enough to encourage a desired response from the company concerned and the resolution is withdrawn prior to the AGM.

Interviewee 7 (Former CEO, energy) talked about three main groups of shareholders: institutional, employee and 'mums and dads'. Of these he argues that although the mums and dads will occasionally ask questions about environmental performance, it is employee shareholders who most frequently ask. He claimed that the institutional investors rarely questioned environmental performance.

It is interesting too that it was not seen as very important by the environmentalists interviewed, despite, as previously discussed, shareholder activism is an increasingly important campaign tool. Of course I accept here that I only interviewed four environmentalists, but these four all had specific expertise in global corporate campaigning. Don Henry (CEO, NGO, interview, 2003) however did say that there is "modest though increasing shareholder investor pressure for change". This is highlighted he claimed, by the increasing significance of 'ethical' or 'socially responsible' investment companies and trusts, as discussed before.

4.4.9 Pressure from consumers

Vogel (2005) consumers are definitely influenced by 'bad news' stories about companies and by human rights or environmental based boycotts. Nike, Shell and Monsanto for example have all suffered sales slumps after such bad stories and/or consumer boycotts. Polonsky & Rosenberger (2001), stress the role of consumers in influencing company CER, citing the case of McDonald's which replaced its polystyrene clamshell packaging with waxed paper in direct response to consumer concerns over CFCs produced in making polystyrene.

Yet, despite this, consumer pressure was identified as a major driver by just one business interviewee and by no government, environmentalist or analysts interviewed, although it was recognized as a secondary driver by a number of interviewees. But most of those who did refer to it, made the point that it was not a major driver now – but that they expected it would become

more important in the future. "Ultimately we are all customer driven – and a lot of our customers recognise that they and we have to operate sustainably" (Interviewee 9, Global Director of Corporate Affairs, automotive).

Interviewee 14 (GM, recycling) argued that there was definitely a "demand by consumers for green products", and interviewee 9 (Global Director of Corporate Affairs, automotive) made the point that his company is closely watching the trends, and their studies had shown that the desire from customers for vehicles that were more environmentally friendly was increasing. He pointed out that "everyone wants a car that uses less fuel". Interviewee 10 (Senior manager) also from the automotive industry, claimed that his company and its competitors, were "spending millions to develop new fuel efficient vehicles and technology, such as hybrid cars and fuel cells", and that it was a "race not necessarily to become the most sustainable company [but] to win the hearts and minds, and pockets of our consumers".

Interviewee 20 (CEO, industry association) recognized consumers as a driver, but also said that it hasn't reached its full potential yet, but expected that over the next five years it would become a major driver in the market place. The case of the voluntary campaign to eliminate plastic bag use from supermarkets in Australia, which commenced in 2004, shows that consumer actions can have a marked impact on the business community. Two audits of plastic bag use in supermarkets, commissioned by the Federal Government, showed that since the start of the voluntary campaign, there has been a 27% reduction in plastic bag use (http://www.deh.gov.au/minister/env/2005/ tr22mar05.html). Although it can be argued that the move away from plastic bags to re-usable bags was driven by environment organizations, the dramatic uptake of re-usable bags by consumers has provided additional pressure on even the more reluctant supermarkets to recognize that the time has come to move away from one-use plastic bag.

4.4.10 Pressure from NGOs

In what is perhaps more a comment on the attitudes of companies toward environmental non-government organizations, than a reflection on the role they see NGOs playing in influencing company actions, not one business leader interviewed regarded NGOs as a driver for CER, this despite the fact that many companies have had their reputations seriously damaged by NGO campaigns, especially consumer boycotts, a point made by several writers (Welford, 1997; Howes, 2005; Vogel, 2005; Lowe, 2005) and discussed earlier, and the increasingly influential use of shareholder activism by NGOs, also discussed earlier. Heretier & Eckert (2008) take up the discussion on NGO influence and argue that:

the more acrimonious and heated the campaign run by NGOs cautioning against the use of a particular substance, production process or product, jeopardising the reputation of an industry, the higher the willingness of that industry to engage in self-regulation will be (p 116).

Interviewee 7 (former CEO, Energy) did however grudgingly acknowledge some role for NGOs, which he said in most cases, is to "massage perception" and that it is "very seldom that NGOs actually do anything on the ground to change the realities. They have to highlight where they think things are going wrong – and I think everyone expects that of them". I should point out here, that he has since moved on to heading the Australian arm of a major global environmental NGO.

However, as probably expected, environmentalists and academics had a different perception of the role of environmental NGOs. Ed Mathews from Friends of the Earth (interview, 2003) claimed that environmental NGOs and activists in general had "galvanised a lot of high profile media attention to incidents that damage the environment and are linked to certain corporations". Henry (CEO, NGO, interview, 2003) claimed that the analysis of the environmental performance of Australian companies conducted by ACF, initially as part of the Good Reputation Index, and in 2003 as part of Corp Rate analysis of Australia's top 50 listed companies, has been an important driver of positive change within many companies. (CorpRate is a joint initiative by ACF, Australian Consumers' Association (ACA), and Oxfam Community Aid Abroad (OCAA)).

According to Trish Caswell, the then Head of RMIT University's Global Sustainability unit (interview, 2003), there is no doubt that many companies have been forced to change due to environmental campaigns, and Gertsakis (interview, 2003) claimed that "green groups are absolutely essential for turning up the heat [on companies] in a productive way". Salim (interview, 2003) strongly advocated a role for environmental NGO's in driving companies to become more environmentally responsible, while Lindhqvist (interview, 2002) when discussing the importance of NGOs as a driver, also raised his concerns about recent trends for environmental NGOs to become consultancy organisations:

> We need environmental organisations which are environmental organisations, and not an extra consultancy company. I mean someone must demand - we can't have everyone just co-operating and finding compromises. Someone must criticise the compromises afterwards.

Monbiot (2002) strongly condemns the practice of companies hiring environmental consultants from the environmental NGOs, to help them 'green' their image. This is an ongoing and often very heated debate within the environmental NGO community – and one that I will not enter into here.

4.4.11 Societal expectation

Although closely related to pressure from consumers and NGOs, a number of interviewees identified this united pressure/expectation from society, even global society, as a major driver for CER. Salim (interview, 2003) did a good job not just in identifying this driver, but describing the nature of this societal pressure:

> These like-minded groups, and government, and business, and the civil society need to form pressure groups. And these pressure groups must hit hard through the media, through the parliament, through the elected bodies, to sell the idea, to get them thinking, and force them to correct the policies, correct the institutions, and internalising the externalities related to environmental and the social development. Real pressure groups. But it must have government, and business, and civil society – with a government outlook, with the government view.

The former Executive Director of an academic sustainability research centre Trish Caswell's (interview, 2003) views concurred with Salim:

> I think that the emergence of a stronger civil society in parts of the world is a major driver. The collapse of [some] big corporations – I know people who have said they would have never connected that with sustainability - makes people think differently about who they trust.

Interviewee 19 (Production manager, aircraft) talked about growing CER and said it "all comes down to changing public attitudes", while interviewee 7 (former CEO, Energy) referred to the "social context", and said that:

> this is set by the media which is all pervasive. What happens in one country, good or ill is seen everywhere else. Usually the good is not seen, but the ill is seen everywhere. And that sets a pattern in society, which means society sets standards—initially not enshrined in legislation or regulation, but beginning to be vocalised in the media and non-governmental organizations. That in turn affects who we are as people. And so the effect is at the CEO level.

4.5 Barriers to taking environmental responsibility

As well as knowing what drives companies to take a degree of environmental responsibility, it is also important to know what barriers are preventing CER from being embraced by more companies, and being more vigorously embraced by those that have a degree of CER. Table 3 shows the key categories of barriers identified by the interviewees and the numbers who identified each barrier. The qualitative summary shows that government failure was the dominant barrier to CER, which is to be expected if government legislation was identified as the dominant driver for CER. The other key barriers were market failure, corporate culture/leadership failure and society/consumer failure.

Table 4.3. Relative importance of barriers to CER

Type of barrier	Number interviewees seeing as important		Total
	Business	**Academic/Gov/ Environmentalist**	
Cost	5	1	6
Government failure	6	9	15
Market failure	4	2	6
Corporate culture/leadership failure	7	3	10
Technological issues	3	0	3
Societal/consumer failure	6	4	10
Globalisation/trade	1	1	2
Governments fear power of corporations	0	2	2

<u>4.5.1 Cost</u>

The costs involved for companies to introduce processes, designs and products that minimize their impacts on the environment is a potential barrier to CER, however, surprisingly, cost was not identified as a barrier by as many interviewees, especially business leaders, as may have been expected. Simon (academic, interview, 2002) suggested that the initial reaction of many company managers to introducing measures to minimize environmental impacts, is "yeah, fine but it's going to cost an awful lot to do that", but Simon said, they are typically thinking short term, when they look 5 years out, often they find it is cost effective.

Interviewees 1 (Design Manager, whitegoods) and 12 (Environmental Manager, automotive) argued that the costs involved in improving environmental performance could make some companies uncompetitive –

> How do you balance the need for environmental responsibility with environmental innovation towards your global product against your market returns? If a company was to spend five hundred million dollars extra at the moment on green, would they get a payback. How do they finance that? (Interviewee 12, Environmental Manager, automotive)

Another automotive environmental manager (Interviewee 10) argued that the technology is available now for zero emission cars, but the costs made it prohibitive, but questioned being competitive in the market place, after adding costs for good environmental performance. This of course is dependent on the degree to which consumers are prepared to pay more for green products. But as Lewis & Gertsakis (2001) and others attest, improved environmental performance does not always cost more.

From the point of view of environmental levies added to prices of goods, for example to cover end-of-life management schemes such as take-back programs, interviewees 2 (Manager Remanufacturing, Whitegoods) and 5 (Senior Environmental Manager, EEPs) agreed that it depends on the level of the levy whether consumers would be prepared to pay, and if they perceive that they are getting something out of it.

Interviewee 7 (former CEO, Energy) raised the issue of the financial soundness of a company and its ability to spend on improving environmental performance:

> In the early nineties, XXX was in some financial crisis, with oil price being very low, and huge debts. And at that stage it was very hard to think much further

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ahead than one or two years, or three years at the most. But until we could make the organization healthy from a financial point of view it was difficult to consider anything other than the minimum standard of compliance and a bit above.

4.5.2 Government failure

The nature of government failings will not be discussed in detail here, as this will be covered in greater detail in Chapter 5. Government failure which includes government inaction; lack of policies and directions; inconsistencies; lack of leadership; or weakness or inadequacies of existing policies and measures to encourage CER; was clearly identified as the biggest barrier to more companies becoming environmentally responsible and for others to extend their responsibility.

According to interviewee 1 (Design Manager, Whitegoods), governments need to be "stricter and legislate harder", while interviewee 17 (Director, environmental consultant), drew a distinction between Australian government actions and those in Europe, arguing that a major barrier in Australia was that we are "lagging behind European countries in the area of [policies for] managing environmental impacts of products, especially electrical and electronic products".

Interviewee 20 (CEO, Industry association) talked about mixed messages and hypocrisy from governments in Australia. She claimed there are "very confusing guidelines and government entities are not performing to the same strict criteria, that they [the government] lay down for the private sector". Inconsistencies and the lack of a clear direction, especially long-term, from government was also identified as a barrier by interviewee19 (Production Manager, Aircraft):

> Overall strategy, and consistency of strategy, and strategy that extends beyond the government of the day is what is required, so that as a sector we can take our own individual path to get there - so that we're all moving generally in the same direction - like, the government has cut funds to the EPA, so this project is abolished, and we have to change direction again. I mean, where do you go?

The lack of a national approach or framework within Australia, meaning inconsistencies between different States' policies, were "real impediments" to CER, according to interviewee 5 (Senior Environmental Manager, EEPs). 'The Federal/State systems would have to work in very strong co-ordination to make it work properly, and that isn't always the case". She used the example of laws in Canberra, which ban computers from landfill, but "everyone in Canberra takes PCs across to Queanbeyan [neighbouring town in adjoining state] to dump them - it's just ridiculous".

All eight academics interviewed identified lack of or ineffective, government action as a barrier to CER. Ryan (academic, interview, 2003) along with environmentalist Henry (EO, NGO, interview, 2003) strongly advocated perverse subsidies, such as subsidies to the Australian coal industry, as the biggest single government failing holding back CER nationally and globally. "Perverse subsidies are still there – the political will is not," said Ryan, while Henry claimed that perverse subsidies "support unsustainable practices". Perverse subsidies could also of course be regarded as a market failing.

Salim (interview, 2003) argued that the lack of an "integrated inter-sectoral approach" to environmental sustainability at the national level was a major barrier. The current "sectoral approach" where different ministries are responsible for different aspects of sustainability does not work Salim said.

The question of enforcement of legislation was raised by Lindhqvist (interview, 2002), stating that there is a "failure of governments to enforce legislation that exists, and sometimes, when legislation is enforced locally, it is not enforced for importers". Interviewee 6 (Design Manager, EEPs) also raised the problem of importing companies, and wondered how European legislators will "make sure that these companies [outside of Europe] will assume their responsibility".

Lewis (academic, interview, 2003) raised the "lack of regulatory assurance", and claims there is

> a reluctance by a lot of companies to commit because they don't have that regulatory assurance, or confidence about the nature of any future regulation. They are not entirely clear that if they put their neck out they won't be disadvantaged financially, because margins are so slim.

Cooper (academic, interview, 2002) blamed the global capitalist economic model and argued that the "underlying thrust of government, which is to do with growth and national production is a major impediment – governments can't be seen to be doing things that might slow down growth".

4.5.3 Market failure

The market place's focus on the economic bottom line, and its failure to give adequate or even any value, especially financial, to the environmental or social performance of companies, is obviously a serious barrier to CER. The question of how the dominant 'free market' economic model hinders environmental responsibility was discussed in Chapters 1 and 3. Salim (interview, 2003) summed up this market failure when he claimed that, "the market pre-

dominantly captures only the economic sector – pretty much ignoring the social and the environmental - so you have what is called market failure". He went on to point that sustainable development considers all three aspects: economic, social and environmental.

Market failure was a major concern raised by interviewee 9 (Global Director Corporate Affairs, Automotive) when she strongly condemned the financial markets for "still lagging in their understanding of the linkage between non-financial corporate performance and long-term shareholder value creation". This view was backed-up by interviewee 8 (Senior Environmental Manager, Energy), who argued that it is "very hard for many companies, especially in Australia, to progress a sustainable agenda that is environmental and social, when all of the analysts appear to be totally focussed on one thing - and that's financial return".

Interviewee 13 (Director, office supplies) raised the same concern:

> It's clear in a market system based on private ownership that profitability is the major focus of decision-making. Unfortunately, many people perceive [that] profitability may not be consistent with environmental sustainability. So it's very important for the people making decisions that the two equate.

Henry (EO, NGO, interview, 2003) agued that the fact that:

> most corporate activities are operating in economies that don't have a monetary value, or a totally inadequate monetary value on environment, meaning that corporations for the past two hundred years have been unwilling or unable to properly factor the environment into their decision-making.

4.5.4 Corporate culture/leadership failure

Of the business leaders interviewed, corporate culture/leadership failure was the most popular barrier identified. Interviewee 18 (Senior Environmental Manager, Beverage) was scathing in his criticism of corporate leaders within the Australian subsidiary he works for and the parent company. In his opinion the Australian company was still focussed far too much on key performance indicators in which the "softer issues associated with environmental and more sustainable development, aren't treated with the focus that is needed to go the next step [in CER]". He was critical of his parent company because it is "still very much concentrated on sales rather than other issues" and because it decided to abolish the position of Corporate Environment Manager, and leave environmental management to the subsidiary managers in each country. This means he said, that:

we've lost our drive to further our environmental program. It no longer has the focus that it used to have. If I talk to – and I have – our CEO, what he thinks about sustainable reporting, he said 'what do you mean by that?' When I asked the Australian managing director the same question a couple of months ago, he quickly started talking about corporate governance.

Interviewee 12 (Environmental Manager, Automotive), while arguing that his company has the right culture to drive CER, highlighted how the lack of a positive culture can hinder CER. "If we didn't have a culture that embraced the environment and understood the importance of the environment, then nothing would get done".

Stigson (former CEO Shell, interview, 2003) follows the same line when he argued that:

> the main barrier is the failure of top management to explain what it means when they take it out into line organization – to operationalise the broader concept of sustainable development into different objectives that you can put into the normal running of the company and relate to the management system. Because unless it's part of the management system, part of the reward system and so on, nothing will happen.

Resistance from lower management and sometimes within certain sections of companies, such as marketing and finance, was identified as a potential barrier by interviewee 5 (Senior Environmental Manager, EEPs) and interviewee 9 (Global Director Corporate Affairs, Automotive). Interviewee 9 talked about how some managers, who

> want to see the business case quantified for environmental measures, have to learn the painful way when competition moves ahead, or regulations are advanced, or campaigns are mounted against the company for lagging performance.

Simon (academic, interview, 2002) complemented these views and pointed out that in his research group's dealings with many companies, the difficulty of getting marketing sections to even come to meetings, was indicative of this corporate failing which acted as a major barrier to CER.

Gertsakis (academic, interview, 2003) discussed the failure of companies to "think very differently about what their business is, and what their contribution should be. And that means putting sustainability very much at the centre of that whole process". He also argued for senior executives to see CER as part of their business in terms of "their business being enduring and

sustainable, and having executives talk passionately and really intelligently about the life cycle of their products".

4.5.5 Technological issues

Technological issues were identified as a barrier by three of the business leaders. Technological issues are closely linked with costs as raised by interviewee 10 (Senior Environmental Manager, Automotive) who argued that there is a need for cheaper technologies for minimising environmental impacts of cars, such as eliminating emissions. He also discussed the barriers presented by the technical nature of different materials used in production, especially the difficulties of recycling some materials, such as certain plastics and mixed plastics, glass and tyres. Interviewee 3 (Manager Recycling, Whitegoods) raised a similar concern regarding difficulties of recycling of material and the need for a technological fix. He especially singled out plastics and plastic blends as a major impediment to recycling.

Interviewee 11 (Senior Environmental Manager, Automotive) raised the thorny problem of supply chains, a key issue, discussed elsewhere in this dissertation and in the final chapter, and that they can often be a barrier, because it is difficult for purchasing companies to regulate how they operate or what they supply. She raised the issue of the need to trust suppliers to be operating in environmentally sound ways, for example by being EMS 14001 certified.

4.5.6 Societal/consumer failure

Societal and consumer failure, including the perception that society as a whole to be concerned about environmental issues and consumer attitudes toward 'green' products, was another barrier that was identified by a number of the interviewees. "Probably one of the main barriers to going even further [down the CER path] is consumer demand for these products – consumers are not buying green" (Interviewee 12, Environmental Manager automotive). His view is not backed by Polonski & Rosenberger (2001) who discuss the importance of consumer pressure in Interviewee 12's company's decisions, and also point out that McDonald's replaced its polystyrene packaging in direct response to consumer pressure.

This view of the apparent unwillingness of consumers to pay more for environmentally friendly products, is however, backed-up by a number of other business, academic and NGO interviewees, and concurs with various writers eg Vogel (2005) and Hay et al (2005) that most consumers will not sacrifice their needs or desires, to be green. Ottman (1998) says that while

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substantial numbers of consumers claim to be green they appear unwilling to purchase products based solely on environmental grounds.

Interviewee 1 (Design Manager, Whitegoods) was critical of Australian consumer attitudes and society attitudes in general:

> I think that 10% of the market would pay a little bit more for it, but most people wouldn't bother. Australians are terrible like that. There is no energy consciousness. There is no ecology consciousness. Some people get a feel that it is more important, and some people just don't care. You see that, especially in Australia. We say that we are careful about the environment, but we are not prepared to sacrifice things.

The views of Interview 1 are at variance to recent community responses In Australia to water shortages. State government advertising using a mix of negative and value-based behaviour change messages, particularly in the hardest hit South Eastern States, have seen big reductions in domestic water use.

Interviewee 1 went on to present a more positive dimension by arguing for designers to "find new exciting product ideas, which fit new lifestyles". These he said would have a "better dimension than just being eco friendly". He suggested that products should be designed to "free up time, or save you money - more tangible benefits. The ecology thing and the sustainability thing are not tangible enough for ordinary people".

The question of buying used and recycled products, an important category of environmentally friendly goods, was raised by interviewee 13 (Director, Office supplies): "People are strongly recycling their product, but are not buying green. It's no use recycling material if people won't buy the recycled product".

The contradiction between actual behaviours and expressed environmental attitudes or beliefs discussed in some detail by Ewert & Galloway (2004) and reflected in failure to buy green, was raised by Henry (EO, NGO, interview, 2003):

> Our polling is showing us that concern around issues like water and greenhouse and biodiversity is very high in the electorate. You can poll Australians, and they will say they are deeply concerned about greenhouse pollution, and then they'll put the phone down and have a big long hot shower.

In a related vein, interviewee 5 (Senior Environmental Manager, EEPs) raised the issue of society's apparent unwillingness to cover any of the costs of improving environmental performance of products, as an important barrier. She spoke about end of life of EEPs and argued that the community believes that their old appliance has value and someone should buy it from them. This she said was making it harder for companies such as hers and the waste industry to set up take-back schemes. "There is a real lack of perception out there, and no one's accepted the negative value [of used EEPs]". She claimed that the waste industry would "probably say it is going to cost them more than they get from the metals and the plastics to dismantle it – and the older the product, the more likely that's true".

Simon (academic, interview, 2002) discussed work his research group had done with Electrolux. Research he claimed, has found that suction power of vacuum cleaners is not dependant on the power of the motor, but on airflow around the vacuum head – a design issue. So a well-designed cleaner with 1000 watts of power can out-perform one of 1500 watt. But, he argued, consumers are looking for cleaners with higher power – a dilemma for producers such as Electrolux, and a barrier to CER.

At the sharp end of the society debate, Lindhqvist and Cooper (academics, interviews, 2002) argued that environmental concern is just not high enough in society – "a lot of people think that things are going just swell (Lindhqvist); "I don't think people are concerned to the level they should be" (Cooper). Both academics argued for major attitudinal changes within society and claimed that governments have a lead role in this:

> At the end of the day, I go back to this problem of cultural change and changing people - governments come into power only because consumers have certain aspirations that they think governments will help them to meet. (Lindhqvist, interview 2002)

Cooper said:

> So you need to create a pressure from people, or else government won't act. And I don't think the governments feel today that people are concerned. And the big picture is that things are deteriorating.

The purchase of 'Green power" in Australia reflects the issue of consumers unwillingness to pay a premium for 'green' products. According the Australian Financial Review (http://www.afrbiz.com.au/) consumer surveys regularly show that respondents rated environmentally-friendly energy as the second most important requirement from their energy

supplier, after lowest cost which was rated first. Despite this, or perhaps reflecting the importance of price, the national level of uptake of Green Power in 2005 was only about 6%, however, this increased by about 13.4% since 2004 (http://www.greenpower.gov.au/admin/file/content13/c6/Issue12.pdf)

Recent Australian community attitude surveys, especially Australian State and Federal Government State of Environment (SoE) reports (CES, 2005; Australian Government, 2006), find that more and more consumers are buying environmentally friendly products. The Australian Government's 2006 SoE report found that 89% of household said they purchased environmentally friendly products. However, this may mean a detergent with 'environmentally friendly' label or toilet paper using 'recycled paper', and may not extend to the purchase of a '5 star' water or energy efficient home appliance.

4.5.7 Globalisation/trade

Cooper (academic, interview, 2002) strongly advocated that globalisation and the World Trade Organisation (WTO) trade rules were a major impediment to national governments bringing in policies to encourage CER: "The government obviously is in hock to globalisation/free trade, and there are obviously issues there that it is unwilling to confront". He argued that national governments are unable or unwilling to introduce environmental standards for products, because they may breach WTO rules:

> One could argue if it wasn't for the big threat of international legislation [WTO] inhibiting them the more environmentally minded countries would get going, and others would follow them and help pressure them much quicker.

4.5.8 Governments' fear of the power of corporations

Many environmentalists, especially corporate campaigners, and some academics writing in the field of environmental performance of corporations (Beder, 1997; Monbiot, 2000; Reich, 2008), argue that multi-national corporations (MNCs) have too much power and that national governments are hesitant to introduce necessary environmental regulations, while Howes (2005) and Vogel (2005) both analyse the nature of this power.

Mathews (NGO, interview, 2003) claimed that governments are not

>keen to go down the legislative route and increase the level of accountability and responsibility of MNCs, because they are afraid of the power of the companies - and that says a lot about the power that these corporations have in our societies and our political spheres.

One the biggest powers MNCs have to use to pressure national governments, is the threat of capital flight – that is the threat to take their investment elsewhere. Crotty, Epstein & Kelly (1998 p 4) suggest that governments in the West are now much more likely to be adversely affected by capital flight and its threat because of the "chronic shortages of good jobs, government budgetary problems, and emaciated unions". Monbiot (2000), as an illustration of the power of corporations, argues that corporations have come to control key decision-making processes within the European Union. He accuses major European corporations of forcing European economic integration during the 1980s, by threatening to move their operations out of Europe unless national governments supported integrations, which would allow European companies to reach scales necessary to resist pressure from competitors outside of Europe.

In developing countries MNCs are able to apply even greater pressure on national governments due to the social and economic conditions in those countries. Some of these conditions are discussed in the following section, while the behaviour of Shell in Nigeria is discussed in the next chapter.

Conversely, large corporations can use this influence for positive outcomes. For example, during the Australia national debate around the signing of Kyoto Protocol, and the Australian government's refusal to sign to sign, six of Australia's largest companies sent a united message to Australian Prime Minister John Howard urging him to sign (*The Age*, 2006).

4.6 Developing country perspectives

Three interviewees were from developing countries, and as such raised some interesting perspectives and dilemmas. Many of the issues and concerns raised regarding environmental performance are similar to those discussed by Vogel (2005) in relation to labour issues in countries. Interviewee 21, president of a national business association for sustainable development in Brazil, was able in his interview to bring a developing nation perspective to the barriers to CER. As tangible barriers he raised exchange rates and trade barriers. He argued that the global market operating in $US, and currency in developing countries fluctuating by maybe

30% in one day, puts major economic pressures on developing countries and means that environmental performance is not a high priority either for companies or governments.

Trade barriers set up by developed countries, especially the United States, on goods from developing countries, and the massive trade imbalances in favour of the Developed World, means:

> poverty, and unemployment and violence – it's a barrier to sustainable development. There is no sustainable company – there is no sustainable society, sustainable globe, sustainable planet, if you don't balance that. Everybody's going to suffer. They're going to cut down forests to sell the wood – they've got to do something to survive (Interview 21, CEO, industry association, 2002).

Interviewee 21 also raised inequalities in the distribution of wealth globally and within developing countries such as his own, as a barrier because at the basic level, consumers cannot possibly afford the latest products, which often perform better environmentally. He pointed out that his country is "ranked ninth or tenth economy in the world, but on the human development index, it is 72nd".

He issued an interesting challenge to "so-called Democratic countries such as Australia", when he questioned how democratic Australia really is. "It seems that your people are in favour of everything about climate change but not your government. Why doesn't your government listen to the majority of its people – is this democracy?"

Interviewee 11 (Senior Environmental Manager, Automotive) raised the interesting issue of how cultural differences between developed and developing countries can influence the type of government policies, namely the mix of voluntary or mandatory:

> …the European culture is different to the South African culture, so in Europe because people are more driven towards sustainability and it's really incorporated into their lifestyles and their value systems, voluntary works very well. Here in South Africa where you haven't got that culture, you will have to combine them.

Salim (interview, 2003) raised a number of key issues and dilemmas both for developing countries, the international communities and environmental NGOs in developed countries. The lack of financial and human resources to back environmental legislation in developing countries was a key concern he raised, as was the issue of corruption. He said that governments in developing countries are often criticized by governments of developed countries and by Western NGOs for "not doing enough to protect the environment", but he pointed out that "we [in

developing countries] need to be able to balance the needs of poor people against the environment". Encroachment of desperate people into protected forests in his country, Indonesia, and other developing countries was an example he gave.

4.7 Integrating CER into company management structures

According to Moody-Stuart (interview, 2003), "boards are a critical element in achieving greater sustainability in what we as corporations do – they set the governance and policy framework within which everyone in a corporation acts". As previously mentioned a number of industry interviewees stressed the importance of CER being carried at the most senior level of the organisation.

"We have very committed senior managers who are personally interested and involved" (interviewee 5, Senior Environmental Manager, EEPS). Interviewee 5 went on to describe the Environment Executive that she established, which is formal and integrated into the management structure and provides the "interface of the environment at a business level". The Environment Executive "meets quarterly with an agenda, and reporting", and is chaired by the General Manager. All sections of the company are involved at the executive level.

> The re-marketing, finance, real estate, sales, communications executives etc are personally there at the Executive to receive information about how we've done, input on what they want to happen, and how, and give their support and commitment to implementing it.

Interviewee 5 highlighted the importance of a having "a mechanism for removing high-level obstruction - if you need high level support from the executive members of the business units. That's the key organisational structure".

Interviewee 12 (Environmental Manager, Automotive) described a similar structure where they have a sustainability committee that meets monthly and involves the directors of sales, marketing, manufacture, purchasing, and engineering. There is also a monthly meeting with the Australian CEO.

Interviewee 1 (Design Manager, whitegoods) described how CER is a top management issue coming, he claims "from the Board". His company's production has a "very clearly defined process, called the Integrated Product Development Process". According to interviewee 1, this process has certain checkpoints where things "have to be verified by certain rules with check

sheets and so on. Issues, like suitability, market, and costs, as well as ecology and sustainability" are considered. Interviewee 7 (former CEO, Energy) also claimed that CER was a top of management level issue. He claimed that as Australian and Pacific CEO he was totally committed to CER, as was he claims, the company's global CEO.

Not all interviewees described such a positive integrated approach to CER. Interviewee 18 (Production Manager, Beverage), as mentioned earlier, described a lack of commitment at the most senior levels, reflected by the parent company's decision to abolish the position of corporate environment manager.

4.8   How some companies are putting CER into practice

There are obviously many companies in Australia and around the world that are acting responsibly to some degree, by trying to make their production processes and products more sustainable. But of course, from the discussion raised in earlier chapters, it is obvious that there are many more, or perhaps even subsidiaries of those same responsible companies, that are doing nothing or very little, and are following the 'business as usual' edict, a point taken up by Howes (2005); Vogel (2005); Hay et al, 2005; and Lowe, 2005). The actual environmental performance of selected companies will be looked at in Chapter 5.

All the business leaders interviewed were only too willing to discuss the good things they were doing. This section includes a selection of some of the environmentally responsible actions that some of the companies are taking to minimize the negative environmental impacts of their production processes and products. This thesis makes no attempt here to verify their claims, nor to comment on the appropriateness or effectiveness of their actions, that discussion is left for the following chapter.

As argued in Chapters 1 & 3, global warming is undoubtedly the most serious environmental problem confronting the planet and humankind, and is understandably the 'hottest' environmental topic of debate. It is therefore appropriate to look firstly at what some interviewees told me their companies were doing to address the problem.

Interviewee 7 (former CEO, Energy) claimed:

> In 1997 our global CEO talked about global warming in a public speech and committed the company to do a number of things – measure our emissions; control our emissions; be in the public debate on global warming; grow our solar business; and start an emissions trading program.

1997 was the year of the first climate change meeting in Kyoto from which the Kyoto Protocol was named and arose. Kyoto was the impetus for some global companies to look at their contributions to global warming.

> We recognised global warming as an issue. We recognised that the automobile has contributed to that. We're taking very pro-active steps to reduce the impact our vehicles have on the environment" (interviewee 12, Environmental Manager, automotive).

And according to interviewee 12, they are investing in technologies to reduce vehicle emissions - they are certainly the world leaders in fuel-efficient and alternative fuel vehicles. They had the first hybrid car on the market – and are still the market leader. Interviewee 12 said that the decision to go down this path was not an altruistic one, but was a hard-edge business decision – "if you don't then you're out of business - it's as simple as that" he asserted.

1997 was also a key date for another major automobile manufacturer, which, according to interviewee 10 (Senior Environmental Manager, automotive) began to certify all of its global sites to ISO 14001, the international standard for environmental management (EMS). In 1999 they issued an edict that all 'first tier' suppliers were to be ISO 14001 certified by mid-2003. Two other interviewees highlighted EMS as an important initiative that their companies had taken toward CER. Interviewee 11 (Senior Environmental Manager, automotive) told me all her company's plants were certified according to ISO 14001, but she stressed that she had made it mandatory for all her companies major component suppliers to become ISO 14001 certified.

> Currently 33% of our main component suppliers are EMS certified, that is they have got one or other form of EMS certified, and if they keep to the commitment of the program, 70% of them will be certified by the end of this year. And I actually audit them on their progress (interviewee 11).

Interviewee 5 (Senior Environmental Manager, EEPs) also stressed the importance of her company's EMS certification as a major way in which they were implementing CER, and also that they had made providing information on EMS a condition in all major tenders. The same company, according to the interviewee, has bi-annual global audits of business controls, including environmental performance, which report to boards.

Interviewee 6 (Design Manager, EEPs) said his company has adopted a

> lifecycle approach to our products. We integrate all aspects of our products and
> we focus obviously on the energy consumption during the use phase, and now
> more and more on the end of life phase.

They are also working through industry associations to encourage all business in the sector to develop databases of the environmental impacts of their products, and that these should be "joined together to establish an industry data base that is publicly available".

A number of business leaders talked about waste minimisation, recycling and take back programs. Interview 11 (Senior Environmental Manager, automotive) claimed that their latest series of models is 75% recyclable. She talked about their dismantling facilities, where cars are dismantled "which allows materials to be used in the next generation". For ease of dismantling and recycling, they now only use 6 different types of plastics, where previously they used up to 110, and these are clipped together rather than glued.

Take-back was a major aspect of interviewee 3 (Recycling Manager, whitegoods) environmental programs. In New Zealand the company has an extensive take-back scheme in place. Collected appliances go to a recycling facility in their main manufacturing plant. Here

> it's stripped and dismantled. All the ferrous materials and any of the plastics that
> we can re-use are sorted and sifted. We take all the gases out of the refrigeration
> units and store that, and that actually comes back here to Australia where it's
> recycled.

The company had also conducted a pilot take-back project in NSW and was currently involved in talks with other EEP producers for a broader trial.

According to interviewee 5 (Senior Environmental Manager, EEPs) her company already has an extensive take back program in place for its leased products, the bulk of its market, leased to business, government and institutions. They are about to "announce over the next few months for our large customers, take back for all their products, including their owned products".

Closing the loop in packaging was a key environmental strategy for interviewee 18 (Beverage company).

> We set up our own PET operation here a few years ago. And we were probably
> the first company to completely close the loop on packaging recycling. Of the
> 25,000-ton of PET available in Australia we bought 13,000 ton and recycled it

back into new bottles; made the new bottles; filled them; distributed them; and then bought them back through the recycling companies.

Interviewee 19 (Production Manager, Aircraft) is responsible for waste minimisation and clean production at the company. He was keen to talk about his company's strategies for eliminating potentially toxic materials:

> Chrome is used extensively in the aircraft industry because of the excellent protection it provides at thirty thousand feet. But it also has a lot of adverse environmental impacts. So they are pouring a lot of money into research, looking for a substitute.

Interviewee 13 (Director, office supplies) described his company's core business activity, which involved recycling laser printer cartridges. They also recycle computer discs and offer a green office consultancy service.

> In the process of manufacturing laser printer cartridges we are re-using a lot of the components of an original laser cartridge which otherwise would be destined for landfill. We re-manufacture approximately 2,000-2,500 laser cartridges a month. That is saving a perfectly good product from going to landfill at that stage (Interviewee 13).

Production controls and concentrating on environmental design were the two main CER measures that interviewee 10 (Senior Environmental Manager, Automotive) talked about. "As far as facilities are concerned, we have a corporate system called the XXX Production System, which manages the facilities' environmental performance". Mostly, as he pointed out, this involved ensuring compliance to government regulatory standards. Perhaps the most exciting, and potentially far-reaching aspect of his company's environmental strategies is the use of design for the environment. All plastics used are labelled for ease of recycling. "We have design for environment courses for our development and design engineers. Design for disassembly is becoming more of interest." He went on to say:

> One wants to target one of the attributes as environmental impact, so in the very early stages of designing a vehicle program, or setting up a vehicle program, we'd look at what environmental attributes we want that product to have – in terms of recyclability, emissions, or whatever it happens to be. That holds in the whole product development process. Like labeling, design for assembly, design for disassembly, reduction of hazardous material, phasing out of mercury and lead, all those heavy metals.

4.9 Conclusion

This chapter analysed interviews from business leaders, academics, corporate analysts and environmentalists, as well as public company information, to develop a picture of what some companies, in Australia and around the world are saying and doing about CER. It discussed what drives companies to at least say the right things, and showed that government policies particularly legislative, and the barriers to CER with a key finding being that a major perceived barrier is government inaction.

Chapter 5

Putting selected companies and CER strategies under the microscope

Corporations, because they are the dominant institutions on the planet, must squarely address the social and environmental issues that afflict humankind.
Hawken (1994, p3)

5.1 Introduction

This chapter begins with a detailed discussion of what two individual companies are doing to put CER into practice. The two companies are involved in the manufacture of electrical products, namely Electrolux the world's biggest whitegoods manufacturer, and Fuji-Xerox Australia, the Australian subsidiary of global copier giant, Fuji-Xerox. This analysis draws on research conducted during site tours and 'on-record' discussions with company managers, as well as drawing on material from company publications.

This chapter also looks at business initiated CER strategy, for producer responsibility, namely a product take back scheme for the Australian television industry. The final section of this chapter looks at the degree to which companies are 'walking the talk' – that is, how much their words match their performance in terms of CER. The section begins with a general discussion of how CER is perceived in the community and by some researchers; the impact of recent high profile corporate collapses on perceptions of corporate responsibility; and the performance of case study companies, Electrolux and Fuji-Xerox, as well as the performance of the Shell Corporation.

5.2 Electrolux

As discussed in Chapter 3, the whitegoods market place is becoming increasingly globalised, as the market share is concentrated into the hands of a few multi-national manufacturers. Chapter 3 discusses how this concentration had occurred over the last 50 years in Australia, with just two large-scale whitegoods manufacturers in Australia, both foreign owned companies, Swedish based Electrolux, and New Zealand based Fisher and Paykel.

Electrolux is the world's largest manufacturer of whitegoods; with 123 manufacturing facilities in 24 countries employing approximately 92,000 people. Because of its take over of Email and subsequently of most of the dominant brand names in Australia, it has the 'lion's share' of sales in Australia. Electrolux has expressed its commitment to the environment through an Environmental Policy first published in 1993, updated in 1995 and 2001 and which still reflects the company's environmental charter (http://www.electrolux.com/node386.aspx).

The Environmental Policy states that Electrolux wants its "products, services and production to be part of a sustainable society". The policy goes on to state that they are committed to:

> • Designing products to reduce their adverse environmental impact in production, use and disposal.
> • Reducing resource consumption, waste and pollution in our operations.
> • Taking a proactive approach regarding environmental legislation that affects our business.
> • Encouraging suppliers, subcontractors, retailers and recyclers of our products to adopt the same environmental principles as Electrolux.
> • Giving appropriate weight to this environmental policy when making future planning and investment decisions.
> • Setting targets and objectives, within the scope of the environmental management system, to achieve continual improvement and a sustainable development (http://www.electrolux.com/node386.aspx)

The policy also commits Electrolux to supporting regulations from "local and national governments, as well as international bodies" to "react to many environmental problems and threats", including the Kyoto and Montreal Protocols and European Union directives on energy consumption and waste minimisation, including the European Union's Waste of Electrical and Electronic Equipment Directive (WEEE).

5.2.1 Commitment to sustainability

The company's 2007 Sustainability Report focuses on a number of key aspects of its operation, including addressing climate change, encouraging sustainable design, building a sustainable brand, and responsible sourcing.

The 'Climate Change' section of the Report states:

> We are keen to lead our industry in meeting growing consumer demand for climate-smart appliances. And we want to reduce our exposure to higher costs in a carbon-constrained world.
>
> To do this, we have a three-pronged strategy. We are promoting the most energy-efficient products. We will reduce energy use in our operations by 15% by 2009. And, we are raising consumer awareness of how innovative appliances can reduce our collective carbon footprint (Electrolux, 2007, p6)

5.2.2 Life cycle management of impacts

Electrolux has adopted design principles for its products for life-cycle management of environmental impacts, especially at the use phase, which as noted in Chapter 3, is identified as a stage of the product life cycle that has major negative environmental impacts. These include minimising harmful substances such as coolants, and energy and water efficiency. A study by Electrolux found that the most environmentally orientated of its products were also the most profitable (http://www.electrolux.com/node106.aspx)

The research for this thesis, into Electrolux's environmental performance took place at its Australian head office and major showroom in Sydney, including an on-the-record interview with Design Manager Lars Erikson, and in Sweden at Electrolux's product remanufacturing plant in Motala, as well as its main stove manufacturing plant, where on-the-record interviews with Joakim Skottheim, Manager Policy Programs at Electrolux Sweden, and the remanufacturing plant's Production Leader, Kurt-Erik Hellstrom were conducted. Eric Sundin from the Institute of Technology, Linkoping, who has been involved in joint projects with Electrolux over a number of years, looking at reuse and recycling issues, was also interviewed on-the-record.

Erikson (interview, 2002) claimed that Swedish legislation has been "very tough compared to the rest of the world", and that this has driven "our home market and our home conditions". He stated that environmental performance is a "top management level" decision. He described what

Electrolux terms its *Integrated Product Development Process*, which considers the issues of ecology and sustainability, as well as costs and marketing issues.

The Motala remanufacturing plant, situated on the same site as Electrolux's main stove manufacturing plant, is housed in a reused building and utilises used industrial machinery from other Electrolux plants, adding to the environmental credentials of the operation. According to Jacobsson (2002), Electrolux set up the facility in 1998 for three reasons:

1) To <u>increase control over marketing of used products</u>: each year thousands of Electrolux products were returning to the market through various channels, after ending warranty periods, and sometimes within warranty periods, often after being reconditioned. Electrolux felt that these appliances were their property and that these resold products competed with Electrolux's new sales.

2) <u>Financial</u>: there were potential profits to be made by reselling used appliances.

3) <u>Environmental</u>: the collection and remanufacture of old products was in line with Electrolux's environmental policy.

Electrolux, through appliances remanufactured at the Motala plant, now sells used appliances directly to the market place. To the best of my knowledge, Electrolux is the only major whitegoods manufacturer to have entered the used appliance market directly. The collection, remanufacture and sale of used appliances also helps Electrolux to satisfy requirements of the European Union's Waste of Electrical and Electronic Equipment (WEEE) Directive (see Chapter 5).

The Motala plant remanufactures washers, dishwashers, refrigerators, stoves, mircrowaves and vacuum cleaners, and sells them directly to retailers. According to Production Leader, Kurt-Erik Hellstrom (Interview, 2002) a breakdown of the source of appliances shows that 55% of appliances come from within Sweden and 30% from Europe.

According to Hellstrom, the majority of the appliances have been returned to Electrolux under warranty obligations. After three failed attempts to repair an appliance under warranty, Electrolux then replaces the product with a new appliance, and the old one comes to Motala for remanufacture. Electrolux also has a special arrangement with one major retailing chain, to take back appliances including non-Electrolux brands for remanufacture and returns them for sale. This arrangement accounts for 10% of returned appliances; 5% of appliances entering the Motala plant are from Electrolux's leasing deals.

The remanufacturing process involves testing, cleaning and replacement of heavily worn parts or components. 75% of appliances are reprocessed into new quality, functioning appliances that are sold to retailers. Those products deemed unsuitable for remanufacture, based on their age or condition, are used for spare parts or sent for material recycling. Replaced parts, such as refrigerator doors, are also sent to the materials recycler.

The remanufactured appliances are sold to retailers. Each Friday at the Motala plant, the manager, Hellstrom, prepares an inventory of what appliances are ready for sale. This is emailed or faxed to retailers, and on the following Monday or Tuesday, retailers place their orders. The remanufactured appliances are sold to retailers for around 50% of the new price. At the plant the example of a returned and remanufactured top of the range Husqvarna stove (made by Electrolux), in perfect condition except for a scratch on one side panel, was shown. This stove according to Hellstrom, would be sold wholesale for slightly less than half its new price. All refurbished products are provided with a one-year warranty instead of the normal two years. Skottheim (Interview, 2002) informed me, that Electrolux cannot keep up with the demand for these remanufactured appliances.

5.2.3 Steps in the remanufacturing process in Motala

The main steps are sorting, electrical testing, operation testing, cleaning and labelling.

(1) Sorting

When appliances arrive they carry documentation on their history. Each appliance is registered then sorted for remanufacture, or for materials recycling, after being cannibalised for spare parts. This decision is based on the age and condition of the appliance. The coolant gas is completely removed from refrigerators to be recycled, and stored for reuse in refurbished products, before being transported to the recycler. At the recycler appliances are shredded then materials sorted.

Figures 5.1 & 5.2   Sorting of appliances, Electrolux Motala remanufacturing plant (Photographs by author)

(2) Electrical testing

After sorting, appliances not sent for materials recycling or cannibalisation move to the electrical testing section, where every appliance is thoroughly tested according to government standards.

Fig 5.3   Electrical testing (photograph by author)

(3) Operational testing

There are four main test areas: 'dry', for vacuum cleaners, 'cold', for refrigerators, 'hot', for stoves and microwaves, and 'wet', for washers and dishwashers. Refrigerators are left switched on, stoves and microwaves have all operations tested, and washers are put through their main cycle.

Fig 5.4 'Hot' testing site – stoves　　**Fig 5.5 'Wet' test site – washers**
(Photographs by author)

(4)　Cleaning

All appliances are thoroughly cleaned. As Hellstrom said 'they must look like new when they are finished'

Fig 5.6　Cleaning stove (Photograph by author)

(5)　Final electrical testing

Appliances are retested electrically.
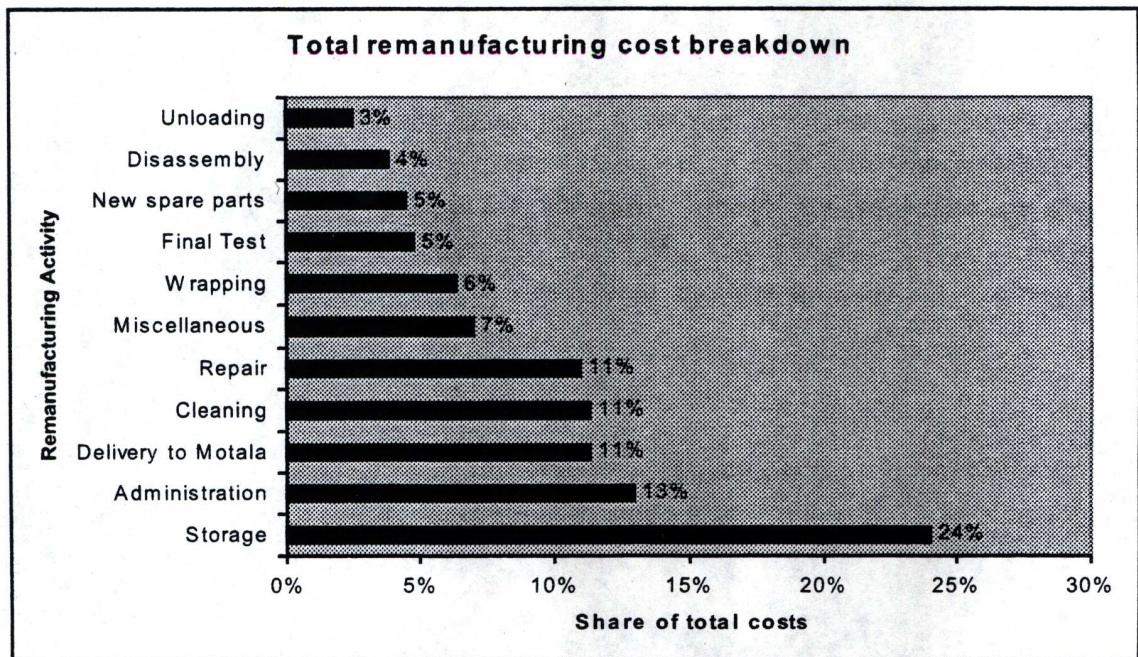
(6) Labelling and wrapping

The final step is the labelling of the appliance. There are six categories – A to F. This is based on the age of the appliance and on its condition. 'A' is the highest category and fetches the highest price. A manufacturer's label, identifying this category, is attached to the appliance. The appliance is then wrapped, ready for transport to retailers

Fig 5.7 Remanufactured appliances await packaging and transport to retailers
(Photograph by author)

The space allocated to the remanufacturing process was surprisingly small considering the overall size of the Motala remanufacturing plant. It seemed on inspection, that there were a number efficiency improvements that could be made, and which would lead to improved flow through and higher volumes of appliances. Sundin (2002) conducted research on the efficiency of the plant and the costs to Electrolux, of each stage of the process. The percentage of the overall costs of each operation in the remanufacturing process is set out in Figure 4.10. He identifies storage as the largest cost, amounting to almost 25%. Sundinu supports observations I made and argues that improvements could be made to the logistics of the plant, storage decisions (especially when to scrap parts) and to the cleaning process. He suggests that these changes will improve efficiency and save costs.

While Sundin has identified improvements that could be made in the remanufacturing process, the remanufacturing of used appliances by Electrolux has benefits for the company and for the environment. Most importantly it is a profitable operation for Electrolux; and there is obviously a large market for remanufactured whitegoods. Therefore, this type of operation is a win-win situation: a win for the company financially and also enhancing its corporate reputation; a win for consumers who get guaranteed products at 'no-frills' prices; and a win for the environment. Benefits to the environment accrue because of major reductions in materials and energy, and reductions in pollution, because less new products and components are manufactured to satisfy demand. However, remanufacture and the related sale of older appliances and their perceived benefits to the environment are not without its critics - some concerns are discussed in section 5.4 below. [At time of re-writing I could find no other studies of Electrolux's remanufacturing that quantified these savings, although a later paper by Sundin and Bras (2005) has been published in Journal of Cleaner Production Vol 13(9), but it contains no new data.]

Total remanufacturing cost breakdown

Remanufacturing Activity	Share of total costs
Unloading	3%
Disassembly	4%
New spare parts	5%
Final Test	5%
Wrapping	6%
Miscellaneous	7%
Repair	11%
Cleaning	11%
Delivery to Motala	11%
Administration	13%
Storage	24%

Figure 5.8 Electrolux, percentage breakdown of remanufacturing costs - from Sundin (2002)

5.3 Fuji Xerox Australia

For a manufacturer in another but related sector, I decided to look at Fuji Xerox Australia (F-X), as an example of a company that is, according to Gertsakis (1998), putting "producer responsibility into practice". Fuji Xerox Australia is a subsidiary of the multi-national giant Xerox Corporation.

F-X along with other Fuji-Xerox subsidiaries around the world promotes itself as the 'Document Company' and provides a range of products and services to its business customers including creating, printing, storing, copying and distributing documents. F-X pioneered the design of copiers for ease of disassembly and also re-using components in new copiers, for its parent company. This thesis does not discuss Fuji Xerox products themselves, this has been researched by Kerr and Ryan (1999), but I will look at the background to and impetus for F-X changing its corporate culture.

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The 'Sustainability' section of F-X's website starts out with the ambitious statement that:

> Sustainability in its broadest sense underpins our business.
> (http://www.fujixerox.com.au/sustainabilityreport/ - accessed Nov 2007)

It then goes on to say that:

> We aim to run our organisation based on a set of principles that guide continuous improvement across economic, environmental and social criteria.

Fuji Xerox Australia refers to 'eco-manufacturing' which it says is "re-manufacturing components to better than new condition simply by learning about why individual parts fail, then developing effective ways to improve upon them during the remanufacturing process" (Kerr and Ryan, 1999). Kerr & Ryan conducted a case study of F-X's photocopier remanufacturing. Their study attempted to quantify the whole-of-life-cycle environmental benefits from using remanufactured components in new photocopiers. The study concluded that resource consumption can be reduced by up to a factor of 3, and that reductions are maximised if the copiers are designed for ease of disassembly and remanufacture.

A similar study of the environmental performance of UK subsidiary Xerox Ltd, was conducted by Bennett and James (1998), focusing on its initiatives to reduce packaging. Xerox Ltd's environmental performance is predicated on five environmental principles according to Bennett & James:

1. protection of the environment and the health and safety of employees, customers and neighbours takes priority over economic considerations;
2. operations to be conducted in a manner that safeguards health, protects environment, conserves materials and resources and minimises risk of asset losses;
3. commitment to designing and manufacturing products and processes to optimize resource utilization and minimize environmental impacts;
4. full compliance with government requirements; and
5. dedication to continuous improvements in all the above.

These principles are similar to the sentiments expressed in F-X environmental statements, quoted earlier in this section.

At a 2001 tour of Fuji Xerox Australia's remanufacturing plant in Sydney, an on-the-record interviewed was conducted with Graham Cavanagh-Downs, retired Director of Manufacturing and Supply and now employed as a consultant by F-X. By all accounts Cavanagh-Downs was the champion who drove Fuji-Xerox's environmental programs in Australia.

F-X has been remanufacturing appliances and components since the 1970s. Through the 1970s and 1980s, F-X took traded-in copiers and printers to its remanufacturing plant in Sydney. Here machines were fully remanufactured and sold into the second-hand market. According to Cavanagh-Downs, by the late 1980s and early 1990s, the Mascot plant was producing 4,500 remanufactured machines per month. F-X at this time, was even importing used machines from Japan for remanufacture. Cavanagh-Downs claimed that some machines have been through the remanufacturing process 8 times.

F-X's has since opened a new remanufacturing plant in Sydney, which takes back used copiers and printers, mostly from service agreements, and disassembles the machines for component remanufacture. The plant specialises in components and consumables such as print cartridges and spare parts, used mainly for servicing machines under service agreements. According to Cavanagh-Downs, the new plant provides 75% of the parts needed for servicing. He explained that Xerox copier machines today have 3, 4 or 5 modules. Each module is a whole unit, with a specific function namely paper-feed, Xerox-graphics, fusing or laser system.

F-X has a closed-loop system and according to Cavanagh-Downs, already recovers 97% of materials that go out. When they deliver a new product or a replacement print cartridge, they take back the old one, which goes to the Sydney plant for remanufacturing. At the time of writing, Kavanagh-Downs claimed they were looking at ways to recover the remaining few percent of materials.

According to Cavanagh-Downs, F-X testing of some remanufactured components shows that they perform better than new ones, because he asserts they can identify the failure modes of new items and design the remanufacturing process to improve the performance of the remanufactured component – they term this 'eco-manufacture'. To illustrate this Cavanagh-Downs discussed one specific part in copiers that was prone to failure, and for which during remanufacturing they were able to design a simple and very inexpensive way of overcoming the problem. It cost 15 cents per part to fix during remanufacture, saving F-X according to Cavanagh-Downs, $1million per year; the unit now has a 300% longer life, according to Cavanagh-Downs. Although Vorasayan & Ryan (2006) briefly discuss the F-X claim about improved performance of the remanufactured components, there is no independent verification for these claims.

Xerox Ltd established a copier-reprocessing centre similar to the Australian operation, located in Venray, The Netherlands, which according to Bennett & James (1998), at the time of their research, was successfully achieving its objectives of reducing waste to landfill through company take-back of copiers and subsequent re-use and remanufacture of components, similarly to operations at the Sydney plant [A search of Xerox sites in 2007 showed that the Venray plant is still in operation.]

5.3.1 What were the drivers for F-X going down this sustainable path?

Cavanagh-Downs stated that the Xerox Corporation's zero waste and zero waste to landfill policies are major drivers of Fuji Xerox Australia's remanufacturing policy, and that they had

> made a decision 11 years ago to investigate the company's environmental impacts and as a corporate citizen, determine ways to minimise these impacts. Our products impact on the environment in many ways, therefore the goal of sustainability is something we have to be concerned about (Cavanagh-Downs, interview).

Bennett and James (1998, p 348) make a similar observation about the importance of the Xerox Corporation's philosophy and environmental policies as drivers for UK's Xerox Ltd taking greater responsibility for the environmental impacts of its products and operations.

Cavanagh-Downs pointed out that this is not the only driver. F-X made this decision not just on what was good for the environment, but also what was good for business. He said that F-X knew that their parent company was not going to allow F-X to manufacture any new product lines in Australia, so they decided that 'eco-manufacturing' was a way of bringing in a local content. 'Eco-manufacturing' makes good business sense according to Cavanagh-Downs: "From a business point of view it is smarter to be a leader in environmental action than to be a follower", supporting comments by a number of interviewees discussed in Chapter 4 and various studies of the business benefits of CER, such as Kotter & Heskett, (1999), Collins & Porras (1995), Balabanis et al (1998) and Kielstra (2008), also discussed in Chapter 4.

Cavanagh-Downs stressed that at the time these decisions were made F-X was not responding to any legislative pressures - there wasn't much community concern about waste minimisation, and there certainly wasn't any waste minimization legislation in place, at this time. On the question of legislation, Cavanagh-Downs stressed his support for the type of government legislation that sets clear targets and achievable timeframes, especially in the area of banning

electrical and electronic waste to landfill. Such legislation, as long as it is well explained to the business community, will encourage innovation in design of products, Cavanagh-Downs said. "Governments have to put the brick wall in place and say that beyond that you're going to be in trouble."

In response to a question on whether F-X had encountered any legal problems or issues, Cavanagh-Downs replied: "No. We are very fortunate we own the service contracts so we supply ourselves, so we are not, in the most part, supplying third parties." Providing new warranties for remanufactured appliances and parts is the answer to any legal issues according to Cavanagh-Downs. F-X warranties for remanufactured products are identical in all respects to those on new ones. "If we give the same warranty with remanufactured items as with new items, we never have any problems." F-X also has a total satisfaction guarantee, which will replace any machine with a new one in the first 3 years, if the purchaser is not satisfied.

As well as the potential costs savings from reductions in energy use and materials efficiency through reuse of parts and materials estimated by Bhattacharya & Wassenhove (2004) to be in the order of 40 – 65%, there are also savings resulting from a better understanding of why components fail, gained through the remanufacturing process (Cavanagh-Downs, interview). The F-X model appears to be to be highly successful overall as evidenced by the fact that F-X remains a market leader in the copier and printing sector.

5.4 Critique of re-use and remanufacturing

As discussed, both Electrolux and Fuji-Xerox Australia have a commitment to reducing waste, indeed Fuji-Xerox states its desire to be zero waste by 2020 (Fuji Xerox, 2007, p26). This commitment is exemplified by their extended producer responsibility programs, with an emphasis on re-using machines and components - discussed previously. While many in the environment movement as well as government policy makers, regard these higher order CER practices, there are however critics of re-use and of second hand markets on environmental grounds.

There are environmental costs associated with reuse of products relating to collection issues, such as transport impacts, cleaning and remanufacturing processes which use water and energy; toxic and environmental harm issues associated with older products; and energy and water efficiency issues because new models are often being designed to be more energy and water efficient. Thomas (2003) discusses the issue of energy efficiency of older reused electrical appliances, and postulates that if most of the environmental impact is from use of the product

rather than from manufacturing or disposal, and if there have been significant improvements in energy efficiency in new products, then there may be less environmental impacts associated from disposal of the old product and manufacture of a new one, than from reuse of the old product. Further he cites the potential for further environmental harm in a situation where a used refrigerator may still use ozone-depleting coolant.

Scitovsky (1994) challenges another common belief about second hand markets, that they reduce demand for new products to be manufactured. She suggests that they may actually increase demand for new products for two reasons: firstly, the ability to sell a product into the second-hand market increases the liquidity of the original purchaser, meaning he or she can more readily purchase a new product. Secondly, the existence of second-hand markets may encourage well-off consumers to sell products and buy new ones sooner.

There are also issues for companies relating to the impacts of remanufactured products on sale of a company's new product range. Vorasayan & Ryan (2006) assert that the price set for the refurbished products affects the demand for both new and refurbished products, while refurbishment or remanufacture of course incurs costs for the company. Companies therefore have to carefully choose the proportion of remanufactured and new products they sell into the market and the price of the remanufactured products, if they wish to maximize profits (Vorasayan & Ryan).

5.5 Walking the talk

What follows is a discussion on the degree to which corporate environmental practices match the positive images corporations create for themselves in their corporate public relations (PR). The term 'walking the talk' is often used to describe the practice of making ones actions match ones words. In the case of the business community, it means companies living up to their social and environmental rhetoric. In this section I will discuss corporate PR and its relation to CER, discuss the concept of 'greenwash' and its broader implications for lobbying of governments by corporations, and look at the environmental performance of my two case study companies as well as the performance of the Shell Corporation. Material for this section comes from my interviews data, from relevant literature and company and environmental NGO reports and web sites.

5.5.1 Corporate responsibility and public relations

The relationship between corporate public relations (PR) and corporate responsibility is an important one to make here. Clark (2000) points out that corporate responsibility had its beginnings and rapid growth during the late 1970s and early 1980s, corresponding to a similar surge in the importance and use of public relations. Now, she agues, they are virtually one in the same. According to Clark, companies use PR formulae to solve image problems by using primary and secondary research techniques to identify the problem and various communications tactics such as press releases, newsletters and advertisements to remedy it. She makes no mention of actions to prevent the problem from arising in the first place, just the use of PR to remedy the 'image problem'. This opens the door wide to 'greenwash', a term applied by environmentalists to describe attempts by some companies to pretend that they are performing in an environmentally responsible manner.

Reich (2008) says that:

> The soothing promise of responsibility can deflect public attention from the need
> for stricter laws and regulations or convince the public that there's no real
> problem to begin with (p 170).

The Executive Director of an Australian ratings company (Interviewee, 22), backed up this view of company PR when she referred to some companies' PR as "big motherhood statements" going on to accuse certain companies of releasing "remarkable social reports that have a predominant focus on environmental factors; yet these same companies are actively lobbying against the Kyoto Protocol" she claimed.

Interviewee, 22 from the Australian ratings company asserted that some companies that are "spending huge amounts of money on social reports and colour reports, and CD-ROMS, so you have to wonder what the real story is. You have to separate it from the rhetoric". Even neo-liberals acknowledge that for most companies, CSR is little more than 'cosmetic treatment' (The Economist, 2005).

This view is supported by various writers: Vogel (2005) discusses how BP used its decision to invest in its solar business as PR and relates a Washington Post article which pointed out that BP spent more in one year promoting its environmental image, than it invested in solar power over six years. Anderson & Bieniaszewska (2005) endorse Vogel's views and argue that BP fully understands the importance of PR especially around corporate responsibility issues and that while corporate responsibility is an important part of BP's business strategy, it comes

second to it's operational performance and gaining operation licenses. Heretier & Eckert (2008) express a similar view that companies use voluntary CER measures to pre-empt government legislation, as mentioned in Chapter 4.

This raises the question of 'greenwash', defined by Bruno & Karliner (2002, p13) as "socially and environmentally destructive corporations attempting to preserve and expand their markets by posing as friends of the environment". Corporations do this, according to Bruno & Karliner, by describing themselves in published material and in their advertisements as socially and environmentally responsible, whereas in reality there actions are far from responsible.

In terms of marketing products Polonski & Rosenberger (2001) claim one of the most difficult questions for marketers to address is what environmental information should be communicated and how should it be communicated. They argue that there must be something worthwhile to talk about, as a lot environmental promotion has been labeled 'greenwash'. Caulkin (2002) accuses companies of taking a public stance to protect their good image regardless of the any unethical or damaging practices that may be going on.

At the time of this final re-write the issue of greenwash in marketing has become a significant concern, with the Australian consumer watchdog the ACCC taking legal action against major companies such Holden and Daikin for false or misleading environmental claims on products (www.accc.gov.au). An influential study and its detailed report "The Six Sins of Greenwashing" carried out by TerraChoice in Canada, highlighted the level of misleading environmental claims and labels on products (www.terrachoice.com).

The question of greenwash according to Beder (1997), Monbiot (2000) and Bruno & Karliner (2002) is much more sinister than just a producer of dishwashing liquid lying to consumers about the environmental credentials of their product to convince them to buy it. Greenwash goes much deeper than that - it involves, according to these writers, major corporations 'hijacking' the social and environmental agenda. Indeed the business community has been accused of hijacking the agenda of the WSSD, beginning in Rio de Janiero (Rio) in 1992 and continuing on to Johannesburg in 2002 (Bruno & Karliner, 2002).

Bruno and Karliner (2002) further argue that despite the fact that it was becoming increasingly obvious that global corporations were the root cause of environmental destruction and global social problems, the first Earth Summit failed to confront corporate power "in any meaningful way" (p5). The governments at Rio "allowed business to avoid mechanisms to control corporate activities, opting instead for a voluntary approach to sustainable development" (p 5). This accusation that corporations act to avoid or pre-empt possible legislative action is supported by

writers such as Reich (2008), who asserts that this is a very common practice; and Heretier & Eckert (2008) who claim that the more credible this threat is, the more likely it is that business will act to try to pre-empt such measures.

The success of the business community's actions can be seen by the fact that the Rio Declaration contained no wording that placed any responsibility for environmental problems on the activities of corporations, nor did it propose any strategies to rein in corporate power (Bruno & Karliner, 2002). It was not until the World Summit on Sustainable Development (Earth Summit 2) in Johannesburg in 2002, that the actions of corporations were recognised as contributing to global social and environmental problems, and measures were suggested including further possible international agreements, to make corporations more responsible, and accountable (personal observations).

Bruno and Karliner are certainly writing from the environmentalists' viewpoint and as such, the business community would argue that they have a vested interest. The World Business Council for Sustainable Development (WBCSD) has a different view of both the Rio Earth Summit and the Johannesburg WSSD. In an address to the International Leadership Council, WBCSD President, Stigson (2003) challenges Bruno and Karliner's (2002) assertions that business manipulated the Rio Earth Summit. Stigson asserts that business was in the margins at the Rio Earth Summit, but in Johannesburg he freely admits that business was at the "centre of events", and that business input was positive and progressed the sustainability agenda.

> Business had a strong presence on the ground in Johannesburg, and showed a constructive, solution-oriented spirit. We successfully mobilized business under the Business Action for Sustainable Development (BASD) action campaign. Actually, there were more CEO's than heads of government in Johannesburg (Ibid 2003, p2).

The corporate practices of greenwashing and of lobbying of governments is discussed thoroughly by Reich (2008). While he concurs with much that has been said by Bruno & Kaliner (2002), Beder (1997) and several environmentalists interviewed, he also raises in his discussion, the reasons for both practices. Reich asserts that corporations are now under such enormous pressure from shareholders and investors for higher returns, and from consumers for lower prices, that there is no room for what he calls 'social virtue'. And, as compliance with government legislation usually means increased costs, corporations have no choice but to lobby governments to stop legislation, or, to introduce voluntary measures and agreements, which the preceding writers have termed greenwash, in an attempt to pre-empt or avoid government action.

The question of partnerships, between business, governments, NGOs and local communities - a prominent theme in Johannesburg and which features prominently in the final WSSD outcome documents – was another area of contention. Stigson (2003) asserts that partnerships are a correction of what went on before, that is, according to Stigson, from:

> a bipolar world where governments and NGOs drove the public policy agenda to a tripartite world where governments, business, and civil society must work together to find solutions to sustainable development issues (Ibid 2003, p3).

Stigson (2003) goes on to say that:

> the relationships between the partners are changing. The dominance of governments has diminished, while the influence of business has grown and civil society has matured. The consequences of these changes lead to rising expectations vis à vis companies, seen as key solution providers" (Ibid p 3).

Eric Beynon (2003) from Proctor and Gamble confirms that business was effective at WSSD, but Beynon also appears to support some of the demands made by environmental NGOs and writers such as Bruno and Karliner (2002), when he states that "leadership from government on sustainable development issues is necessary" and that "stronger governance to deliver sustainable development is supported by business, including local and international governance and binding agreements such as the Kyoto Protocol" (Beynon, 2003, p 23).

The interviews with key environmentalists and corporate analysts showed a commonality in the opinions about the actual performance of companies and whether this matched their corporate PR rhetoric. Interviewee 22 (senior corporate analyst) encapsulated this when she said: "sometimes I think the company rhetoric is very different from the practice". Henry, (CE, environment NGO, interview), summed up the key concern of environmentalists when he said that while most companies are "producing appropriate environmental reports like triple bottom-line reports, more importantly, what is their real, measurable, tangible performance on the environment?"

Ed Mathews a corporate accountability campaigner from Friends of the Earth International pointed out the importance of corporations addressing environmental problems and said they are faced with two choices: "They either go down the greenwash route, or they seriously attempt to address the problems". He went on to suggest that the majority of companies who

engage on this [environmental problems] go down the green-wash route until they discover they can't maintain that position because it is too transparent, and then they decide they have to address the causes of the problem – that is, they have to start to change their practices.

In a telling, if colourful, analogy Mathews states: "if you think of the corporate world as a big oil tanker, then right now it's slowed down slightly, but it's still moving very fast towards the reef. Crunch time is about to happen".

Matt Philips (Interview) a corporate campaigner with Friends of the Earth-UK, said the "problem is that small progress on internalising costs has been outpaced by greenwash rhetoric which means the CSR talk has not delivered".

Philips asserted that the environmental performance of some companies had actually deteriorated in recent years, and as an explanation for this he said:

> Companies know they have to improve their environmental performance. They are just too focused on the "now" and the financial bottom line to make the big changes necessary to make their activities compatible with the concept of ESD.

5.5.2 Performance of Case Study companies – Electrolux and Fuji Xerox

An extensive search of databases, a search on the Internet, plus personal communications with key environmental NGOs in Sweden, UK, USA and Japan, failed to find any serious negative environmental reports about either company. The only negative report I could find was one that reported that Electrolux was dropped from the Dow-Jones Sustainability Index (DJSI) in 2004 (Wheat, 2004), but the same report failed to identify any social or environmental reason for this, other than to point out that the EEP sector is very competitive. The removal of Electrolux from the DJSI is surprising when the same report points out that at the same time Electrolux was excluded, General Electric (GE), a company with heavy involvement in the nuclear and arms industries, was included in the Index for the first time.

Xerox however, does not unambiguously rank high on corporate responsibility benchmarks, as it was forced in 2002 to admit that it had "overstated its revenues during the past five years by almost $2bn", in a financial scandal following hard on-the-heels of those of Worldcom and Enron (Pratley and Treanor, 2002).

German environmental and social research firm, Oekom Research AG, has been conducting regular ratings of companies involved in the EEP sector such as Xerox, since 1997, and has found that generally companies in this sector were performing "fairly well". Oekom's Corporate Responsibility Rating uses a 25 page questionnaire, environmental reporting and company interviews to rate companies on 200 criteria including environmental management, environmental data and reporting, energy efficiency, hazardous materials, recyclability and packaging, and grades companies on a scale of A+ to D-. In 2000 Oekom rated 30 EEP manufacturers and found that the sector had "clearly improved its environmental performance" from their 1998 rating and was "open to environmental protection and management" (Johansson, 2000, p1), and in 2002 the rating found that this sector further improved its performance, and scored an average rating of B-, much better than its social performance. It put this down to recent recycling regulations in Japan and the European Union (Baue, 2002).

In 2000 Electrolux topped the rating along with Ricoh, with an overall environmental performance score of 'B', while Xerox came in the second group with a rating of 'B-'. The 2000 rating was, however, critical of the EEP sector for its poor performance in the area of product responsibility – take-back, reduction in use of heavy metals and other hazardous materials and energy efficiency, especially during 'stand-by' mode. In the area of take-back, the report identified Xerox as among only three companies that had long term guaranteed take-back schemes in place for all their products (Johansson, 2000).

A recent report titled, Best of the Best: Corporate Awards for Diversity and Women 2003-2004, highlighted Xerox's social performance (Xerox, 2004). The report, placed Xerox in the top 5 percent of the 790 companies reviewed for the report, which was issued by Diversity Best Practices and Business Women's Network. The report made its assessments by evaluating 45 of the latest "best company" lists published by publications, associations and government organizations "Xerox is committed to developing advancement programs, supporting women and minority suppliers, attracting a diverse workforce, supporting employee retention programs and community involvement - and we commend Xerox's remarkable leadership," said Edie Fraser, president of Diversity Best Practices and Business Women's Network (Xerox, 2004).

Xerox is one of only 50 American companies to adopt President Bush's Climate Leaders commitments, which include a pledge to reduce emissions by 10% within a decade. Xerox's vice president for environmental, health and safety noted that energy conservation was good for both business and PR (Vogel, 2005).

5.5.3 Shell

Earlier in this Chapter comparisons were drawn between corporate CER materials and corporate PR, and views presented from some researchers and interviewees that companies often use CER to 'greenwash' their corporate image. This section looks briefly at Shell to analyse whether this company uses CER, especially to promote a corporate image that is different from their actual behaviour.

An extensive search of academic databases and the Internet, uncovered very few academic studies of the environmental performance of specific companies, especially comparing specific companies' PR statements with actual performances. In researching for the following section this thesis relies heavily on material from NGOs although reference is made to a few academic studies, hence the argument presented needs to be seen in that context.

The positive rhetoric of Shell featured prominently in the earlier sections of this chapter. The former CEO of Shell and current member of Shell's Board, Sir Mark Moody-Stuart (2003, p1) was quoted from a speech at a conference, saying that there is "no way to absolve a company of its responsibilities – companies and the people who work in them are essential parts of society". Shell's website says that they are conducting business in a "socially and environmentally sustainable way". In 2007 Sustainability Report Shell's current CEO, Jeroen van der Veer states that sustainability means:

> means helping meet the world's growing energy needs in economically,
> environmentally and socially responsible ways. This includes both running our
> operations responsibly today and helping to build a responsible energy system for
> tomorrow.
> (http://sustainabilityreport.shell.com/2007/introductionfromthechiefexecutive.html
> - accessed November 2007)

Beder (1997), Thomsen (2001), Bruno and Karliner (2002) and Christian Aid (2004) accuse Shell of hiding environmentally and socially destructive practices behind a PR smokescreen, and engaging in a pro-environment and pro-human rights PR on the one hand, while continuing severely destructive activities on the other. Ite (2004), while accepting that Shell has helped local communities in the Niger Delta region of Nigeria, is however critical of Shell's ad hoc and top down approach to community assistance programs and accuses it of having an emphasis on "one-off gifts rather than support for sustainable development programs" (Ibid p 5). But he acknowledges that Shell has improved its community aid programs considerably since 2002 by adopting and promoting a partnership and multi-stakeholder approach.

Moody-Stuart (2003, p2) discussed how Shell responded to the Brent Spar controversy and the execution of Ken Sarowiwa:

> We held workshops all around the world to listen to the views of others on the responsibilities of a global corporation. In consultation with others we made modifications to the business principles which had guided us for more than 25 years. The modifications related to our support for human rights, clarified our long-standing position on non-involvement in politics, and added a commitment to conduct our business in line with the principles of sustainable development. To ensure that they were cemented into the governance structure, the principles were approved not just by the main boards, but by the board of every Shell company in every country, and a process was put in train to get their application in all our joint ventures and key elements through our suppliers.

Of Shell's apparent awakening Henry (interview, 2003) states: "they get into enough trouble and they have to do something – so they get a giant wake-up call from the community".

In analysing Shells actual environmental and social performance, this discussion looks initially at the company's first social report called *Profits and Principles: Does There Have to Be a Choice?* (Knight, 1998). This report arose as a direct response to, and was the culmination of, a period of "crisis and self-reflection" according to Moody-Stuart (2002), in the wake of two major scandals discussed earlier - namely the Brent Spar oil drilling platform issue and the execution by the Nigerian military of Ken Saro-Wiwa and seven other environmental activists from the Ogoni tribe, and argues that Shell has learned from the reputational damage they suffered as result of these two crises, and has set up processes to ensure that these problems do not arise again. In effect the report suggests that the problems in Nigeria have been resolved. Moody-Stuart also claimed that the Exxon Valdez oil spill in 1989 was an influential factor, which Mason (2005) takes up in his discussion of triggering factors to corporate responsibility guidelines.

Chapter 1 discussed the importance of not simply looking at 'what' a company says, but also 'how' and 'why' it is said. In analysing what is said in Shell's report Profits and Principles, Liversey (2002) draws attention to a number of inconsistencies in the report that perhaps, she argues, hint at Shell's real intention, that is to continue business as usual. She points out that while the report "demonstrated where the old, purely economic paradigm of progress could not hold" (Ibid, p331) and that the report committed Shell to "stakeholder dialogue", in another part of the report, Shell continued its "emphasis on the free-market system and the necessity of profit, its generally negative view of regulations, and its construction of business as apolitical" (Ibid, p 331). This shows according to Liversey, that Shell continues its "adherence to taken-for-granted assumptions of traditional economics".

A speech by Moody-Stuart as incoming CEO, the year after the release of Profits and Principles, where he analogised the 'laws' of economics to those of gravity, according to Liversey (2002, p331), "starkly expressed" Shell's worldview:

> I believe that, like physical laws they [economic laws] are universal and thus - all other things being equal – essentially neutral. That is the apple will drop no matter whose hand releases it (Moody-Stuart, in Liversey).

Thus, she agues, Shell's vision of sustainability was "grounded in discourses of economics that constructed the market as a totalising ethos and irresistible disciplinary force" (Liversey, p332). Importantly she contends therefore that Shell sees itself "not as an agent of, but rather as subject to, marketplace exigencies" (ibid p332).

Further, Liversey (2002, p333) contends that in this report Shell had "begun to deconstruct the 'natural law' of profit to accommodate society's expectations of environmental care and social justice, but within a fairly narrow constraint of a competitive market paradigm". The report uses phrases like "without profits, no private company can sustain principles"; "free markets, consumer choice and fair competition all contribute to a more free society"; and "[private enterprise] is beneficial and it works best when there is competition in markets".

Liversey's analysis sheds more light on the true meaning behind Moody-Stuart's (2003) comment, quoted in Chapter 4, that "we need intelligent government regulatory frameworks within which the market can operate". Liversey (2002, p333) argues that in Profits and Principles, Shell is "generally hostile to regulations", although they do support what they term 'sensible' regulations, such as the Kyoto Protocol, that are consistent with free-market mechanisms and achieved through dialogue with relevant interest groups.

In terms of regulations to govern production activities of major companies in all countries around the world, ie environmental regulation, a focus of this thesis, Shell's position according to Liversey, is hostile. Adopting the free market position, Shell argues in *Profits and Principles*, that mandatory standards hinder economic growth by reducing competition and creating barriers to free trade. And, in what could be seen as direct criticism of the role of NGOs in supporting those people impacted by the activities of corporations in developing countries, such as the Ongoni in Nigeria, Shell agues that global standards are "cultural imperialism" and generally a response to activists campaigning "on behalf of others who might, or might not, appreciate their help" (Liversey, 2002 p333).

With this criticism in mind, it could be agued that Shell's report 'Profits and Principles' was at best written in terms that gave the company an 'out' when they needed it, or, in other words permitted Shell to continue with operations that were environmentally and socially damaging, but allowed the company to justify its actions within the language of the report. At worse, the whole exercise could be seen as a ploy by Shell to give the impression that they had changed and that they were embracing responsibility, while they continued business as usual - that is, an elaborate greenwashing exercise. In fact Bruno and Karliner (2002) accuse Shell of "moving beyond greenwash in an attempt to whitewash" its environmental and human rights performance.

Shell was heavily criticised over its plans to dispose of the Brent Spar oil drilling platform, however several writers have commented on the apparent soundness of Shell's original deep-sea disposal plan. Vogel (2005) discusses in some detail the controversy surrounding the Brent-Spar and points out that there is no scientific evidence that deep-sea disposal of oil-rigs is environmentally hazardous and according to Vogel, an article in Nature concluded that Shell's studies into the environmental impacts of deep-sea disposal were carried out with scientific rigor. The studies asserted that the environmental impacts would be far less than land disposals, where accidental break up of the platform could pose serious pollution risks. The study also asserted that in land-based approaches, health risks to workers would be far greater, Shell would have to find a deep harbour where local authorities would permit the hazardous dismantling and land disposal would cost four times as much as deep-sea disposal. It should also be pointed out that the United States disposes of its obsolete platforms in the Gulf of Mexico in a scheme whereby half the cost savings of deep-sea disposal are committed to environmental projects (Vogel).

John Elkington, who first coined the term triple bottom line (TBL), and Chair and founder of SustainAbility, a TBL consultancy company, accepted an invitation by Shell in 1997, to help them improve their social and environmental performance in the wake of wake the Brent Spar and Nigerian controversies. As Elkington (www.sustainability.co.uk/) states, they were "offered the opportunity to embark on a multi-year work programme with Shell's new Social Accountability Team". SustainAbility used their TBL approach to design a new accounting system for Shell that, according to Elkington (www.sustainability.co.uk/; Elkington, 1998), forced social and environmental factors to be considered by Shell in its management decisions.

Despite the continuing criticisms of Shell's activities in Nigeria and in other parts of the world (see below), and accusations of greenwash, Elkington defends SustainAbility's decision to work with Shell. In an interview on CNN, Elkington (http://www.johnelkington.com/profile-cnn-2000.htm) stated:

> I genuinely don't think that Shell came to us in the first instance for a public relations exercise. I think very much what they had in mind was our response to these really difficult challenges that they were having to face.

And to support Elkington's view that Shell is a more responsible corporation now, SustainAbility's 2002 survey of global corporate reporting (SustainAbility, 2002) found that Shell topped the league in terms of the context and the commitment of its reports.

Nigeria is not the only country where Shell's environmental and social performance is still being criticised. Shell Australia's oil refinery in Geelong, Victoria came in for some serious criticism by the State's Environment Minister John Thwaites in November 2003. According to *The Age* newspaper (2003), an investigation they conducted on Shell's performance revealed that:

> Shell had been found to have committed more than 300 environmental breaches in the past two years, including 145 between June and September this year. It has been fined just 31 times. These breaches are subject to penalties imposed by the Environment Protection Authority of $5000 or maximum fines of $100,000 if the matter is taken to the magistrates court.

The report quoted the Environment Minister as saying that:

> the Shell refinery needs to improve its environmental performance. Shell - which markets itself as having a genuine commitment to sustainability and environmental protection - obviously needs to clean up its act in Geelong's backyard. The company's suggestion that this might take up to 15 years is as offensive as the smell from the refinery.

Thomsen (2001) is also critical of Shell's pro-environmental PR. He draws attention to company PR promoting an arrangement Shell Chemicals Canada has to provide carbon dioxide (CO_2) gas to a neighbouring company, which processes CO_2 for carbonated drink companies. Shell PR material presents this as a win for the environment, with "62,000 tons of CO_2 saved from emission into the air each year". However Thomsen points out that this is a tiny fraction of Shell's actual annual CO_2 emissions of 100 million tons worldwide. He also asserts that an analysis of Shell's budgetary commitment to renewable energy shows that it commits less than one percent of its total budget to renewable energy.

In June 2004, the environmental NGO Friends of the Earth (FoE) released "Behind the Shine: the Other Shell Report 2003", a report into the environmental and social performance of Shell. The Report is critical of Shells performance in a number of countries besides Nigeria. The Report starts by highlighting Shells overstating of oil and gas reserves in 2003. It quotes Sir Philip Watts, the Chairman of Shell's Committee of Managing Directors in The 2002 Shell CSR Report: "the corporate scandals of the past year [Enron, WorldCom] underline that good financial performance must be accompanied by the highest standards of governance. Shell's Business Principles assurance process ensures we meet and maintain those standards". The following year Sir Philip was forced to resign following the international scandal surrounding the exaggeration of Shell's oil and gas supplies.

With this major breach in mind, the Report (FoE, 2003) goes on to look at how Shell's environmental and social performance in Nigeria, South Africa, Philippines, Brazil, Russia and Caribbean as well as in Texas and Louisiana, compared to the claims made by Shell in its social reports and PR material, and against promises made over the years to communities affected by Shell's operations. It must be pointed out here that these are assertions made by an NGO, and unfortunately as mentioned before, there is little independent academic research into company environmental performances from the perspective of comparing company claims with actual performance.

Shell comes in for heavy criticism of its operations in Durban, South Africa, where FoE (2003) accuses Shell's refinery of dumping 19 tonnes of sulphur dioxide (a respiratory irritant and acid-rain-causing) into the air every day, and claims that unlike European refineries, the South African one does not employ an effective rust detecting system. This, according FoE, has resulted in 25 tonnes of tetra ethyl lead, a serious neurotoxin, entering into the environment. In its attempts to defend its refinery's operation, Shell points to the plants EMS 14001 certification. However, as FoE rightly contends, EMS 14001 is a set of voluntary standards that the company being certified puts forward – it does not involve mandatory, accountable standards for the operation of the plant.

The FoE (2003) report claims that in the Pandacan neighbourhood of Manila in the Philippines, Shell owns a massive oil and gas depot, where storage tanks tower over adjacent dwellings. Despite Philippines legislation requiring the depot to be relocated away from an urban area, Shell to this date, according to FoE, has refused to relocate.

In 2002 the Sao Paulo (Brazil) State Health Department and the Environmental Protection Agency found that Shell and Exxon-Mobil had been operating fuel-holding tanks in the village of Vila Corioca,. FoE (2003) contends that the 40,000 residents of Vila Corioca have for

decades, been drinking water contaminated by heavy metals and hydrocarbons from the storage facility.

In Russia's Sakhalin Islands, 40 kilometres from Hokkaido Japan, Shell is building the world's biggest oil and gas facility. The FoE (2003) report contends that the waters of Sakhalin Islands are a rich marine environment, and are feeding and migrating grounds for the endangered grey whale, as well as being rich fishing grounds. Shell is accused by FoE of failing to carry out an adequate environmental impact study before commencing work, and of dumping one million tonnes of tailings into Aniva Bay during construction, threatening rich salmon fishing grounds.

In lawsuits brought against Shell in Port Arthur, Texas, FoE (2003) claims Shell is accused of "habitual patterns of emissions and discharges that endanger the health of the public" and "destroying their quality of life" and of "violating basic human rights". In Norco, Louisiana, after years of campaigning and litigation by African-American families suffering from high cancer rates, caused they claim by pollution from Shell's oil refinery, Shell in 2002, was finally forced to offer these families relocation and to reduce pollution from the plant. However, as FoE points out, Shell to this day has never acknowledged the health impacts of its operations at the Norco refinery.

5.6 Conclusion

This chapter discussed two companies that are taking actions to back up their CER statements. Electrolux and Fuji-Xerox Australia, and their parent companies, performed well in terms of the degree to which their environmental performance matched their rhetoric. However, the discussion on Shell's record for example, and reports from environmental NGOs, suggest that there is a large gap between their corporate rhetoric and their actual performance in terms of social and environmental responsibility. If the corporate ratings consultants and NGOs are to be believed, then Clark (2000) may actually encapsulate the truth when she says, CSR and corporate public relations are sounding more and more similar.

Chapter 6

Government responsibility

"It is clearly evident that where a legislative, regulatory and compliance framework is present, companies, because they are required to comply, tend to perform better in terms of social responsibility." **John Hewson, former Leader of the Australian Liberal Party (Speech, 2003)**

"Companies are dangerous animals. You should keep them in cages, regulate them as much as you can, and treat them with suspicion." **Rev Harry Herbert, Uniting Church Investments (SBS Television,** *Insight***, December, 2004)**

6.1 Introduction

Chapter 4 looked at the responsibilities of the producers and analysed in detail the attitudes of some senior business leaders to environmental responsibility, and what the corporate PR of companies says about environmental responsibility. Chapter 5 looked at several companies in detail and also discussed the degree to which these companies' performance matches their rhetoric. This chapter will examine the role of national government policy in encouraging/forcing greater CER from companies, and will look specifically at the question: What is the role of national governments, should they be leading and introducing policies, including legislation, that will encourage/force companies to take greater responsibility? Here the question of voluntary versus mandatory approaches will be discussed. Some government policies in Australia will be discussed and how they compare with policies for CER in Europe.

This chapter also includes a discussion of a proposed product stewardship scheme from the Australian television industry, and the industries allegation that the Australian government by refusing to introduce 'safety net' legislation to underpin their proposed product stewardship scheme, is failing to act to address the serious issue of waste from end of life televisions. This and other sections in this chapter include reference to relevant interviewee responses to questions relating to government policies.

The 1990s saw an increasing awareness by manufacturers, of the environmental (and social) impacts of their products, with some companies, as discussed in the previous chapters, producing PR material to promote their CER credentials, and some companies taking actions to minimise their negative environmental and social impacts. Lindhqvist (personal interview, 2002) argues, that national governments around the world, by continuing to push the voluntary approach in their policies, failed to capitalise on business' increased awareness of, and in some cases at least, preparedness to take responsibility for, the environmental impacts of their products. From my research, all the evidence seems to support the assertion made by Lindhqvist during this interview, that the voluntary approach to corporate social responsibility and producer responsibility is "just not working".

My research supports Stilwell's (2003) argument, that there is a need for greater government regulation of the free market – decisions on what is produced, how it's produced, how much is produced and for whom, need to involve central governments through policy measures and legislation to achieve more sustainable outcomes.

The United Nations Environment Program (UNEP) in its GEO 2000 report issued this challenge to national governments:

> The challenge for policy-makers in the next century will be to devise approaches
> that encourage a more efficient, fair and responsible use of natural resources by
> the production sectors of the economy; that encourage consumers to support and
> demand such changes; and that will lead to a more equitable use of resources by
> the entire world population (UNEP, 2000, http://www.unep.org/geo2000/)

6.2 Types of government policies

The range of public policy options available to governments regarding environmental responsibility, range from a hierarchical command-and control approach, through pure self-regulation with little or no government control, to no action at all (Heretier & Lehmkuhl, 2008). Broadly speaking there are three public policy options for national governments: self-regulation; co-regulation; and full regulation through legislation.

Self-regulation (by industry) means that governments leave industry actors to act in the way they see fit to address environmental impacts associated with their operations. Self-regulation according to Heretier & Eckert (2008) usually takes the form of voluntary agreements. Self-regulation is frequently invoked by Australian and US governments as will be discussed later in

this chapter, and is often promoted as the better option because, as these government have argued, the measures are based on the expertise of industry, and because it is immediate in its application and can be changed more speedily if the need arises (Heretier & Eckert, 2008).

Co-regulation is defined by Heretier & Eckert, (2008, p 3) as "joint policy and rulemaking by public and private actors". This usually involves a process in which industry provides the contents and scope of the regulation, but government still has an important formal say in drawing up the regulations and in control of the implementation. Heretier & Eckert caution that for business the reason for operating is to maximise profits, therefore in order to increase their benefits under a co-regulatory arrangement, companies will do the minimum to satisfy the contractual arrangements. Also for governments it is difficult to observe whether the companies are complying or not with the contractual requirements. Therefore, to be effective Heretier & Eckert argue, co-regulation requires ongoing control by governmental or robust incentives.

Legislation involves lengthy formal decision-making procedures, which usually involve lengthy consultations with various stakeholders, and may even involve parliamentary enquiries, before legislation is presented as 'acts of government' to parliaments. The extreme end of government environmental legislation is much more prescriptive and sometimes referred to as 'command-and-control' measures, and was strongly criticised by most of the interview subjects as inflexible, non-consultative and innovation (see later in this chapter and also Chapter 4). The various 'polluter pays' legislations, especially used during the 1970's and referred to Chapter 2, are good examples of this type of government legislative approach.

Heretier & Eckert (2008) argue that all options are available to national governments however decisions on what course of action, or not to take, is strongly influenced by community attitudes, especially the level of public attention to the environmental and health risks linked to the production processes, but preferences differ for the different actors and interests. According to Heretier & Eckert (2008) industry's order of preference is firstly for no action from government, then self-regulation, then legislation and, interestingly, the least preferred is co-regulation because, they assert, this implies the need for both strong formal control mechanisms of the voluntary activity and mandatory requirements. This order of preference is confirmed by research conducted for this dissertation, including attitudes toward co-regulation and is encapsulated by the comments of interviewee 8 (former CEO, energy) who asserted that

> "…most business leaders want to see strong but non-prescriptive legislation from government to create a level playing field, or failing this, we want be left to it - to do it ourselves, and in our way. Business dislikes the type of government involvement that means we are get regulated from above as well as being expected to lead and go beyond compliance and having this monitored by governments as well".

The European Parliament's preference according to Heretier & Eckert (2008) is for legislation over self-regulation by industry. Their second preference is for co-regulation, in which industry provides the contents of regulation, but government still has an important formal say in the drawing up and control of the implementation, with self-regulation coming last. For the previous Conservative Australian government the preference has been for self regulation, and it is too early in the new Rudd government's term to identify their preference.

NGOs on the other hand, according to Heretier & Eckert (2008) prefer legislation, a view that is strongly supported by NGO representatives interviewed for this study, and referred to in Chapter 4 and later in this chapter. Their second preference is for co-regulation followed by self-regulation, also according to Heretier & Eckert (2008). This would also appear to be consistent with NGO interviewee comments, and my own personal observations made while working in environmental and human rights NGOs.

6.2.1 Self regulation versus legislation debate

This section continues the discussion on policy options but focuses more on the pros and cons of self-regulation through voluntary measure and agreements, and legislative measures for CER.

Traditionally governments have attempted to protect the environment from the more serious negative impacts of company operations, by using legislation. Khanna, (2001) says that the so-called 'command-and-control' approach to environmental policy – emissions standards, licenses, prohibitions and fines for polluters - dominated in most countries at least until the late 1980s when doubts about the effectiveness of these regulations began to arise and opponents began to argue for a more flexible and least cost approach.

The pressure on governments to move away from environmental legislation to voluntary agreements accelerated during the 1990s to the stage where in many Industrialised nations, it has become the rule rather than the norm. Khanna (2001) suggests that since 1990 in the United States the EPA has established more than 30 voluntary programs, while in the European Union there are more than 310. According to Bailey (2003) proponents of voluntary agreements claim that legislation is unnecessarily expensive, and accuse government officials who set legislative standards, of being remote from and ill informed about, the market, and of being insensitive to the needs of companies and the capacity of individual companies to achieve compliance

Chapter 4 looked at the drivers for CER, and discussed the threat of legislation and moves by the business community to pre-empt or avoid legislation by introducing voluntary measures or entering voluntary agreements with governments, and that companies would not act voluntarily without the presence of or threat of legislation. Heretier & Eckert (2008) argue that the more credible this threat of legislation, the more likely it is that industry will take voluntary action.

The potential for cost savings, also discussed in Chapter 4 also as Khanna (2001) identifies, acts as an important driver for voluntary action. Vogel (2005) and Polonski & Rosenberger (2001) discuss the savings of some American corporations such as IBM and Alcoa, while Khanna (2001) suggests that a number of companies in the United States, such as Dow Chemical, Dupont and AT&T, adopted voluntary programs to reduce pollution by redesigning products and processes because pollution is seen as a waste of resources by these companies, and hence an opportunity for cost savings.

Khanna (2001) identifies four main types of voluntary initiatives:

(1) *Public voluntary programs* which are established by environment agencies and which invite companies to meet specified standards. In Australia the *Australian Greenhouse Challenge Plus* (http://www.greenhouse.gov.au/challenge/) established by the Federal Department of Environment and Heritage, is an example of this type of program, in which companies are invited to join the challenge to increase their energy efficiency and reduce GHG emissions.

(2) *Bilateral agreements* which are negotiated between government and companies to set environmental improvement targets and how they will be met. In Australia the National Packaging Covenant (NPC) is an example of this type of agreement, in which companies in the packaging supply chain agree sign up to the Covenant and to introduce measures to increase the environmental performance of packaging. The NPC is discussed in greater detail later in the chapter.

(3) *Unilateral agreements* do not directly involve the government but depend on companies unilaterally developing their own plans or management programs; or companies participate in programs or codes developed by industry associations; or voluntarily agree to meet standards set by certifying organisation such as the ISO.

(4) *Information provision* in which companies voluntarily agree to provide environmental information to a government or other third party administered registry or inventory. The Australian National Pollutant Inventory, which provides information on the

amount of pollution being emitted into the community by companies, is an example of this type of information provision. Voluntary environmental labelling schemes are also examples of this type of information provision.

The effectiveness of these voluntary policies and the question of whether environmental policies should go down the voluntary or mandatory path are hotly debated. Vogel (2005) points out that some voluntary programs do have measurable environmental impacts. He refers to a study of sixteen such programs in the United States to reduce greenhouse gas emissions that found a reduction of 24.7 million tonnes, or 1.9% of total US emissions. But Vogel counters that the majority of American companies have made modest or no commitments to reduce GHG emissions, and argues that this is probably because they felt no public pressure to do so.

Rupesh et al (2003) contend that rule making by governments has been superseded by Neo liberal economic policy and market fundamentalism, also discussed in Chapter 1, and often termed the 'Washington Consensus', under which governance functions are taken away from the state, a view that is backed up by many environmental and political economists (Thurow, 1996; Haveman, 1997; Stilwell, 2003) and a major assertion made by UNEP (2000). The Washington Consensus according to Rupesh et al, is based on fiscal discipline, deregulation, privatisation, trade liberalisation, low taxes, low interest rates, competitive exchange rates, and secure property rights. The result therefore for environmental policy, has been a move away from regulations to voluntary codes and agreements. Voluntary codes have, according to Rupesh et al, three defining characteristics: firstly the absence of a state role in developing or monitoring them; secondly the complete absence of any enforcement; and finally, they are normative in that they create standards and supposedly influence behaviour.

All the environmentalists and most of the academics I interviewed argued strongly that voluntary approaches haven't worked, with environmentalists pointing to the current desperate state of the global environment as evidence for their assertion. At the time of writing, national governments around the world however, especially those of Australia and the United States, were still promoting voluntary codes and agreements as the answer - as Lindhqvist (interview, 2002) puts it, they are "obsessed with voluntary initiatives". Lindhqvist asserts that sometimes this 'obsession' is actively encouraged by some in the business community. [The election of the Rudd Labor Government in 2007, has seen a shift in this attitude, especially in terms of preparedness to address climate change, as illustrated by Australia's ratification of the Kyoto Protocol.]

Certainly for many business leaders, the preferred outcome is no regulation or government action at all (Heretier & Eckert, 2008) and many leaders use the position to lobby hard to influence government positions on environmental regulations. The role that business leaders in the Australian coal and aluminium industry had in influencing the Howard Australian government's policies on climate change (Turton, 2002) is a good example of this. However, as mentioned in Chapter 4, my research involving interviews with business leaders both in Australia and overseas found a surprising number who want more legislation, which they argued creates certainty and a 'level playing field'. This is backed up by Hopkins (2002), who claims that surprisingly, a pro-regulatory view comes from some companies in the United States. Hopkins says that because these companies believe that their behaviour exceeds most standards, they want to bring other companies, especially their competitors, up to the same level.

Zarsky (2002) makes the interesting assertion that the commitment to voluntary codes and agreements has meant that corporations, faced with the absence of global standards and weak or non-existent national standards of environmental (and social) behaviour, are forced to become rule-makers rather than rule-takers. Interviewee 7 (Energy) made a similar point when interviewed and said that he sees "government as a follower rather than a leader in most cases. It should be leading", he said. While Moody-Stuart (2003) commented along similar lines, and hinted at business' desire not to be the rule-maker, well at least not alone:

> Business has a role in helping to create governance structures and in working to address issues affecting society. But it is not a role that can or should be carried out alone. The key to the social responsibilities of companies lies in acting as a part of society, not trying to address things on our own.

As mentioned earlier, Lindhqvist (interview, 2002) claimed that national governments are too focussed on voluntary initiatives often to the detriment of effective environmental policy development. To support this assertion, he discussed negotiations he led for a national recycling scheme for the Swedish car industry, and how agreement was reached which would have seen a "feasible system with responsibility being accepted by car manufacturers" put in place. But the Swedish government ignored this and developed it's own voluntary-based system that according to Lindhqvist, failed to deliver on key outcomes and imposed costs on Swedish tax payers. Lindhqvist said "the government took five steps backward - they accept the industry taking responsibility, but they are not tying them in the same way as industry themselves would have proposed".

In Australia, the National Packaging Covenant (NPC) as mentioned earlier, is a good example of the type of voluntary agreement that Lindhqvist refers to. It is a voluntary/self-regulatory agreement between companies involved in the packaging chain, and the Federal, State and local governments. Many critics claim the NPC has just not worked, and a government initiated review found it lacking (White, 2002; Woolley (interview, 2004)). The NPC is discussed in more detail in section 6.4.2 below.

Mathews (interview, 2003) put the environmental NGO communities' case for greater legislation, and argued that many corporations promote the voluntary line. On the balance of voluntary and legislative options, he said that "voluntary mechanisms are a worthy thing to have, but these voluntary standards must be above where the legislation is". But he suggested that Friends of the Earth's experience was that:

> voluntary initiatives just aren't enough. What is going to really focus the mind of a director on minimising his company's social and environmental impacts are the possibility that he might be prosecuted; and not only that his company might be made financially liable, but that he might be made personally liable as well.

Mathews went on went on to make an unsupported assertion that some research of voluntary measures that Friends of the Earth had conducted showed that:

> some voluntary initiatives actually worked against the interests of the corporations, and that clear legislative standards can be more effective. That means there is a level playing field for everybody, and the market can respond accordingly.

Mathew's view seems to support the findings discussed in the Chapter 4, mainly that many business leaders supported regulations particularly because it helps to create a level playing field.

Opponents of mandatory policies argue that they don't work, however Eckersley (1995) argues that regulatory regimes often fail not because the measure is wrong, but more often because of a lack of political commitment to the policy, or from inadequate resourcing, poor policy design, or weak monitoring and enforcement. The classic example of regulatory failure due to poor resourcing and commitment is in developing countries. Brazil has some of the most rigorous environmental laws in the developing world, including for the protection of forests, yet the Amazon rainforest is still being cleared at a rapid rate. Interviewee 21 (2002) highlighted Brazil's dilemma where as he put it "when you think about the environment, companies cannot operate in Brazil without a permit. So there is no voluntary. Everything is mandatory. You do it

or you're out". But as he points out, Brazil struggles to enforce its environmental laws in a country the size of a continent and with a cash-strapped government.

Salim (interview, 2002) took a slightly different perspective to legislation in developing countries arguing that while legislation works in developed countries, it is not as effective in developing countries, because the governments are weak. Mathews (interview, 2003) argued that the main impediment to enforcement of regulation is corruption:

> in developing countries it's very poorly enforced, and that's one of the biggest problems. Sometimes this is extremely difficult because of corruption. If you look at Indonesia, where there is a lot of good forestry legislation, but none of it is enforced. The governance issues are extremely important, and that has to be addressed and dealt with.

6.2.2 Government regulatory models

The importance of government legislation, in progressing CER and sustainability, already discussed in some detail earlier, was a question put to key academics and environmentalists interviewed. There was a range of views expressed, from support for a mix of voluntary and legislative measures to a view that voluntary initiatives just don't work. However all those interviewed came down to supporting, or calling for, some degree of government regulation as essential to encourage or force greater CER and for achieving more sustainable economic outcomes.

Lewis (interview, 2003) for example expressed an opinion that "goal setting and leadership doesn't need to be regulated". It is preferably to be regulated, she said, but it doesn't need to be. "Companies tend to listen to governments. They tend to sit up and take notice if someone says 'we are going to ban your products from landfill in five years time'. It's not hard to set up a program over a five-year period. It doesn't need legislation. It just needs a policy."

Potter (interview, 2002) while accepting a role for all types of government polices, argued that "pulling the laggards up is something that regulation does very well". He also asserted that legislation can "gradually push the green front forward".

Henry (interview, 2003) strongly advocated the need in "every sector of our economy, for legislative floors - a bench mark of performance that is legislated". He did however, acknowledge a need for some flexibility "as to how you get there, and also leave a bit of room for the market to innovate, as long as you achieve the outcome." He also argued that there is a business case for regulation:

> We strongly believe there is a profound leadership role for government and a regulatory role. You can argue that from an environmental point of view, but I believe you can also argue it from a business point of view as well. If you don't have a regulatory system, the laggards free ride in an economy. So it is in the interest of business that there is a basic standard of good environmental performance required by law, because then others can't free ride.

Mathews (interview, 2003) was much more unequivocal when he asserted that "in terms of governmental responsibility, [you have to] make sure you have good legislation for environmental and social standards in place, and it has to be enforced, with tough penalties."

Mathews argued for legislation at both national and international levels "for accountability of corporations. You need legislation to maximise the level of accountability that they have to communities and to the countries where they are operating."

Gertsakis (interview, 2003) accused the former Howard Australian government of wanting it both ways when it came to mandatory and voluntary approaches. Using the example of take back of end-of-life products he argued that the Australian government:

> seems to want companies to take the products back and manage the schemes. And that's fine. But at the same time, they want self-regulation and voluntary agreements. So that just seems to be stupid - dumb public administration. If they are frustrated, then they need measures to match that frustration in order to bring about change. That's one thing that's really striking me. They want the cake and eat it too, and they want to eat a second and third and fourth cake as well. They need measures - all sorts of measures. An integrated package; bans; regulations; design for environment support. They need all of that to bring about change.

Gertsakis is calling for a balance of the two broad legislative approaches, prescriptive and performance based.

6.2.3 Market instruments

The other policy debate, related closely to the mandatory/voluntary debate, is that surrounding the use of market incentives. Some discussion has already occurred on market incentives in Chapter 4. Market instruments are fiscal measures designed to correct the failure of markets and production processes to consider the negative impacts of their activities, that is the failure to internalise environmental costs. The key market instruments advocated by proponents are environmental taxes and charges and tradable permits. Market measures are strongly supported

by many environmental economists and environmental NGOs support the concept of internalising environment costs.

Some environmental economists such as Eckersley (1995) argue that so-called 'command-and-control' measures leave no room for producers to manoeuvre – failure to comply means penalties - often it can be cheaper to ignore the regulation and just pay the fine. Market-based instruments on the other hand, she claims, alter the costs and benefits facing producers, leaving them free to respond in ways that best suit them. The flexibility allows 'polluters' to choose the least-cost solution that suits them best, to meet the overall objectives. In this way they encourage innovation; in fact strict regulatory measures, Eckersley (1995) and Reijnders (2003) assert, can often hinder the development of new cleaner technologies and prevent them from entering the market.

There are three key market measures that are keenly advocated by those sections of the community, such as environmental NGOs, most concerned with the improving environmental performance of companies. Perhaps the most fundamental market based measures advocated is that of internalising environmental costs in the costs of production of the product or service. The environment has been greatly undervalued and has been exploited as a 'free', or at best, cheap resource in terms of the use of resources such as air, water and forests, and as a free dumping ground for pollutants (Eckersley, 1995; Fishbein et al 2000; Mikler, 2003; Jaffe et al, 2004; Vogel, 2005; Lowe. 2005). Reijnders (2003) asserts that perverse subsidies and distorted prices of raw materials and other distorted costs such as transport, fuel, water, waste disposal and even agricultural chemicals, which are often reinforced by governments, have encouraged poor environmental performance.

In Australia perverse subsidies exist in the areas of forestry, energy, mining and land clearing (discussed in Chapter 3) and increasingly, with the deepening water crisis, the issue of cheap water is also being seen as a subsidy encouraging poor environmental performance. Environmental NGOs are highly critical of these subsidies. As referred to in Chapter 3, the Australian Conservation Foundation's Don Henry, for example, called a recent Australian Federal government energy policy whitepaper, a "fossil fuel aid package" (The Australian, 2004). Environmental economists argue for the removal of such perverse subsidies, or the imposition of taxes or charges on environmentally degrading industries to force the internalising of environmental costs. They assert that only when all factors of production, including environmental (and social) impacts are costed, will efficient use of resources occur.

The use of taxing as a tool for eliminating damaging environmental practices is a market measure being advocated by some interests (Brown, 2001). The World Resources Institute (WRI, 2000) argues that governments could tax the 'bads' of production (waste, pollution) instead of the 'goods', and it estimates that in the US economy, perhaps US$150 billion in federal, state and local taxes could be collected and used in this way for more sustainable economic outcomes. The greater the shift to taxing environmentally degrading activities they assert, the more radical the ecological restructuring of the economy is likely to be (WRI, 2000).

Reijnders (2003) draws attention to successful uses of eco-taxes and selective tax reductions, such as reductions of value added taxes (VAT) in countries such as United Kingdom, Spain, Belgium, Netherlands and Slovakia, to encourage cleaner production practices and technologies and more environmentally benign products. The argument often used by government's against 'green taxes', such as taxes on waste to landfill, is that as the environmental degradation is reduced, so too will the taxation base be reduced, while environmental NGOs argue that there will never be a 100% reduction in environmentally degrading practices and that new 'bads' will always appear, and therefore new taxing regimes will always be required (Henry, interview).

Tradable pollution rights is an area of market-based measures advocated by many environmental economists, some governments and some environmental NGOs. Eckersley (1995) asserts there are serious negative effects associated with these types of measures. Eckersley says that pure market based solutions can increase the freedom of the polluter (producer) at the expense of a third party - tradable pollution rights may permit polluters to offset their pollution through trading, but at the expense of the community surrounding the offending production plant, but government compensatory policies could be designed to offset these impacts. Perhaps the highest profile example is the use of carbon trading rights in the Kyoto Protocol, which permits high polluting industries to offset their emissions of carbon dioxide by, for example, by investing in reforestation and clean energy projects.

Eckersley (1995, p10) says that by the early 1990s, economic instruments "had captured the attention of many policy advisers and governments". They have been promoted in many international environmental treaties since then, such as the Kyoto Protocol and earlier in the Agenda 21 action plan emanating from the Rio Earth Summit. The environmental degradation in Eastern Europe, which became visible after the collapse of the Soviet Union, Eckersley claims, was used by critics of 'big governments' to justify their push for decentralised market mechanisms to achieve environmental protection. Cairncross (1995) asserts that the failures in the former Soviet Union were not so much with the regulations themselves, but with the lack of enforcement. She argues that air quality standards for example were at least as high as those in the West.

Despite the wide-spread calls for market mechanisms, Eckersley asserts that market-based policies failed to become as popular as proponents hoped, firstly because government intervention in the market was frowned on, and secondly because they had effectively moved to a regime of voluntary agreements or covenants with industry. This is a significant point when one considers the degree to which the recently defeated Australian government embraced voluntary measures. Eckersley is suggesting that this move to voluntary approaches means governments like former Australian one, may be ignoring market-based approaches. This is not the case in Europe, where market-based approaches have been used with regulatory and voluntary measures. Significantly, Bailey (2003, p 5) asserts that despite many European countries embracing market measures, there is a "significant omission from the literature" due to the fact that to date, very little empirical research has been conducted at the corporate level, into the success or otherwise of these measures.

Just as Eckersley (1995) argues that regulatory regimes often fail, not because regulatory measures per se are wrong, but because they are either wrongly designed, or not enforced, or because of a lack of political will or lack of resourcing, so too she asserts, market based measures are just as likely to fail if the commitment from the bureaucracy is not there. If market-based measures are used the state must retain control of the measures, it must be a 'regulated autonomy', she advocates. The state must act as "facilitator and broker by structuring mechanisms for self-regulation" (Eckersley, 1995, p24). This goes against the fundamental tenet of voluntary codes and agreements. There is a new generation of voluntary agreements that involve a mix of regulatory and voluntary components and market measures, and which by their nature, advocate a greater role for national governments. Some examples of these will discussed later in this chapter.

6.2.4   Attitudes of business leaders to legislation

The majority of business leaders interviewed were favourably disposed toward government legislation, albeit with reservations on the type of legislation. Even those who were opposed were nowhere near as vehement in their criticism as I expected - in fact, most of the opponents had something positive to say about some types of government legislation. Most concurred with Moody-Stuart's (2003) opinion, that "a guiding regulatory framework is required". This view was backed by academic Chris Ryan (interview, 2003) who said, "if you talk to any companies, they will all say we really need a regulatory framework and we need to see a clear direction".

Government environmental legislation can be good for business – it can increase competitiveness of companies. Porter (1990) says that firms should:

> establish norms exceeding the toughest hurdles or product standards… Tough regulatory standards are not a hindrance but an opportunity to move early to upgrade products and processes (pp585-586)

As discussed in Chapter 4, most business leaders interviewed and/or listened to at high level conferences, clearly stated their desire to see governments taking a more active and leading role to encourage and even force greater responsibility from companies.

The philosophical question of who should lead, was raised by Interviewee 7 (former CEO, energy):

> Now, is it for government to lead on environmental matters, or should it be society leading governments on environmental matters. It's an interesting philosophical debate, because I think we would all hope that our governments are wise, omnipotent, benign, and will lead us to an appropriate future. I think we would all agree that the reality is not exactly like that. My own view is more that society should lead the debate. And by society I mean a pluralistic society—that is, the voice of progressive business, the voice of progressive society, the voice of local government, enunciated individually or by NGOs and so on. We have opportunity now, via internet, to look at what is going on around the world. My own sense is that society has got to find a way of voicing its opinion better which creates the voting intention which creates the reason why politicians move forward.

Level of support for legislation varied, Interviewee 3 (former senior manager, EEPs) said that the Australian government "could probably be stricter and legislate harder", while interviewee 5 (senior environmental manager, EEPs) said, "the only answer [to the problem of e-waste] is regulation – there's just no other way. He went on to argue:

> Voluntary won't work – people just won't do it. The problems are real, they do have to be solved. Companies will ignore it for as long as they can. I have no doubt at all that it needs the goals set – and the government is the only one to do it.

Interviewee 7 (former CEO, energy) was not as supportive of legislation and said some governments are guilty of "over-governing, setting strict standards, which can put undue stress on companies".

Most interviewees supported performance-based legislation, which sets environmental objectives or targets, but allows flexibility for the producer to determine how to achieve the objective, as opposed to prescriptive of the command-and-control type. Many argue that a legislative framework 'creates certainty' and a 'level playing field', and catches the so-called 'free-loaders', and which seems to match the legislative thinking in the European Union. Yet, as previously discussed, some national governments like the former Australian and the current US administration, seem determined to move more toward voluntary agreements and initiatives.

Underpinning or enabling legislation was also well supported, such as the type of 'safety net' legislation proposed by CESA and AEEMA to underpin their product stewardship strategy for televisions and other household EEPs (discussed in detail later in this chapter) – to "catch the free loaders" as Wooley put it (interview, 2004).

Or as Interviewee 8 (former senior environmental manager, Energy) talked about "out-come focussed as opposed to input-focussed legislation". He went on to describe the type of legislation he supports:

> I think most legislation is prescriptive negative legislation that really doesn't reward good behaviour. I think, at the end of the day, all the pieces of legislation that I've supported globally and in Australia really had two core elements. One, a big stick for those that didn't comply, but enough latitude for those that wanted to be a bit more progressive and thinking laterally, but also enough latitude for those to go forward. I believe you've got to have both. You can't just have a piece of legislation that doesn't have some pretty severe teeth. But you can't be so rigid within that legislation so as to make everyone go the same way.

Interviewee 5 (senior environmental manager, EEPs) described legislation that was based around market incentives:

> Our first preference would be for incentive legislation. A marketing incentive would be a very positive thing. If that is not forthcoming, and there are requirements, then anything that evens out the playing field for those responsible organizations to not be at a marketing disadvantage is a critical aspect of the legislation.

Interviewee 18 (production manager, beverage) talked about legislation that sets targets, but is still not prescriptive:

> "There was a target set a few years ago, where we had to reduce our landfill waste by 50%. Although we didn't get anywhere near it, I think those sorts of targets

force industries such as ours to focus on those areas. Senior management are then forced to make sure programs are implemented to meet those targets".

The concerns with prescriptive legislation as opposed to performance based legislation was raised by Interviewee 19 (production manager, Aircraft):

> It would be helpful for us if government could move in the direction of being less prescriptive and more performance based legislation. If we can demonstrate improvements rather than being mandated to elimination by a certain date, we can focus our efforts.

Interviewee 8 (senior environmental manager, Energy) said he believed that most companies support what he termed 'telegraphed' legislation:

> Most companies would like a piece of legislation that has a five-year window, so that they can decide over that period how they will best achieve that requirement – through capital spends, or whatever the case may be. I think the real concern that most companies would have is knee-jerk legislation, where companies don't have some time to both input with that legislation, or deliver compliance with that legislation. If I were looking for legislation, I would say it needs to be reasonably – the word I would use is telegraphed

Interviewee 11 (senior environmental manager, Automotive) said that her company would support government policy that:

> included performance based/non-prescriptive legislation, such as targets for reducing use of hazardous materials, or for energy reduction, designed to encourage greater producer responsibility for the environmental impacts of their operations.

Interviewee 11 also went on to stress the importance of government policies to educate industry as well as the broader community:

> I think they [government] have to educate people at all levels. I think they have to educate industry, I think they have to educate the consumers, I think they have to educate the general public. I think - that's my opinion. Because only once people realise what the implications of their actions are, and they understand it, will they appear adhere to anything. And I think you can't concentrate on industry, and have industry understand and the general public doesn't understand. I think they have to educate people at different levels.

Interviewee 10 (global corporate director, Automotive) on the other hand, repeats claims made by other interviewees and expressed his support for as he put it, "a combination of mechanisms – carrot, stick, fines, penalties, tax breaks, financial incentives, and breaks on R&D". While interviewee 5 (senior environmental manager, EEPs) was unequivocal in her support for landfill bans:

> It would be enabling in a way to have a total ban on product going to landfill, because it would ensure there was engagement of all relevant parties. No landfill, we would be comfortable with that, with the time lag, and with a staged presentation, and applicable throughout Australia.

Interviewee 4 (former senior manager, EEPs) when asked what type of policies should the Australian government introduce to encourage greater CER, said:

> Common sense says it should be self-regulatory, but there has to be some sort of brick wall in place somewhere down the track, otherwise no-one will take notice of it. Provided it has the right target and right timeframe. Most companies don't think about the environmental or sustainability – and they won't change unless there's some sort of legislation down the track. Companies have other priorities - they have responsibilities to shareholders and boards. There has to be something to make them take responsibility for the environmental. I strongly support this.

Standards are an important mechanism by which the environmental performance of companies can be managed within society. Standards can be voluntary, as in a set of voluntary codes of behaviour, or mandatory, government-set standards, such as safety requirements for products. Interviewee 7 (former CEO, Energy) presented his view on how business often leads and government follows in setting some standards:

> They [government] know that those companies will move forward and begin to set standards. Those standards are pushed onto government as a better way to go. Government tends to resist because the bulk of industry resists. Eventually it gets to the point presumably where the voting public will wait no longer, and then the government begins to act, and then the standard raises and gets applied to the totality of business which moves forward in that way.

He went on to describe what he sees as national governments' role to watch trends around the world and set standards accordingly:

> the government's role I think is to look at all the standards that are out there, and to look also at what is happening in the world, and to look at what the trends are doing. If it is smart, then it should begin to move this country's standards up to where the world's standards are going to.

Interviewee 8 (former senior environmental manager), also from the energy sector, supported this view on standards development. He described how clean fuel standards were set in Australia and the dilemma the Australian government faced in trying to balance the need for environmental protection with those of business:

> the direction [in fuel standards] has been set by Europe primarily, and America secondarily. Australia was about ten years behind, or even further behind. If the government raised the standards, then the oil companies would have to invest, so naturally there was a tendency to resist that. And furthermore, if fuel standards were raised, then car companies would have to invest in engine plant. So you end up with an unwitting conspiracy to keep to a lowest common denominator. And that pertains in many instances. So you need something to break the cycle.

Possible cycle breakers according to Interviewee 8, include worldwide trends that can force the hand of a government, community or NGO pressure, or even pressure from progressive companies.

6.4 Australian national product environmental legislation

This section looks a two existing national Australian product-based legislation schemes and one that is strongly advocated by the EEP sector in Australia. The purpose of this discussion is to highlight the strengths and weaknesses of the two existing legislative approaches, and to illustrate a key finding from this study, namely that there are companies that are prepared to take CER seriously provided the government support structures are in place.

6.4.1 Product Stewardship legislation to manage ozone depleting and synthetic greenhouse gas refrigerants

In 1989, in-line with Australia's responsibilities under the Montreal Protocol, the Australian Parliament passed the Ozone Protection Act 1989 (OPA), one of the few truly national examples of product environmental legislation. The Act aims at ensuring that manufacturers and importers of ozone depleting refrigerants set up product stewardship (PS) schemes to manage the refrigerants at the end-of-life of the appliance, to ensure that the gases are recovered and destroyed and that none is released into the atmosphere. The Act contained provisions for the government to create regulations requiring manufacturers and importers to abide by the PS

requirements of the Act. The provisions of the OPA were extended to also apply to synthetic greenhouse gases (SGG) by the passing in December 2003, of the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 to amend the earlier act (http://www.deh.gov.au/atmosphere/ozone/licences/).

Because the bulk importers of ODS voluntarily set up a PS scheme, and established Refrigerant Reclaim Australia, a non-profit industry based organization in the early 1990s to manage the recovery and destruction of ODS as well as SGG in Australia, the government did not have to use the provisions of the original act, nor enact any legislation in line with the act, to force compliance. However, another section of the refrigeration and air conditioning industry, those that imported equipment that was pre-charged with refrigerants, were avoiding their responsibility (DEH, 2004). As a result, industry trends showed increasing importation of pre-charged refrigeration and air conditioning equipment. Hence the Federal government drafted legislation, after consultation with the industry, designed to ensure that PS requirements applied equally to all importers and manufacturers of ODS and SGG refrigerants (DEH, 2004).

Four discussion papers were released in January 2004 which detailed the nature and provisions of the legislations to give affect to "nationally consistent end-use controls on the purchase, sale, handling and disposal of ODS and SGG, including mandatory product stewardship requirements and reporting requirements for importers" (DEH, 2004). The legislation gives flexibility to importers to choose how they will fulfil the requirements - they can either join an existing accredited PS scheme (PSS) or set up their own accredited scheme, but they must satisfy the Minister that their scheme meets the key elements of the government's PS arrangements:

> • all importers and manufacturers of ozone depleting and SGG refrigerant, both bulk and in pre-charged equipment, will be required to take legal and financial responsibility for the end of life destruction of gases they have imported, by being part of an accredited PSS;
>
> • for a PSS to achieve accreditation it must conform to specified criteria that show it is able to meet this legal and financial responsibility as well as being able to collect and destroy used ODS and SGG refrigerant. This accreditation will also require a PSS to demonstrate that it can prevent unintended crossover of its liabilities to other schemes;
>
> • a PSS will be required to report regularly on its performance to the Minister responsible for the management of the Act; and
>
> • the Australian Government will enforce these requirements, with penalties for breaches being consistent with other areas of the Act" (http://www.deh.gov.au/atmosphere/ozone/ publications/questions.html).

Although I could find no reviews or evaluations of the effectiveness of this scheme, beyond the support from the Australian EEP industry, it seems to be clear example of effective underpinning legislation, designed to ensure that key environmental outcomes are achieved, in this case ending the emission of ODS and SGG to the atmosphere, while permitting flexibility for companies involved in the industry, but importantly with enforcement and penalties, to catch freeloaders. The most important proposed enforcement measure, and the aspect that most interests the Australian EEP industry as they develop a PS strategy (see section 6.4.3 below) is the requirement that importers of bulk refrigerants and pre-charged equipment show that they are participants in an existing, or have set up their own, accredited PSS before an import licence will be issued. The enforcement rule therefore goes to Customs, who have the responsibility of checking all importers to ensure they are adequately licensed.

6.4.2 National Packaging Covenant

The National Packaging Covenant (NPC), as mentioned earlier, is the only national policy framework for a specific product type in Australia, namely packaging. For this reason I have decided to discuss it here. Although not a specific CER policy for EEPs, it certainly has implications for EEP manufacturers and importers, because of the high levels of packaging used for EEPs. The National Packaging Covenant Council (NPCC, 2005, p3) describes the NPC as a "voluntary component of a co-regulatory arrangement for managing the environmental impacts of consumer packaging in Australia. It is an agreement based on the principles of shared responsibility through product stewardship, between key stakeholders in the packaging supply chain and all spheres of government – Australian, State, Territory and Local".

Under the NPC, the management of packaging throughout its life cycle, and the establishment of collection systems, including kerbside schemes, is meant to occur through a collaborative approach by all actors. Signatories to the NPC are required to prepare an Action Plan "for evaluating and improving environmental outcomes, as appropriate, in their production, usage, sale and/or reprocessing and recovery of packaging materials" (www.packcoun.com.au/covt). Although one of the numerous weaknesses of the scheme is that there is no process in place for monitoring this action plan.

Although voluntary, it is backed by the National Environment Protection Measure (NEPM) for Used Packaging Materials, which established a statutory basis for ensuring that Covenant signatories "are not competitively disadvantaged in the market place by fulfilling their obligations under the National Packaging Covenant"

(http://www.ephc.gov.au/nepms/upm/upm_intro.html). This is supposed to work by fining non-signatory brand owners whose packaging products are identified in landfill.

A number of environmental organisations and local councils criticise the NPC claiming it is just not working, with 1.7 billion containers going to landfill each year, the high collection costs being born by ratepayers for council kerbside collection schemes, the failure of government authorities to penalise non-compliance, and because there are no recycling targets (White, 2002).

The NPC and its backing NEPM were reviewed in 2004, formally on behalf of the NPC Council. A formal submission was made to the NPC Council review, by combined environmental NGOs – Australian Conservation Foundation, Environment Victoria, Total Environment Centre and the Nature Conservation Council of NSW. The NPC was also reviewed by the Institute of Sustainable Futures (ISF) at the University of Technology, Sydney, on behalf of an environmental NGO in NSW, and an environmental consultancy firm on behalf of a group of local government associations.

The formal review (Nolan, 2004) effectively supports the NGOs' argument that "there is little evidence that environmental outcomes in the form of reduced material usage or increased material reuse and recycling have been achieved" (EV, 2004, p2). The Nolan review states that while there has been some achievement in the area of what it terms 'process' aspects, that is "establishing a framework, forum, and collaborative approaches" (Nolan, 2004, p48), when it looked more closely at achieving explicit, and one would argue key, objectives of the NPC, "there is less evidence of achievement of 'outcomes' intended by these 'processes' (e.g. life cycle management of packaging, real and sustainable environmental benefits, and resolution of post-consumer packaging waste issues)" (ibid, p48). The NGO submission (EV, 2004) quotes a 2003 report from Clean Up Australia, the national community based organisation that coordinates Australia's national litter clean up day, as saying that there has been little change to patterns of rubbish on Clean Up Australia Day since the introduction of the NPC.

The ISF review is particularly critical in one aspect, that is the lack of measurable performance indicators and therefore of any hard outcome data. The "data produced under the first term of the Covenant was not sufficient to determine whether a reduction in overall packaging waste had been achieved" (Institute of Sustainable Futures, 2004, p26). This lack of indicators and therefore performance data, ISF claims, makes it difficult for the regulatory arm of the NPC, the NEPM, to determine compliance by signatories. All the Covenant requires of signatories is that they sign and produce an action plan the authors note.

The formal review (Nolan, 2004) is also critical of this aspect of the NPC: "there is limited quantitative evidence of achievement of its indirect objectives of increasing product stewardship and improving kerbside recycling" (p48). It goes on to say that "when looked at together with the fact that the net environmental benefits or disbenefits of the Covenant cannot be quantified in real terms, it is clear that the root cause of variability in performance is that a key element of the original design of the Covenant framework was significantly inadequate" (ibid, p48).

Another key concern highlighted by the ISF review (2004) is whether industry is taking, or more specifically paying for, it's fair share in the NPC, which is based on the premise of 'shared responsibility'. The ISF study found that kerbside collection of packaging, the corner stone of the recycling scheme, costs ratepayers $158 million per annum, while the contributions made by industry toward this collection was only $3m. This is the basis of the decision by many local councils and local government associations in Australia, not to sign the Covenant, a point confirmed by the Nolan (2004) review: "Representation from local government in the Covenant process is considered to be poor" and that "there is no representation from councils in NSW", Australia's most populace state (p 49). Peter Wood then President of the NSW Local Government Shires Association attacked the NPC's core concept, that of 'shared responsibility', which he says is "directly at odds with Local Government's view that industry should take responsibility for the waste it produces" (Woods, 2000, p2).

A group of Australian local government associations commissioned there own review (Meinhardt, 2004) into the effectiveness of the NPC, which especially discusses the nature of the 'Product Stewardship' principle which is based on the concept of shared responsibility, and which underpins the Covenant. The authors argue that Product Stewardship places too much responsibility on the community, especially the local councils who must set-up and pay for the infrastructure and curb-side collection of household packaging. Therefore they argue, there is a lack of genuine producer responsibility, reinforcing the assertions made by the ISF review. The Meinhardt (2004) report also supports other key findings of the Nolan (2004) and ISF (2004) studies, that there is a lack of tangible and measurable outcomes from signatories, and a lack of any sanctions for non-compliance or non-performance.

Both the Nolan (2004) and Institute of Sustainable Futures (2004) reviews are critical of the regulatory backing under the NEPM, finding that there has been little monitoring to ensure signatories enact their action plans, and a complete lack of prosecutions of any non-signatories. The Nolan review reports that "some significant businesses that lie outside the Covenant (i.e. brand owners in particular) have not been subjected to regulatory action through the NEPM despite having been brought to the regulators' attention"; and "No penalties have been applied or prosecutions initiated" (Nolan, 2004, p 51).

In summary, the key NGO critics of the NPC, Environment Victoria and the Total Environmental Centre, as stated by Nolan (2004), argue that "signatories to the Covenant have not been effective in improving the life cycle performance of packaging and paper in their own operations and therefore they call for the NPC to be replaced by a regulatory framework" (Nolan, 2004, p 54). NGOs have been consistently critical of the fact that the NPC does not include avoidance of packaging in its key goals, however, as this is a voluntary agreement between stakeholders, mainly packaging companies, it is understandable why avoidance has not been included in the goals.

Two senior managers that I interviewed, specifically referred to the NPC during their interviews, and were also critical of aspects of the NPC. A manager at a major beverage company asserted that to work effectively, the NPC needs a complete landfill ban some time in the future; this view is contrary to his industry association, the Beverage Industry Environment Council (BIEC), which supports the NPC and consistently asserts that a landfill ban is unnecessary (www.biec.com.au). This also backs the comments quoted earlier by Ryan (interview) that many industry associations present views that are often at variance with, and more conservative than, individual member companies. A senior manager of a major global electrical and electronic products company was highly critical of the Covenant's lack of real and effective legislative backing.

Responding to the criticisms of the Covenant and to its own findings, the Nolan review (2004) identifies a number of "major actions required within the modified Covenant/NEPM to improve Covenant implementation processes, address the identified shortcomings, and increase the efficacy and national consistency of arrangements" (p 62). The review makes a number of recommendations calling for: a clarification of the strategic goals of the Covenant to minimise the environmental impacts of consumer packaging across its lifecycle; the creation of appropriate incentives to encourage optimal performance by the packaging supply chain performance in minimising the environmental impacts of consumer packaging across its lifecycle; enhanced measures for increased compliance by signatories and penalties for nonparticipation or poor performance.

The existing Covenant expired in April 2005. In response to the three reviews, the NPC Council stated that, "the model needed to be significantly strengthened if it was to continue. This [new] Covenant incorporates the changes made to achieve substantially improved performance" (NPCC, 2005). The revised Covenant contains performance indicators to allow monitoring and measurement, and a requirement for more key performance indicators (KPIs); better monitoring of KPIs; annual reporting against these KPIs; and better baseline data and targets. It commits

signatories to a national recycling target of 65% for packaging and no further increases in packaging waste disposed to landfill by the end of 2010. As far as improved enforcement, the draft calls for better enforcement of the legislation to discourage industry 'free riders'.

However, goals or objectives were not changed to incorporate a focus on 'avoidance' of packaging, although avoidance is mentioned as part of a boxed section on the 'waste hierarchy'. The key concern of local government, namely industry taking greater responsibility, including financial, for its waste was not addressed. There are not even any provisions to make this cost burden of collection shared more equitably between industry and ratepayers. The NPC will again be reviewed by State and Federal governments in late 2008, and there is already talk that it will be drastically changed or may be even scrapped because it has not delivered a reduction in packaging waste.

6.4.3 An industry product stewardship case study: Australian television industry

In 2000, before the Australian government released its discussion paper on managing end of life waste from EEPs, the key players in the Australian electrical and electronics industry began discussion on developing a product stewardship strategy for their products. Starting with a scheme to collect and recycle end-of-life TVs, the strategy aims to expand to include all EEPs in a national take-back scheme. This positive attitude toward responsibility reflects findings by the German research group Oekem Research AG, that the EEP sector was performing "relatively well" in environmental performance (Baue, 2002). This is also backed by findings by Reputex (2004) showing that this industry sector also outperformed others in Australia. The incentive to develop the strategy according to Robert Woolley, President of Consumer Electronics Suppliers Association (CESA), the industry association representing consumer electronics producers/importers in Australia, and a Senior Manager at Sharp Australia (personal interview, 2004) was government threats in 1999 to ban TVs from landfill.

CESA, in conjunction with the Australian Electrical and Electronic Manufacturers Association (AEEMA), the industry association representing the electrical, electronics, information and communications industry, have developed the strategy. According to Woolley (interview, 2004), they believe the proposed scheme can successfully manage EoL EEPs and divert the majority from the waste stream. A CESA (2004) report points out that the industry together with key stakeholders "has a role in better managing the life-cycle environmental impacts of products"; and "CESA recognises the need to minimise life-cycle environmental impacts in collaboration with other stakeholders, while increasing materials efficiency". The report was

critical of Australia's performance in this area and stated that it "clearly lags behind many other countries and jurisdictions, both in terms of policy development and industry activity".

It is worth noting here that the Australian Federal government has been working on a product stewardship strategy since 1999 and released a discussion paper in 2001, but the process has been stalled for the past 7 years because of government inaction, especially their failure to introduce 'safety net' legislation (Thomson, 2008), and discussed in more detail below.

6.4.3.1 What happens to TVs and other EEPs now? Current disposal and recycling methods

According to the Australian Department of Environment and Heritage's (DEH) discussion paper on product stewardship (EA, 2001), in 1999 there were 10 million TVs in use in Australia and an unknown number of unused sets stored in spare rooms and garages. Currently in Australia there is no national nor even state-wide schemes for the collection of used EEPs. According to DEH, manufacturers and retailers currently play only a minor role in the collection and disposal of end-of-life appliances, with the main physical and financial burden being carried by consumers and local government. Most household EEPs are collected by council kerbside collections or simply disposed of in normal household waste bins.

The DEH report (EA, 2001) and the NSW government's consultation paper on Extended Producer Responsibility (EPA, 2003) both highlight the waste problems presented by household TVs, VCRs and home entertainment electronics, the category of EEPs mainly considered in the CESA report (2004). Both papers claim that the majority of this category of discarded EEPs, still end up in landfill with little recycling taking place, presenting major environmental problems, including hazardous materials and waste of resources (see Chapter 3).

6.4.3.2 Pilot study

As part of the process of developing their Product Stewardship Approach, CESA and AEEMA co-ordinated a pilot TV producer responsibility project. The trial was co-funded by CESA, AEEMA and EcoRecycle Victoria, who also shared their expertise as part of the project team. Other project partners were MRI Australia an EEP recycler in Victoria, Least Waste, a waste management group set up by five East Melbourne local councils, environmental consultancy from Product Ecology, and the Centre for Design at RMIT University. The electronics suppliers taking part in the scheme were Hitachi, LG Electronics, Mitsubishi Electric, NEC Australia, Panasonic, Philips, Samsung Electronics, Sanyo, Sharp and Sony.

According to Woolley (interview, 2004) the pilot project proved that a national scheme is feasible and that the "methodology for recycling cathode ray tubes works". Woolley identified transport issues, especially considering the large geographical areas needed to be covered in an Australian scheme, as the major logistical problem, as well as the most costly part of the exercise.

> At the end of the day, the sale of a television has to cover the whole of Australia. Are we going to bring televisions back from Cobar? It would be silly to bring TVs from Perth to Melbourne for example, then crush them and send it back to South Australia. How do we balance all those issues?

6.4.3.3 Establishing a single industry producer responsibility organisation

The CESA report (2004) focuses on solutions to environmental problems presented by this category of EEP waste, and proposes a national strategy for the collection of, initially TVs, then later to other appliances in this category, and the recycling of materials from these products. The first stage in this scheme has been the establishment of a producer responsibility organisation to develop and implement the scheme. The Product Stewardship Association Limited (PSA) was established in mid-2004, comprising representatives of the CESA and AEEMA member companies. The PSA structure is a Board of Directors, a Technical Committee, an Advisory Committee, and Executive Staff.

According to the report (CESA, 2004) the PSA is a not-for-profit organization that will provide "the structure, expertise, resources and profile needed to make e-waste collection and processing sustainable on a national scale". It will be responsible for

> developing and implementing a national recovery and processing scheme, commencing with TVs. It will be responsible for detailed development of a business plan, including how the organisation and all its activities will be financed.

Woolley (interview, 2004) informed me that funding arrangements were one of the most controversial aspects of the establishment of the PSA and also of the future operation of the scheme. The PSA will be funded by contributions from member companies and from producers and distributors who decide to join the PSA.

The PSA will also be responsible for community education and promotion of the scheme; development of markets for recycled materials; research and development; infrastructure

development; and data collection, monitoring and reporting. CESA (2004) argues the benefits of PSA include that it is an inclusive and expanding organization, with its membership not limited to CEAS and AEEMA member companies. There are benefits according to Woolley (interview, 2004), in having just one organisation to oversee the national scheme, and also if this one organisation was expanded to included all EEPs. He argues that it will streamline dealings between companies and governments, eliminate duplication, and reduce community confusion.

6.4.3.4   The proposed scheme

As mentioned earlier, the CESA/AEEMA national scheme will target cathode ray tube (CRT) TVs and related technologies – LCD, plasma, digital TVs – but VCRs, DVDs, audio equipment, and eventually whitegoods and small appliances will be phased in. Because of the diverse nature and geographical spread of the market, the scheme will also be phased in across the country, starting with large, high-density market areas, and where existing waste management infrastructures can be utilized. Rural and regional areas therefore will be phased in later in the program.

In major urban centres such as Sydney and Melbourne, existing waste handling and collection infrastructure such as waste transfer stations, recycling centres, kerbside collections, and drop-off points will be utilized. CESA says that the PSA will investigate "strategic alliances with major retailers, charitable organizations, community based groups and service associations".

A significant challenge, the paper claims, is the limited technology for processing consumer electronics such as TVs. While there is adequate and advanced technology for recycling of major appliances such as whitegoods, especially the handling of metals, the technologies for processing TVs is small scale and labour intensive, or technically crude the report claims.

Another difficult issue according to CESA is 'historical' products, that is very old products, such as timber cabinet TVs, made from materials that are difficult to recycle or made with old technologies which make their processing more difficult; and 'orphaned' products, that is products from manufacturers or importers that are no longer in business. While CESA and AEEMA members accept that all historical waste can be accommodated within the scheme, the question of orphaned products is still hotly debated and provides strong evidence Woolley (interview, 2004) argues, for the need for a government regulatory safety net – see discussion below.

6.4.3.5 Regulatory backing

Most TVs are imported to the Australian market. CESA figures quote 60% of the market is supplied by CESA and AEEMA member companies - that means 40% are imported by companies that are not members of CESA or AEEMA, the so-called 'other brands' (CESA (2004). "CESA has fifteen members, and we've identified thirty-five non-member importers" Woolley (interview, 2004) told me. CESA also argues that the market is becoming increasingly diverse, competitive and volatile and that margins are low. A key concern and possible barrier to the successful implementation of their plan is environmentally disinterested companies that refuse to participate (CESA, 2004). Therefore, they argue for uniform national government underpinning or 'safety net' legislation to ensure a level playing field and prevent free loaders. If 'other brands', as opposed to 'established' brands are not forced to be part of the national product stewardship program, CESA believes the scheme will fail (Gertsakis, quoted in Neales, 2007).

CESA's preferred model for a regulatory 'safety net' is Australia's mandatory product stewardship schemes for importers of Ozone depleting and synthetic greenhouse gas refrigerants, which involves the use of the Australian Customs service. The Customs importation process is, CESA argues, an "effective means of targeting, engaging and enforcing non-participants". When asked about the National Packaging Covenant's NEPM legislation (see 6.4.2 above) as a model, Woolley (interview, 2004) said "no, because it is not working". He claimed that the Federal government has been pushing the NPC model with CESA and AEEMA during negotiations, and said: "Look at this fine scheme, this is what you should do with televisions". To which, Woolley asserts, CESA and AEEMA replied: "If you don't want to stuff it up, don't mention the NPC, it is an abject failure".

The criticisms from environmental NGOs of voluntary schemes was raised with Woolley, who asserted that it was the Australian Government that was calling the scheme 'voluntary' for political reasons - "we're (CESA/AEEMA) not saying it's voluntary, we're saying it's mandatory". He asserts that the Government is calling it voluntary because they don't want consumers to see any collection fee as a tax.

The question of how the proposed scheme would encourage eco-design or design for environment from producers is a key issue. The CESA (2004, p 32) paper states that:

> the uptake of Eco-Design or Design for Environment among major electronics producers is now well developed and constantly increasing. The majority of CESA members are actively integrating environmental factors in new product development, with many DfE features directly related to design for disassembly and recycling.

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Woolley talked about the fact that most TVs are designed and produced overseas, and posed the tricky question of what to do when specific Australian standards deviate from international standards. No manufacturer can afford to produce specific TVs for Australia's small market alone - "they [producers] design them for the world and decide to sell them to Australia". He used the example of flame-retardants, and claimed that it would be possible to design a flame retardant-free TV to satisfy Australian standards, but nobody will do it.

On the other hand, he did point to the European Union's waste and lead-free directives (see Chapter 5) as important drivers for the international market, because the European market is so large that producers will produce a global product to satisfy those EU requirements.

> They [producers] don't design products for Australia. But at the end of the day, we are already getting lead-free product, not because of any rules in Australia, but because of the WEEE Directives and the RoHS Directives of Europe (Woolley, interview, 2004).

But, Woolley raised the very real threat of dumping of non-EU compliant products, especially from China and Malaysia based producers, on other markets, such as Australia, and suggested that Australia may even be forced to adopt the WEEE Directive to "protect us from dumping".

6.5 Different approaches in Europe and Australia

The previous section looked in some detail at three examples of existing or proposed Australian national approaches to CER. This section will contrast the situation in Australia with that in Europe by looking at attitudes to environmental legislation in Australia and Europe, and overviewing the key issues in development and implementation of policies to encourage or force greater environmental responsibility from producers and retailers of electrical and electronic products (EEPs), especially in relation to end-of-life issues. The EU's WEEE Directive will be discussed in some detail, however, because at the time of writing this thesis the mechanisms for operation of the Directive, at EU and individual Member State levels, were only just being established, and because there had been few academic studies, it is difficult to comment here on its effectiveness.

In Australia, as noted earlier, policies to encourage greater environmental responsibility from producers are known as 'product stewardship' (PS) policies while in Europe they tend to be

termed 'extended producer responsibility' (EPR). But as was discussed in Chapter 2, there is a fundamental difference between these two terms: EPR refers to policies that make producers take the major share of responsibility for the environmental impacts of their products and processes, while PS refers to measures that share the responsibility between all actors in the sector, ie the producer, retailer, consumer, and government.

Since the establishment of the European Economic Community in 1957, by Treaty of Rome, the legal status of the environment has gradually consolidated to become a core objective of the European Union today. The importance of the environment is illustrated by the publication by the European Commission (EC), of *Choices for a greener future: The European Union and the Environment* (2002) as part of its 'Europe on the Move' series of publications.

> The environment used to be thought of as a minority interest for well-meaning nature-lovers – but nothing could be further from today's reality. In fact, the environment concerns all of us, because it concerns every aspect of the world we share and depend on for survival
> (EC, 2002, p 3).

The type of environmental policy in Europe has changed over the years too, from a purely 'command-and-control' approach to a mix of measures including legislation, voluntary agreements, and market instruments such as environmental taxes and tradable rights, making it much more flexible (Heritier, 2001; Bailey, 2003; Tews, Busch and Jorgens, 2003). Problems arising from inconsistent implementation of EU environmental policies were seen as a problem as far back as 1987 (Bailey, 2003). The reasons for this implementation gap, comes down to two factors: technology and politics. With differing levels of economic development in member states, the level of investment that can be made on technological approaches to improve environmental performance has to be weighed up against other demands for resources, such as ensuring social wellbeing.

The political challenges arise from the fact that the EU is made up of a diverse range of autonomous states with differing political systems, with differing decision-making processes, and differing agendas and priorities (Bailey, 2003). This political diversity of the EU is increasing as the size of the EU expands to include former Eastern Bloc countries – which may lead to more variability and inconsistencies in the way EU policies are implemented.

The move to more flexible new environmental policy instruments, NEPIs, is driven to a certain extent, by 'neo-liberal' or 'economic rationalist' thinking, based on the view that environmental degradation is caused by market failure, and can therefore be corrected by the market (Bailey, 2003; Tews, Busch and Jorgens, 2003). There is no doubt that this strict, neo-liberal,

interpretation of the causes of environmental problems often puts environmentalists off side, and as Bailey (2003) asserts, at the moment there is a lack of empirical investigation at the corporate level, of the advantages or successes of market instruments at regulating companies. My research however shows that business leaders are indeed prepared to accept this type of co-regulatory approach, and certainly, policies that force the market to internalise environmental costs and to value public goods such as forests, air and water, must deliver environmental benefits in the long term.

Interviewee 6 from the EEP sector in Europe, was highly supportive of NEPIs:

> The new approach defines some essential requirements, and you have to comply to these essential requirements through harmonised standards. So this is not so stringent as the command and control legislations. You have goals, you have no prescription on the means. This is more acceptable. I think that it's a good compromise between the two aspects of strict legislation and voluntary agreement. In fact, we have some freedom to choose the mean how to reach the goals.

The European model of regulation that is well thought out and strictly enforced, is well regarded by some business leaders in Australia, and discussed in interviews referred to in previous chapters. Tews, Busch and Jorgens (2003) discuss the concept of international policy transfer and diffusion, and assert that this makes it increasingly difficult for national policy makers to ignore new approaches in environmental policy that have already been put into practice in 'forerunner' countries. This is signifcant for Australia, and was raised by a number of Interviewees. A number of interviewees referred to in earlier chapters had very positive things to say about the European approach to environmental policies. Interviewee 5 (senior environmental manager, EEPs) said her company liked the enabling type legislation such as landfill bans, used in Europe, while interviewee 3 (manager for recycling, EEPs) said "we like the European approach with a mix of carrot and stick". Interviewee 4 (former senior manager, EEPs) said "there needs to be a mix of carrot and stick - the Europeans seem to have the mix right".

6.5.1 Europe-wide environmental policies: The WEEE Directive for example

Many environmental problems are trans-boundary in Europe and, as Bailey (2003) and Lenschow (2002) argue, are pervasive in nature, making resolution by single nation states very difficult. Therefore, a common approach is needed, for this reason, Europe-wide environmental policies, such as the Wastes from Electrical and Electronic Equipment (WEEE) Directive (see below), are becoming increasingly favoured. The benefits of a trans-Europe approach to

environmental problems and policies include: pooling of resources and expertise; broader programmes to address problems; and additional support from states with greater expertise and resources to help those states with less capacity. The concerted EU approach is not without its critics however. Bailey (2003) asserts that the perceived benefits are not so obvious in reality. Conflicting interests, sovereignty issues and national interest he argues, present problems for concerted Europe-wide environmental policies. While these complexities brought about by the diverse nature of the EU, present tensions between national and collective action in all areas of EU policy, Bailey (2003) asserts that they are more prominent in the implementation of environmental policies and programmes. But it is important not to paint too gloomy a picture of EU policies, nor to rely on assertions of one author, as the very fact that they exist means that there is a willingness among EU states to tackle environmental problems in a concerted manner.

In 2002 the European Parliament introduced two policies aimed at improving the environmental performance of companies by reducing the environmental impacts of electrical and electronic products: the Directive for Wastes from Electrical and Electronic Equipment (WEEE), and its accompanying Directive on the Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) (EU, 1999).

The WEEE Directive is an attempt to bring a uniform approach to the management of end of life EEPs across Europe. The WEEE Directive is a true example of the EPR approach and works to increase CER by forcing the bulk of the financial responsibility for recycling and the final disposal of waste, onto the producers. The Directive includes measures to: require producers to take financial or physical responsibility for recycling; require retailers to offer take-back free of charge; allow households to return end-of-life equipment free of charge; require member states to ensure that adequate collection facilities for e-waste are established and that local municipal collections allow for separation of electrical wastes. For the purposes of the Directive, importers of EEPs are also deemed to be 'producers'.

The question of products produced and imported from overseas (45% of EEPs are imported to Europe), is a vexed issue. Although the WEEE Directive does not specifically require overseas producers such as in South East Asia, to 'take-back' their products, Low & Williams (1998) suggest that individual EU Member States could design their WEEE legislation to include this requirement.

The Directive also requires labelling for certain electrical and electronic equipment, informing users of their role in recycling, re-use, and other forms of recovery. There are also demanding recycling and recovery targets for different categories of appliances which producers will be

required to achieve: by 2006, 75% e-waste is to be recovered (diverted from landfill) of which 65% must be recycled (EU, 2003).

In implementing the Directive's requirements, the United Kingdom for example, required all 'producers' of electrical or electronic equipment (EEE) to register with the Environmental Agency during 2006. Collection schemes established by producers or retailers were also required to be registered with the Environmental Agency (www.environment-agency.gov.uk/).

The WEEE Directive is complemented by the Directive on the Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS), which is designed to ensure that hazardous materials such as heavy metals are eliminated from EEPs to reduce environmental and health impacts of disposal and to reduce occupational exposure to these substances, many of which are potential carcinogens. RoHS bans, from 1 July 2006, the use lead, mercury, cadmium, hexavalent chromium and the flame-retardants polybrominated biphenyls and polybrominated diphenyl ethers (EU1, 2003).

The WEEE Directive has already had impacts in Europe, especially from the point of view of companies changing practices to satisfy the Directive. Electrolux as already discussed, and other producers, have developed take-back programs to satisfy the Directive. But the WEEE Directive is also having global impacts on the EEP sector, because of the transfer and diffusion of policies, as discussed by Tews, Busch and Jorgens (2003). Because the EU market is so large, companies, especially those from Asia, such as companies based in China, Japan and Korea, wishing to export to the EU, need to design and build their products to satisfy the requirements of the Directive (interviewees 1, 5, and 6; Woolley, interview 2004). And Australia with the majority of EEPs in the Australian market place being imported (EA, 2001), is not immune to the implications of the WEEE Directive, and as mentioned before, Woolley (interview, 2004) warned of the potential for dumping of non-WEEE compliant products in Australia, which he suggests may eventually force the Australian government adopt the WEEE principles.

The WEEE Directive does have its critics, in industry and in the environmental NGO community. The four industry associations representing the United States EEP industry have been very critical of certain aspects of the Directive. They are highly critical of the scope of the Directive, which they claim "covers the impact of every conceivable aspect of product design on the environment" (AeA, 2001, p 2); and claim the WEEE Directive will have market implications for countries outside of the EU. Indeed, their 2001 position paper, called for the EU's Director General to withdraw the proposed directive.

There has also been criticism from environmental NGOs and recycling companies, who assert that the Directives recycling targets are "not good enough". The gap between the recovery and recycle targets, means that 10% of waste that must be recovered and cannot go to landfill and does not have to be recycled, will end up being incinerated – with all the potential associated environmental hazards (Shabi, 2002). Gary Griffith from a large UK computer refurbisher, quoted in Shabi (2002), said that, "given that the amount of waste from EEEs is set to double by 2010, this means the same amount now being disposed of to landfill and incinerated may continue".

Tim Cooper (interview, 2002) criticised the underlying premise of the Directive and suggested that recycling may just be "encouraging unsustainable consumption patterns", as consumers now think it is "OK to replace appliances frequently and discard the old ones". Cooper called for what he terms "life-span" labelling which would permit consumers to gauge more accurately the benefits of an expensive more durable product over a cheaper one. He said that the WEEE Directive missed an opportunity to include this type of eco-labelling in its provisions.

Perhaps a more serious social and environmental concern, as highlighted by Greenpeace, Friends of Earth and the Basel Action Network (BAN), is that as more and more e-waste is collected, it may encourage greater demand for the export of e-waste to developing countries for processing. Developing countries have weaker economies, lower wages and weaker environmental legislation, and therefore, exporting to these countries for re-processing is seen by many in the EEP supply chain, as an easy and economical way of satisfying PS requirements under the WEEE Directive.

6.5.2 An integrated policy approach: An EU voluntary approach

Honkasalo (2001) points out that environmental policy dealing with products, up till now, has been lacking in overall coordination and planning both at the EU level and in most EU member states, while Cooper (personal interview, 2002) agreed with the European Commission's (EC) opinion that product environmental policies have till now, also paid little attention to the problem of over-consumption.

The integrated product policy (IPP) approach, that began through dialogue involving the EU, the OECD, the United Nations and the Nordic Council of Ministers, is an attempt to develop a more integrated and holistic approach to product environmental policies, that also factors in consumption. The IPP approach, which Tukker & Jansen (2006) call an "innovative new generation of environmental policy" (p 159), "seeks to reduce the life cycle environmental

impacts of products from mining of raw materials to production, distribution, use and waste management" (EC, 2001, p3). Further, the EC paper says that the IPP:

> intends to complement existing environmental policies by using so far untapped potential to improve a broad range of products and services throughout their life cycle from the mining of raw materials to production, distribution, use and waste management. Its central element is the question how development of greener products and their uptake by consumers can be achieved most efficiently. Hence, there is no single preferred instrument of IPP. Rather, there will be a mix of instruments which needs to be carefully used and fine-tuned to ensure a maximum effect.

The Green Paper (EC, 2001) quotes the United Nations 1992 Rio Declaration regarding the challenge of achieving 'equitable development' for all the planets people and future generations, while 'preserving integrity of the global environment'. The Paper argues that one way to do this is to "aim at a new growth paradigm and a higher quality of life through wealth creation and competition on the basis of greener products" (p3). The paper asserts that products of the future should use fewer raw materials, and have lower impacts and risks to the environment as well as prevent waste.

The IPP approach is an important development along the chain of environmental policies to address fundamental problems created by the production, use and disposal of products, and perhaps the most innovative aspect of IPP is that it focuses primarily on eco-design and "incentives for an efficient take-up and use of greener products" (EC, 2001, p 5). The challenge therefore, the paper asserts, has to be taken up by business and consumers because decisions on environmental impacts are made "at the design table and in the shops" (p5).

The IPP is primarily a voluntary approach – it is not intended to be legislation based, but to be "a framework for EU member states, local authorities, businesses and NGOs" (EC, 2001, p 4) to develop ideas, share experiences and act as a driving force for integrated product thinking. The role of authorities the Paper says will be primarily "one of facilitation rather than direct intervention. However, it will involve a mix of policy measures, including underpinning legislation if appropriate, such as to ensure legal security and avoid market distortion" (EC, p 5). It also proposes recourse to legislation if voluntary measures do not achieve desired results, which differentiates it from other voluntary initiatives discussed ealrier.

The EU's Green Paper on CSR (EU, 2001, p12) calls IPP a good example of an approach that allows public authorities to work with business. Because it is founded on the consideration of products' impacts throughout their life cycle, and involves business and other stakeholders in dialogue to find the most cost-effective approach, the paper suggests that in the environmental

field, it can therefore be seen as a "strong existing framework for promotion of corporate social responsibility". However, as a voluntary agreement it is fraught with all of the limitations of voluntary agreements discussed earlier in this chapter.

6.5.3 Some European national EEP policies

So far I have concentrated on Europe-wide policies introduced by the EU, but prior to the enactment of the WEEE Directive a number of European countries had either introduced policies or were in the process of introducing policies consistent with the WEEE Directive, designed to extend producer responsibility, especially for waste from EEPs. I don't intend to analyse these in detail here, as this is clearly beyond the scope of this investigation, so I will only outline a few of these policy initiatives by way of giving examples.

Austria was one of the first countries in Europe to enact legislation on waste from electrical products. The 1993 ordinance allows buyers of new refrigerators to return their old one at no cost. Where a purchase is not made, an old refrigerator may still be returned for a fee. The legislation covers the take-back and recovery of lamps and white goods, with recovery initially financed through a fee on the price of new products. This resulted in Austrian retailers suffering competitive disadvantages compared with their German and Italian competitors, and hence the fee on product price was reduced and an end-of-life fee introduced. The 1995 amendment states that on purchasing a new appliance, a voucher for its disposal must be purchased. At disposal of an old product with a voucher, the consumer must pay for the disposal costs minus the value of the voucher.

In the Netherlands, the Disposal of White and Brown Goods Decree came into force on 1st of January 2000. The key aspects of this legislation includes a requirement that manufacturers and importers are obliged to take back and process all discarded white and brown goods, and to give the Minister notification of the manner in which they will perform the taking back and processing. When supplying a new product, suppliers must take back free of charge, a similar product that is tendered to them. Also under the Decree it is prohibited to incinerate or to landfill products that have been collected or taken back separately, and it is prohibited to have in stock for commercial purposes, refrigerators and freezers containing CFC's, discarded after use. Sweden's Ordinance on Waste Collection and Disposal, which came into force in January 2002, is another example of legislation for greater environmental responsibility. Under Sweden's ordinance, producers and retailers are required to develop take-back schemes, providing free take-back of old equipment at the time of purchase of new equipment, and to discuss these with municipalities where required. They must facilitate recycling by keeping recyclers informed of

the content of products, and waste from electrical products must be treated in an environmentally sound manner. Producers and retailers must also provide the Swedish Environmental Protection Agency (SEPA) with information to ensure compliance with the ordinance. Porter (1990) identified Sweden's tough standards for environmental protection as being a significant source of competitive advantage for Swedish companies.

In Norway, legislation for take-back of EEPs became effective from 1 July 1999 after three years of negotiation between industry and government. Under the legislation producers and importers are responsible for collection, transport and environmentally safe treatment of waste EEPs regardless of brand. The legislation permits a waste levy to be placed on new products to cover the costs of collection and recycling schemes. Wholesalers and retailers as well as municipalities must accept e-waste, free of charge, from consumers and provide consumer information, and suppliers must take back any type of product they sell. Acceptable treatment of e-waste includes incineration for energy production. Following enactment, the EEP industry in Norway has set up national collection systems.

6.6 Is Australia out of step?

A number of writers and several industry, as well as academic and environmentalist interviewees referred to in this study, claim that Australian policy, especially in the area of CER, is out of step with that in many European countries as well as being out of step with European Union policy. Some interviewees claimed that the previous Australian government was even out of step with the majority of the broader Australian community, which consistently rated environmental issues in surveys, as a major concern (www.abs.gov.au; www.dse.vic.gov.au; www.environment.sa.gov.au/ sustainability/attitudes.html; www.epa.nsw.gov.au/ leadsafe/survey.html).

A 2004 ranking of the world's richest 21 countries by the Foreign Policy and Centre for Global Development (www.foreignpolicy.com), based on a number of key indexes including environmental, suggests that Australia is indeed lagging behind many other OECD countries in environmental responsibility. Australia was placed near the bottom of the international ladder for its environmental policies and their impact on poor countries. The Centre measured among other things, Australia's per capita greenhouse gas emissions, use of ozone depleting substances and fishing subsidies per dollar of GDP. It assessed international conduct by the level of support for major environmental treaties and protocols, financial contribution to environmental funds, and government support for the development of clean energy technologies, in all of which Australia performed badly. Australia was placed 18th out of 21 countries, scoring a mere 3

points from a possible 9. Only Japan, Canada and the USA ranked below Australia. Australia was outperformed by countries like Switzerland, which topped the ranking with 8 points, Austria and Germany with 6, and UK, Italy, Spain, Belgium, Denmark, Sweden and Portugal with 5 to 6 points.

From the point of view of managing life cycle impacts of products, a key difference between approaches and policies of European countries and Australia is the fact that European countries make EPR the framework of their policies, while for Australia it is product stewardship (see Chapter 2, section 2.5 for discussion on EPR and PS approaches).

A number of interviewees advanced the assertion that Australian policy for CSR and CER is lagging behind other countries. Former Australian Opposition leader Hewson (speech, 2003, p1) stated that, "in Australia, we've lagged behind. We're only just starting the debate [about CSR] which other developed economies have already accepted and moved beyond". Interviewee 7 (former CEO, Energy) expressed his concern that in some areas Australia was "about ten years behind, or even further behind".

Ryan (academic, interview, 2003) accuses the Australian government and some Australian companies of having a negative attitude to environmental responsibility and argued that "in Sweden and others parts of Europe – in Austria, Germany, the Netherlands – there is an absolute acceptance that corporate social responsibility is part of what companies should do, being a positive force for the nation as a whole, and the economy as a whole". According to Ryan, some companies in Australia see proposals for PS and EPR legislation as a "conspiracy from the North", as "too costly for Australia", and subsequently believe that the government should "protect them from any legislative or regulatory impacts" (Ryan, 2003). As this seemed at odds with pro-legislation comments by most of the business leaders I had interviewed, I sought clarification from Ryan during the interview, he told me he was mainly referring to industry associations rather than individual business leaders:

> The public positions of business associations like the Business Council of Australia and the Australia Industry Group, and so on, are by and large cautious and in some cases opposed to regulation and change. But if you talk to many of the member companies, they will all say we really need a regulatory framework and we need to see a clear direction.

Ryan concluded by stating that he thinks "the [Australian] government is out of step". Ryan believes the main barriers to effective environmental policies are "lack of political will, lack of regulation and lack of good political opposition".

Davis et al (1993), take up the question of political will and argue that Australian policy makers are driven by short-term electoral advantage and not by long-term 'public' or 'national' interest. Product policies aimed at improving environmental performance, such as product stewardship and EPR policies, is one area where long-term considerations must predominant. There is a risk Davis et al argue that policy decisions, (such as those regarding on EPR and/or PS) may be driven by immediate electoral advantage and therefore may be ill conceived. This then gets back to Eckersley's (1995) comments mentioned earlier that legislation often fails not because of its mandatory nature, but because the policies are poorly thought out and not enforced.

The design manager for Electrolux in Australia, who had joined the Australian subsidiary 18 months earlier from Sweden, discussed different attitudes to CER of politicians in Sweden and Australia: "I feel that it is not opportunistic for politicians to work too aggressively on ecology. I don't think that would help him in his career in Australia" (interview, 2003). He also discussed differences in levels of co-operation between the actors involved in setting policies in Australia and Europe, saying:

> It is pretty obvious in Europe that it has to be a common discussion between the industries and the governments, and you have to come to a common conclusion and strategies. That's very basic in Sweden. The key is a common discussion, and including union groups. In Australia there is much more fighting going on between political parties and unions and industries than in Europe. It's more a co-operative in Europe.

In Australia, there are a small number of national policies for environmental responsibility, which concentrate on different aspects of product impacts, such as policies to encourage or require eco-labelling, energy and water efficiency, all of which are valuable policy measures, but industry or sector-wide policies are still lacking, as are policies that can be truly called EPR policies. Energy labelling for refrigerators and freezes for example, was introduced in 1986, and followed by similar labelling for washers, driers, dishwashers and air conditioners. Since October 1999, all refrigerators, freezes and hot-water heaters sold in Australia must conform to minimum energy performance standard (MEPS). Products deemed to be energy inefficient are prohibited from sale. However there is no comprehensive, holistic product policy framework at the national level, to cover all EEPs and all of their life cycle environmental impacts.

6.7 The role for national governments

A key 2004 Australian reputation ratings report (Reputex, 2004) on the top 120 companies in Australia showed that only 28 of the companies had environmental performance that was rated satisfactory or higher. This is indirect evidence that the voluntary CSR approach is not working in encouraging a majority of Australian companies to improve their environmental performance.

Tony Wood, a senior manager with Australian energy supply company, Origin Energy, clearly stated the problem when he said on SBS Television's Insight program (2 November 2004):

> Corporations exist to create economic value, unless they do this there is no value to be distributed, especially to shareholders. The issue then is how to ensure that in creating this economic value that corporations don't do adverse damage to the environment or to people, and that they take responsibility for any damage.

As has been argued extensively throughout this thesis, there is a crucial role for national governments to introduce policies to require greater environmental responsibility from companies. As numerous commentators and a number of my interviewees stated, voluntary agreements by themselves are just not working. CSR, while containing ambitious goals, is essentially a voluntary initiative from the business community, and with few exceptions, has been seriously lacking in delivering greater responsibility and environmental improvements from companies.

Professor Alan Fels, the former Head of the Federal government's industry regulatory watchdog the Australian Competition and Consumer Commission (ACCC), in an interview (SBS Television, 2 November 2004), confirmed that something needs to be done to make corporations act responsibly. He said that although government legislation is not the only way to change corporate behaviour, "it is probably a necessary way. Change the laws and you might get some changes in company behaviour".

Former corporate responsibility analyst with the ACF, Matt Philips (interview, 2003) also referred to the lack of corporate responsibility legislation in Australia:

> By now we should have had national corporate laws that require corporate environmental reporting and corporate directors to minimise the environmental impacts of corporate activities.

Environmental consultant Peter White (interview, 2003) was another who saw the need for corporate accountability and government policies when he said, "business has to be accountable

to its stake-holders and the wider community for what it does". Trish Caswell, the former Director of Global Sustainability Institute at RMIT University (interview, 2003), also called for a government framework to force more environmental responsibility from companies, arguing that voluntary agreements were not working.

In a personal interview Bjorn Stigson, President of the World Business Council for Sustainable Development (Nov. 2002) said:

> Governments have a very strong responsibility to show the direction they want society to develop. [They] have to create a level playing field as much as possible and see to it that there is a minimum standard that companies have to live up to.

Friends of the Earth's Ed Mathews (interview, 2003) said, "now that we've got over the hurdle of making companies realize that they do have a responsibility, one of the biggest problems is making sure that they do that".

The evidence points to the conclusion that national governments have to, as some of my interviewees put it, 'resume a leadership role', which includes being interventionist in the market economy. The implication is that CER including policies for PS and EPR, need to be backed up by government regulations, designed to force mandatory reporting, and need to include penalties for poor performers, in other words companies have to become not just responsible but also accountability – accountable to government and to the wider community. Reich (2008) argues that companies will act responsibly when there's something in it for them, either lower costs; increased profits; greater returns for shareholders; or enhanced reputation or branding, resulting in greater market share and increased profits. But he asserts, when these benefits are unlikely, or indeed at times of economic slow down or recession, it's then that government policies are required to encourage or force CER.

For national governments around the world, economic policy dominates, while environmental policy has become peripheral and often seen at odds with economic policy. The task of government is to manage the economy, and according to Eckersley (1995), governments have to 'strike a 'balance' or a 'trade off' between environment and economy.

The role of public institutions is vital and Bell (2002) says their role involves "activities by government, public authorities, and agencies of the state aimed at stimulating, coordinating and regulating economic activity". Bell importantly argues that globalisation and the intensification of international competition make governments more, not less important in the economy.

Bell (2002) points out that no matter how we look at the modern economy, even in the so-called 'private-enterprise' capitalist economies such US, Australia, UK and Canada, the state is still the key and the largest player. The state in fact establishes the market and enforces the rules of the market: it defines and defends property rights; forces competition; privatises public institutions; regulates the labour force; provides public goods for use by 'the market' for example roads, power, ports; and provides the police forces and military force to defend the market.

There is increasing pressure, as Bell (2002) acknowledges, from neo-liberal economists and business leaders, to rein in the role of government, especially in those areas that they argue are restricting the free market, such as trade practices, access to foreign investment and the free flow of capital, consumer rights, quarantine, public enterprises, and, as shall be argued below, environmental policy. Bell actually challenges the 'myth of market-based governance', that is the idea that it is free and that it responds to the free actions of buyers and sellers and the forces of supply and demand. On the contrary, he asserts, the free-market in reality is made of a set of private actors, with the key among actors being corporations.

The EU's Green Paper on CSR (EU, 2001, p 8) also stresses a key role for governments:

> CSR should nevertheless not be seen as a substitute to regulations concerning social rights or environmental standards, including the development of new appropriate legislation. In countries where such legislation does not exist, efforts should focus on putting the proper regulatory framework in place in order to define a level playing field on the basis of which socially responsible practices can develop.

The Corporate Responsibility (CORE) Bill is a piece of legislation that was unsuccessfully introduced into the UK parliament in 2003 and 2004. The introduction of the Bill to parliament followed a lobbying campaign by the Corporate Responsibility Coalition (CORE), a coalition of NGOs, charities, trade unions and church groups including Amnesty International-UK, Friends of the Earth-UK, Catholic Aid for Overseas Development (CAFOD) and Christian Aid.

In presenting its case for the legislation, CORE pointed out that the UK Government's approach to corporate responsibility thus far has been to allow companies to set their own standards, or to sign up to one of the multiple voluntary CSR codes of conduct now in place. CORE draws attention to the fact that only 23% of the UK's top 350 companies responded to Prime Minister Blair's challenge to publish environmental annual reports by the end of 2001. This, CORE argues, is a clear indication that voluntary CSR doesn't work. On their web site, CORE asserts that it makes it "difficult to distinguish substance from gloss, and means that companies taking

corporate responsibility seriously must compete with the 'free-riders' in their industry who do not" (www.corporate-responsibility.org).

CORE called for corporate responsibility legislation that would require companies to "report on their social, environmental and economic performance using a recognised set of reporting standards". CORE argued that "beyond ensuring these basic requirements are fulfilled, companies would still have substantial flexibility in implementing their CSR strategies. The aim of CORE is not to stifle innovation, but to ensure that it takes place above a platform of minimum standards" (www.corporate-responsibility.org).

The aim of the CORE Bill, as stated in the failed piece of legislation (UK, 2002, p1) is to:

> Make provision for certain companies to produce and publish reports on environmental, social and economic and financial matters; to require those companies to consult on certain proposed operations; to specify certain duties and liabilities of directors; to establish and provide for the functions of the Corporate Responsibility Board; to provide for remedies for aggrieved persons; and for related purposes.

The Bill contained specific requirements for companies and company directors, including requiring companies to prepare and publish 'triple bottom-line' reports on any significant social, environmental and economic impacts of any of their operations in the preceding year, and to make the reports publicly available. Companies would also have been required to take reasonable steps to consult and respond to opinions expressed by stakeholders who may be affected by any proposed projects that may have significant impact on them.

Under the Bill stakeholders would have had the right to gain access to information held by a company where it would enable them to protect or exercise their rights, although this would not require the disclosure of confidential information. Where the actions of corporations or their subsidiaries caused serious environmental damage or direct harm to workers, consumers or communities – whether in the UK or overseas – the company would have been directly liable for damages. Unfortunately the motion to introduce the Bill was not supported in Parliament.

Hewson (2003), although under the misapprehension that it had been passed, discussed the CORE Bill as an excellent example of the type of legislation that should be introduced into Australia. He also pointed out that France, the Netherlands and Denmark, already have legislation in place requiring organisations to produce social as well as financial reports.

From the point of view of specific policies to encourage producer responsibility for the life cycle impacts of their products, 'responsive legislation' as ten Brink (2002) terms it, 'co-regulation' as Cabugiera (2001) and CESA (2004) call it, or 'new environmental policy instruments' to use the European term used by Papadakis (2001), which involves a mix of voluntary measures and underpinning regulations to enforce them, although not the favoured approach of the business community, has many advantages over a purely voluntary approach or a solely regulatory approach. Heretier & Eckert (2008) describe co-regulation as companies "providing the contents of the regulation, but government still [having] an important formal say in the drawing up and control of the implementation" [of the regulation] p 115. The mix of mandatory, voluntary and market measures, according to Burritt in ten Blink (2002), is a more flexible, conciliatory, and accommodating approach.

Eckersley (1999) and Reijnders (2003) and a number of interviewees assert co-regulation acts to encourage rather than stifle innovation. Cabugiera (2001) suggests that co-regulation differs from other environmental policy actions because it institutionalises co-operation and co-ordination among public and private agents. And as Rupesh et al (2003, p143) succinctly puts it: "the most effective voluntary codes are likely to be those backed by threat or reality of state intervention". However it must be stressed here it is important for these co-regulatory policies to be well thought out, and imperative for the under-pinning regulations to be enforced by governments, to avoid failure as in the case of the NPC discussed earlier. Sweden's Ordinance on Waste Collection and Disposal and Norway's take-back legislation for EEPs, are good examples of where government's have successfully used a mix of regulatory and voluntary initiatives to achieve environmental outcomes (see 5.4.2). Of course, for governments the issue is getting the mix or the balance right – this according to (Papadakis, 2001), is a deeply political process.

6.8 Global governance

In Chapter 1 discussed the global nature of environmental problems and in Chapter 3 I discussed the parallel global economy and some of the dilemmas this posed, including the need for international co-operation to develop appropriate policies to address global environmental problems. In Chapter 4, some comments from interviewees referred to the implications of globalisation on the environment.

Policies for CER, both for business or governments, must I believe, consider the reality of the global market place for three main reasons. Firstly, as discussed in Chapter 3, the global nature

of the market place means that products are manufactured in one or several countries and sold in a range of other countries, and occasionally even recycled or disposed of in still other countries.

Secondly, as the market has become deregulated and globalised, so too the ownership and operation of companies around the world has become increasingly concentrated into large, multi-national corporations (MNCs) as discussed in Chapter 3. In any product or service area, whether it is household appliances, telecommunications, energy and mining, building materials, banking, insurance, media, and even agriculture and fishing, several MNCs tend to dominate the market place in each sector. And because these MNCs operate often autonomously in multiple countries, individual national environmental policies are becoming increasingly ineffective at regulating the operations of these global giants (Beder, 1997; Monbiot, 2000; Paddon, 2002).

The third reason, which is related to the previous, and is identified by Cooper (1999) and Mol (2001), relates to the effectiveness of national policies in a global marketplace. Mol asks if the processes of opening up the borders, increasing trade, harmonising economic and political regimes, and accommodating national environmental policies to economic competition, that is globalisation, add to environmental risks? In answer, Mol argues that globalisation spreads environmental risks, such as pollution and pesticides and other unwanted additives in foods, and toxic agents in materials such as plastics, around the world, meaning no one can escape the impacts. As such, he asserts the effectiveness of national environmental policies and institutions are diminished, and the need for global responses to environmental problems increases. Cooper (1999), Monbiot (2000) and other environmental economists point to the impact of the World Trade Organisation rules on national environmental legislation.

Under WTO rules national environmental policies can and have been challenged as 'non-tariff barriers to free trade'. Cooper (1999) identifies some of the threats to environmental protection posed by globalisation, including challenges to the right of countries to ban imports that don't meet minimum environmental standards; disincentives to environmental design; and manufacturing moving offshore to countries with lower wages and limited or no environmental legislation.

A challenge brought by Canada against quarantine restrictions on salmon imports to Australia is an example of how WTO rules can override national regulations. In 2000 the Canadian government successfully challenged Australia's quarantine laws banning the importation of fresh salmon to Tasmania, under WTO rules (Sydney Morning Herald, 2000). Salmon had been banned under quarantine laws because Australia argued, there was a high risk that imported salmon would bring diseases into Australia that could threaten the multi-million dollar salmon farming industry. Canada was able to convince the WTO that the Australian salmon ban was not

backed by proper scientific analysis, and argued that Australia allowed importation of other fish, such as live ornamental fish and frozen baitfish, even though the disease risk could be considered at least as high as that for salmon. The WTO found in favour of Canada, ruling that the quarantine laws were being used as a 'non-tariff barrier to free trade'.

In another case, the threat by the European Union and the UK to challenge at the WTO, changes to Australia's quarantine laws in an attempt to ward off foot and mouth disease, was sufficient to cause Australia to back-down on its quarantine regime (The Age, 2001).

The implications of WTO rules and their ability to influence national environmental legislation, is an important and controversial issue, however it is beyond the scope of this thesis to analyse it in detail here. There is a considerable body of academic research analysing WTO rules and how they interact with, and influence national government regulations - see Martin, 2001; DeSombre & Barkin, 2002; Winham, 2003; Nilsson, 2004.

6.8.1 Multilateral Environmental Agreements (MEAs)

The last decade of the century saw an increasing number of international environmental agreements, frameworks, protocols, and conventions commonly referred to as multi-lateral environmental agreements or MEAs. As these agreements developed through the United Nations (UN), other initiatives related to environmental performance have been developed by organisations such as the World Bank and the Organization for Economic Cooperation and Development. The OECD developed Guidelines for EPR and Guidelines for Operation of Multinational Enterprises.

The role and effectiveness of international agreements was raised by a number of interviewees. The Chair of WSSD in Johannesburg, Professor Emil Salim in a personal interview (2003) was highly critical of current international processes, stating that one major problem is that:

> the playing fields are not equal, so when you talk about international agreements, it's not balanced. So that's the trouble with every international conference, and then international agreements, and then international application of them.

He went on to strongly support the UN, asserting that

> the UN is so important, because [decisions at] the UN is based on one country, one vote. But when you shift to the World Bank, or to the IMF, and the WTO, it's one dollar, one vote. So, with international agreements, it's about where, and by whom, and at what level is the playing field.

Interviewee 7 (former CEO, Energy) when asked about a role for international environmental agreements and standards said

> in some things there is probably a role for a truly international standard. If the Kyoto Protocol gets up, you will begin to see a CO2 measure per nation, which will obviously involve business.

But he raised a very important concern regarding international agreements and the time they take to be negotiated, ratified and eventually for national governments to pass enacting legislation:

> There's always inertia. But eventually, over a period of time, and it can be decades, the received wisdom is seen as good and it becomes a standard and it tends to become adopted. But by the time it's become adopted, you've moved to the next place.

Interviewee 9 (global governance director, Automotive) was very supportive of international standards highlighting the costs advantages to car manufacturers to have global standards on emissions for example. "It is costly and inefficient to develop different technologies for different markets".

Interviewee 1 and 2, senior managers from whitegoods industry, both signalled out the Montreal Protocol as a key international agreement that has influenced the design of their products. While Interviewee 18 from the beverage industry said that the Montreal Protocol had had a major impact on his company both in Australia and it's global operations, because of the companies high level of use of refrigerated automatic drink dispensing machines, which had used CFC as the refrigerant. "My company eliminated CFCs from all our operations by the end of 1996 and we fully supported the Montreal Protocol" he informed me. He went on to admit that, "while organisations like Greenpeace are a thorn in our side, they are still prompting us to develop environmentally friendly refrigerants and so on".

Interviewee 4 (former senior manager, EEPs) discussed the question of how the Basel Convention impacted on her company. She talked of the export of some of her company's end-of-life products to developing countries for processing, but stressed that they only go to countries where they will be processed in an environmentally sound manner. Woolley (interview, 2004) also discussed the Basel Convention, and, while asserting that Consumer Electronics Suppliers Association (CESA) "does not support the concept of exporting EEP waste off shore" and wants to "encourage a viable Australian Industry", he admitted that as the Australian Federal government permits the export of Hazardous waste, "it will be forced upon us by economics".

Cooper (academic, interview, 2002) raised the value of international fora such as the WSSD and Kyoto of raising awareness of global environmental problems and getting on the international agenda, as well as "exposing the people who are acting completely irresponsibly, like the Americans - you have something to pin them on now, you know, 'You have not signed what everyone else has signed'".

Henry (EO, NGO, personal interview) stressed the importance of international fora and agreements:

> I think issues of transparency, accountability, reporting, standards or reporting, and even if we could get to it standards of performance which is perhaps harder. They are all important in a world where corporations are increasingly multi-national; but also in a world where communities are increasingly connected, no corporation should be able to, nor can they, hide bad performance in a particular country.

Friends of the Earth corporate campaigner Mathews (interview, 2002) said that "certain companies would find international standards attractive, because the clearer they are, the clearer it is about what is acceptable and what is not in terms of how they operate. I appreciate why they would like, for example, one forest certification standard, or a globalised ISO standard". But he cautioned that often, international standards, because of the difficulties of gaining consensus, end up being harmonised down, that is the standard becomes set at a such low level that it becomes ineffective as a tool for minimising environmental impacts.

The question of how effective national public policies can be in the global free-market place and under WTO rules, particularly in forcing CER, achieving environmental objectives, and dealing with imported products and with MNCs, and of the role for international agreements, are obviously important questions, but these are beyond the scope of this thesis investigation.

6.9 The difficult path for CER

Companies are stuck in a vice between two pressures, one comes from shareholders and investors to increase returns by reducing costs and increasing profits, a pressure that is exacerbated by the short-termism of financial markets, especially in Australia and the US, mentioned before. The other comes from consumers to reduce prices, and despite surveys that suggest consumers 'care about the environment', this as yet has not translated into a surge of 'green consumerism', a view that was certainly made by a number of interviewees for this thesis. As Reich (2008) reflects, "there's a difference between the private wants of a consumer and the public ideals of a citizen. Most consumers want good deals, period" (p 178). Consumer pressure to find the best deal has become even greater over the past decade, as the internet has greatly increased the ability of consumers to shop around and track down the cheapest prices.

The interview data backs this dichotomy between consumer surveys on the one hand and purchasing behaviour on the other. The discussion in Chapter 5 and 6, on senior managers attitudes to government legislation suggests that there is a lot of support from senior managers for government legislation. However, the dual pressure of shareholder and investor expectation and consumer's wanting a 'good deal', and the fact that most companies see compliance with government legislation as a cost burden, means that many corporations, as Reich (2008) and Howes (2006) and other writers attest, are involved in lobbying of governments to minimise legislation.

The pressure to keep prices low and to maximise profits seems to suggest a difficult path for CSR, as evidenced Reich (2008) by a number US cases. For example Reich discusses the US firm Cummins Engine, a pioneer of CSR, which was forced to abandon its "paternalistic employment policies and generous contributions to its communities, when investors demanded higher returns" (p 174). Further, he asserts, that investors don't punish profitable companies that lack corporate responsibility, and quotes the example of Exxon Mobil, regaled by environmentalists as one of the 20th centuries 'outlaw' companies, but which remains one of the most profitable of all oil companies.

While Reich (2008) argues that the pressures for CSR are low, and change is difficult, the situation for CER is not the same, and the potential for greater CER is greater. Managers as well as consumers can now see and feel the consequences of environmental inaction at a personal level: water shortages, increased food costs, changing weather patterns, and a deteriorating physical environment. While at the business level, managers are experiencing resource shortages and increased costs.

There are also counter pressures to those discussed above: one, discussed in Chapter 4, comes from the growth in responsible or ethical investments, with the resulting pressure on companies to be more responsible. Another is the (slowly) increasing pressure from 'green' consumers, also discussed in Chapter 4. González-Benito & González-Benito (2007) call these pressures 'public opinion pressures' which come from "selective shopping, ecological organizations, media, regulatory institutions, and so forth" (p 753). Such pressure also may be transmitted by financial institutions, suppliers, owners, and other shareholders, who are guided by the possible advantages derived from environmental transformation or by their environmental commitment. Furthermore, the adoption of environmental practices by competitors can constitute a source of pressure.

When these are combined with the apparent high levels of good will from senior corporate managers, expressed as a desire to be more responsible and illustrated in the interview research discussed mainly in Chapter 4, and the potential for economic advantages such as reduced costs, new markets and enhanced reputation and brands, for companies pursuing sustainable business practices (also discussed in Chapter 4), the result is companies that are prepared to go beyond compliance and take responsibility for their environmental impacts.

The case studies (discussed in Chapter 5) show that there are already some companies that are taking their environmentally responsible seriously, while still remaining highly profitable, in fact, as discussed in Chapter 5, Fuji Xerox and Electrolux are market leaders. Companies like these are showing the way and act as role models for other companies. If all the above positive factors are coupled with an increased preparedness from national governments to develop and pursue policies to encourage and force CER, then framework is there for a more environmentally responsible businesses community.

6.10   Conclusion: The prospects for effective government action

This chapter has presented a series of opinions and accounts of what some governments are doing and what they could be doing, as well as looking at the pressures on companies for and against greater CER. Earlier chapters have argued strongly about the environmental imperative for action to minimise the impacts of production and products on the global environment, and also for the need for some fundamental changes to the economic system to encourage the consideration of social and environmental impacts of production and for a more regulatory role for national governments. Now it is important to consider what are the prospects for effective government policies to achieve environmental objects? The intention is not to cover this

question in great detail here, as it is a topic in itself for an entire thesis, and therefore too large to be covered in anything but a introductory manner here. An initial consideration of the complex issues raised may suggest useful future research.

At the time of writing this chapter, the extreme nature of the water crisis facing Australia's major cities, was only now starting to become obvious, but there have been warnings from globally respected Australia scientists and from Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) for the previous two decades. And there has been inaction especially from the Federal government as well from the state governments, to the looming crisis.

There are however, more fundamental reasons why the prospects of government action are not good. Dryzek in Eckersley (1995) asserts that there are "reasons to doubt that either extended democratic control or any deeper commitment to environmental values is possible in existing capitalist democracies". The reasons stem from the points made earlier in this thesis regarding the nature and dominance of the free market economic system (Stilwell, 2003; Rupesh et al, 2003). Dryzek claims that our liberal democracies are structured in such a way that governments are forced to respond to "powerful forces emanating from the capitalist economy" (p 294). He asserts that concern for the environment is a new phenomenon, of the last 30 years or so, and as yet it has not achieved the centrality of importance of the other fundamental forces of capitalist economies – and further, he suggests that it may never do so. Governments, according to Dryzek, and also discussed in Howes (2005), have three essential tasks in a capitalist economy. Firstly, they must ensure economic stability and growth. A failure to do this means they will be punished by reduced tax revenues, and companies moving offshore, further exacerbating economic decline and possibly leading to more serious political consequences, such as being voted out of office or facing protests both peaceful and violent.

The second essential task is maintaining order in society. A major component of this, Dryzek (in Eckersley, 1995) argues is "legitimising the prevailing political-economic system in the eyes of the population". Law and order always has a dominant role in elections in Australia and other Western democracies. The task is becoming even more difficult and costly with the rapid, recent increase in terrorism around the world. The third task is staying afloat [economically] in a hostile world. Increasingly this means abiding by the dictates of the global free market, emphasised by "the free movement of goods, services and capital across national boundaries", and as discussed above, an increasing limit on the freedom of national governments to make or enforce policies, such as environmental policies, that would restrict this free trade.

Dryzek (Eckersley, 1995) says that the implications for democracy, of these fundamental forces of capitalism are obvious:

> if democratic pressure, be it on behalf of environmental values or anything else, gets in the way of any of them, then it is democracy and the demands it generates, that must normally give way (p.295).

In Australia, the prevalence of a short term emphasis on maximising shareholder value, enforced by routine operation of financial markets, discussed in detail by Reich (2008), raises further barriers to effective environmental policies and outcomes.

To illustrate the important role that governments have in a democracy to encouraging CER especially through environmental policies and actions, this chapter looked at industry initiated national product stewardship scheme being developed for televisions and proposed to be applied eventually to all EEPs. The scheme has still not been implemented at the time of writing, because the companies involved are waiting for the Australia government to introduce safety net legislation, to ensure that free loaders are captured and forced to be part of the voluntary scheme, establish their own system or be fined when their products are found in land fill. The scheme is termed by its industry developers 'mandatory', but the Federal government for political reasons, prefers to call it 'voluntary'.

If governments introduce the right policies including the right incentives, companies will find that acting more environmentally responsibly offers new opportunities and new markets – not necessarily just increased costs (Cairncross, 1995), then what is good the environment is good for business.

Conversely the environment can become so heavily degraded that it becomes a hindrance to profitable performance of businesses. Some situations as well as views from business leaders in earlier parts of this thesis, support the conjecture that what's good for the environment is good for businesses. Certainly, with the current state of the environment, there are situations where severe degradation is having a negative impact on business – especially when companies are required to bear large clean-up costs by courts, for example BHP in PNG discussed earlier, or when share prices drop as a result of exposure to financial risks associated with poor environmental or social performance. Inefficient water using industries and agricultural practices in Australia, exacerbating the water crisis caused by changed weather patterns, will also have negative impacts on business and economic growth, in coming years.

The other way that the dominant negative forces of capitalism may be resisted and governments embark on more progressive environmental policies is as a result of a shift in public opinion, which could be seen occurring Australia in late 2006, as the severity of the water crisis became obvious, and severe bush fires wreaked havoc across Southern Australia.

It is appropriate to finish this chapter with a quote from Cairncross (1995, p17): "The best governments can hope for is greener growth. That is more likely to take place if governments combine well-designed environmental policies with judicial use of the market".

Chapter 7

Conclusions: A Way Forward

"Corporations are instruments of social purpose, formed within society to accomplish useful social objectives." **Dunphy et al (2003, p4)**

"Only through a courageous policy shift will it be possible to lay the foundation for approaching sustainability in a serious manner." **Schmidt-Bleek (1999, p3)**

7.1 Introduction

The preceding chapters discussed the issue of corporate environmental responsibility: what it is; how it can be achieved; what business leaders think about it; what drives businesses to act responsibly; what are the barriers they encounter; and what policies, both business and government, exist to encourage or force it. It also discussed the thornier questions of business attitudes to government legislation, and what governments could or should be doing to encourage more CER. This concluding chapter will summarise the research findings in order to answer the research questions posed in Chapter 1, and mention some research gaps found while researching for this thesis, and which present opportunities for further research.

7.2 Addressing the research questions

The two key questions can mainly be answered by answering my secondary research questions. However, the second key question, relating to the role of national governments, is so crucial to CER, as the research has shown, that this concluding chapter will spend some time discussing options for government policies, as they have arisen from the research.

What is the environmental imperative for CER?

Global environmental problems are becoming all too obvious, the evidence for this was discussed in Chapter 1. The effects from global warming and climate change for example, are now starting to impact on communities and individuals around the world. Sea level rise is already eroding coastlines in many countries and slowly inundating small islands and low lying areas in others. Extreme weather events, such as cyclones, hurricanes, and droughts are impacting on most countries around the world. Forest and bush fires have ravaged parts of the South East Asia, United States, Europe and Australia. Much of Australia has been gripped by the most severe drought in history, as rainfall patterns continue to change - and Australia is not alone in experiencing a desperate water crisis.

The depletion and degradation of the world's natural resources, or our 'natural capital' as Lovins et al (1999) term it, continues unabated: habitat destruction and biodiversity losses around the world are at record levels, as too are soil erosion and salination. The pollution of rivers and oceans continues, as does the global overexploitation of fish stocks, timber and minerals resources, while current levels of global poverty and conflict, place even greater pressures on the world's fragile ecology.

What are the environmental risks associated with production of products?

As raised initially in Chapter 1 and evidenced in Chapter 3, the majority of the world's environmental problems can be traced back to the production and consumption of products. The lifecycle impacts of EEPs and especially of whitegoods, was used as an illustration of these problems and some of the solutions. Therefore, there is an imperative for companies to become aware of their environmental responsibility and to introduce policies and develop strategies to minimise the negative environmental impacts of their operations and products. There is also an imperative for national and international government policies to require companies to take responsibility to ensure a sustainable economic future.

Because of the global power of large corporations, with their ability to influence the decisions and the policy directions of national governments, and their ability to become leaders in certain areas of the environmental debate – indeed some companies are becoming advocates for environmental protection measures, as illustrate in the interview research in Chapter 4 - by encouraging and forcing CER/CSR there is an opportunity to begin to mitigate negative environmental impacts of products and production systems.

Are producers taking responsibility for these life cycle environmental risks?

Chapter 3 looked at the life-cycle environmental risks of products, however, as the academic and environmentalist interviewees stated, and even many of the industry interviewees admitted, many producers are not aware of, or prefer to remain ignorant of these, and therefore of their environmental responsibility. One thing is certain; before producers can start to take responsibility they must first understand that their operations have negative impacts on the environment. Then they must embrace 'life cycle thinking', that is, considering the entire life cycle of their products, from recovery of raw materials through to end-of-life.

This research has focussed mainly on one sector, electrical and electronic products and shown that there are companies that have developed policy statements for, or their public relations promotes, corporate environmental (and social) responsibility. But equally it has shown that many of these companies are not implementing effective actions in this respect. At best, a few companies are acting responsibly with regard to some aspects of their operations or in some countries where they operate. For example, Chapter 5 demonstrated that there are some companies that are performing well in industrialised countries where national environmental policies exist and community expectations are high, but others perform badly in developing countries where environmental policies are weak or non-existent, and/or poorly enforced, and perhaps where societal expectations are not as high due to low awareness of environmental problems and the role companies have in this, and/or where local communities are disempowered, or where the pressing need is basic survival.

The document analysis and interviews with business leaders found that there certainly is an awareness among some large companies of the need to be environmentally responsible. In Chapter 4 several business leaders interviewed stated a commitment to CER, and company websites contain statements such as environmental policies that infer their commitment to environmental protection. However, as was pointed out in chapter 5, there is a question mark over the degree to which actions match words, especially when operations in developing countries are analysed. The case studies of two companies, Fuji-Xerox Australia and Electrolux, illustrates that CER is not only possible , but that it need not be a cost burden to a company. Indeed, as a number of interviewed academics argued, and some economic writers such as Porter (1990); Kotter & Heskitt (1999); Stillwell (2003); Howes (2005); and Vogel (2005) assert, and the two case study companies showed, environmental responsibility can also be good for business.

What drives some companies to at least 'say' the right things?

My research has shown that, overwhelmingly, legislation or the threat of legislation is the main driving force for CER. Legislation was identified by the majority of the interviewed business leaders as the main driver. Even those who did not identify it as the primary driver, non-the-less admitted that it was an important secondary driver. All the environmentalists and almost all the academics interviewed identified it as the number one driver. However there is a continuing debate in business, government, academia, and environmental NGOs about what are the most effective types of legislation, how they should be developed, enacted and enforced and what other government and business policies should complement them. This debate is especially fierce when voluntary versus mandatory measures are discussed.

The European Union's WEEE and RoHS Directives are an example of how a 'regional' legislative based policy is driving major changes in producer thinking and practices, not just within the EU, but also globally because those companies wishing to export their products into the EU must ensure their products comply with the Directives. Also, as discussed, the global nature of production, with the concentration of ownership of companies and the increasing production of 'global products', especially in the EEP sector, means that it is more economical to produce a product that complies with the standards for the largest markets – with positive environmental outcomes if that market has strict environmental standards.

While government policies for CER was the main driver, other important drivers were identified. Protecting and enhancing reputations and brand names was identified as being very important, while pressure from consumers and avoiding risk were important secondary drivers. Surprisingly, market advantage and consumer pressure were not rated highly as a key drivers, although some business leaders and many academic and environmentalists interviewed identified them as factors that will increase in importance in the future. The role of a champion within a corporation, someone with vision who will drive CER, was identified as being important, especially when that person is a CEO. Other drivers rated of lesser importance were avoiding risks, government incentives, and pressure from NGOs.

Counterpoint to addressing the drivers of CER is the question of the barriers. Perhaps as was to be expected, if government policy was identified as the key driver, then government failure was identified as the main barrier to CER. Along with government failure came company failure, that is a failure of leadership or poor company culture, which was, along with societal failure, that is the lack of importance placed by civil society on environmental issues and of consumers on environmental performance of products, identified as the next most important barrier to implementing effective CER. Other important barriers to CER were the costs associated with

making production systems more environmentally friendly, and the failure of markets to adequately value environmental performance.

I assert in this thesis that my results seem to be at variance with the current thinking of many national governments around the world as they move away from legislation to purely voluntary agreements, but they are inline with numerous academic studies of the apparent in-effectiveness of voluntary measures alone. My findings certainly are at odds with the views expressed by the previous Australian Government when they asserted that the business community does not want legislation requiring greater corporate responsibility. Clearly, from my research, and several others referred to in this study, this is not true - business leaders will accept well consulted and formulated legislation, particularly of the performance-based type. Indeed a number of my business interviewees advocated a more interventionist and leadership role from the Australian government. However, I have drawn attention to counter views that there are people in companies who continue to lobby against legislation, and also that there are significant pressures on companies, such as from shareholder and investors for high returns and pressure from consumers for cheaper prices, that make the path of CER difficult.

How closely do the actions of selected companies match their environmental rhetoric?

Most environmental analysts and environmentalists interviewed, as well as environmental NGOs in their literature, are critical of the environmental performance of companies. As evidence they point to continuing national and global environmental problems, and also to an apparent failure of governments to either recognise or respond adequately to these problems. Many environmentalists expressed cynicism toward the CSR/CER agenda, certainly as it operates now, with some perceiving it as an elaborate 'green wash' exercise. There appears to be reason to be cynical as some major companies, including some of those promoting their environmental credentials loudest, such as Shell and BP, are being caught out breaching their own stated standards, especially when their operations in developing countries are increasingly placed under the microscope.

However it is not all negative, as my research has shown. There appears to be a genuine desire among some business leaders interviewed, to take responsibility and improve their company's environmental performance. The two key case study companies, Fuji Xerox Australia and Electrolux, show that these corporations are matching their rhetoric with their actions. Fuji Xerox Australia has become a world leader in product-service systems, take-back of used products and the processing of machines either for reuse of the whole copier or of components,

or for materials recycling. Fuji Xerox Australia, encouraged by the philosophy of its parent company, is well on the way to becoming a zero waste company.

Electrolux is seen as a world leader in environmental responsibility. Electrolux' business philosophy and its performance in both Australia and Europe, in particular its impressive take-back scheme and remanufacturing plants for used products in Sweden were discussed. Importantly, both these companies have shown that taking social and environmental responsibility seriously need not harm the financial 'bottom line', in fact both companies have benefited financially from their CER decisions, both through savings on energy, materials and waste, and also through reputation enhancement, which can giver them a market advantage.

What is the role of national governments in encouraging CER?

This is an important question and the research shows that there is a crucial role for national governments. Chapter 4 and 5 argued that, while recognising that corporations have a role in society, namely producing goods and services that society wants, there is a need for them to behave in a socially and environmentally responsible manner. Improved environmental performance can be achieved through CER, but as argued in Chapters 4 and 6, and a number of interviewees asserted, national governments have to take a lead role and introduce policy measures to encourage or require that all companies act responsibly both environmentally and socially. The study of the Australian televisions industry's product stewardship system, which is at risk of collapse due to the failure of the Australian government to introduce legislative backing is a good case in question. Measures for monitoring the performance of companies against agreed standards, and measures for enforcement are also essential to take CER beyond responsibility to accountability.

Environmental legislation was nominated as the dominant driver for CER by most business leaders, analysts, academics and environmentalists interviewed, as well as being advocated as such by many economic and environmental writers. Despite this, the emphasis of many national governments is on voluntary codes and agreements, and for limited or no government intervention in the market place. Equally, the research, including unequivocal statements from some senior corporate leaders, shows that voluntary measures are not working in the industries researched – the evidence and scientific and United Nations studies, such as the latest IPCC report, continually show that the global environment is continuing to deteriorate.

There is much debate surrounding regulations. The debate over voluntary and mandatory measures, in particular looking at the suggested failings of regulations, was discussed in some detail. Very strong arguments were raised by a number of writers such as Eckersley (1995),

Cairncross (1995) and Bailey (2003), as well as a number of academic interviewees, that these failings are due not to regulations per se, but because they were poorly developed, or lacked enforcement, or because the political will or commitment from the government or bureaucrats, was absent.

In contrast to Australia, the support for mandatory measures still exists in Europe. In a new environmental policy environment, regulations are increasingly advocated and used as one component, but an essential component, of a mix of voluntary, regulatory and market measures, or new environmental policy initiatives (NEPIs) as they are termed in Europe. However it is argued here that it is vital that governments get the mix or the balance right, if these mixed policies are going to be ultimately successful.

Chapter 6, looked at the WEEE Directive, an example of this new policy approach. The Directive, with its strong regulatory basis, took many years to develop and underwent numerous amendments along the way, to make it more acceptable to EU Member States, the business community, NGOs and the broader community. Because at the time of writing this thesis, the mechanisms for operation of the Directive, at EU and individual Member State levels, were only just being established, it is too early to say whether the WEEE Directive is working, especially if it is achieving its environmental objectives. For the same reason, at the time of conducting research for this study, there have been few studies looking at the effectiveness of the Directive. It does have its critics on both sides of the economic/environmental divide, as discussed, however, what is becoming obvious is that it has resulted in a shift in the awareness of and attitudes to, environmental responsibility from EEP producers. Many have already established processes for the collection and processing of used EEPs, and as Tews, Busch and Jorgens (2003) and Woolley (interview, 2003) claim, it is requiring greater CER, not just in the Europe but also from companies in other countries, particularly Asian and South East Asian companies wishing to export products to the European market.

If CER is going to bring about an improvement in the environmental performance of companies, and an overall improvement in the global environment, there needs to be more government regulations, either as regulatory measures alone, or, as is becoming increasingly popular, as an core component of a mixture of measures. However these policies need to be well consulted and formulated, and include standards with performance indicators; reporting and monitoring measures; and perhaps penalties for poor performers and free loaders. As stated before, my research found that many companies will support this type of consultation-based, well-developed regulatory approach that captures all stakeholders, however this going to be a challenge for democracies.

How do Australia's policies for corporate responsibility, compare with those of Europe?

Based on my document analysis and interviews, it appears that the former Australian government has been out of step with Europe generally on environmental protection and more specifically on policies for CER. Hewson (2003) and Ryan (interview, 2003) for example, stated unequivocally that Australia lags behind Europe. There is no doubt that many European countries give a much higher profile to environmental protection in their national policies. As evidence for this in Chapter 6, I referred to the 2004 study of 21 OECD countries that ranked Australia near the bottom on environmental performance. Australia's original intransigence in relation to the Kyoto Protocol was evidence at the time of writing, of the previous Australian government's low priority for environmental protection. It is unclear at the time writing, how effective the new Australian government will be in this field.

In relation to CER and minimising the environmental impacts of products over their life cycles, Australian policy is seriously lacking. An indication of the difference in attitudes to product policies is Australia's persistence with the 'product stewardship' philosophy based on 'shared responsibility', as the core basis of its policy approach (the Australian National Packaging Covenant (NPC) was presented as evidence for the shortcomings in this approach), whereas in Europe the stricter concept of 'extended producer responsibility' is the basis of the EU's and many individual Member States' product policies..

The thesis suggests that there are definite economic advantages both for nations and for companies, when governments keep up with, or better still anticipate policy trends in other countries, as suggested by Porter (1990).

Attitudes to environmental responsibility of many Australian companies also lag behind their counterparts in Europe. Once again Hewson (2003) stood out in his criticism of Australian companies, claiming that companies can not operate in Europe if they don't take environmental responsibility seriously. A number of academics and environmentalists, as well as several business leaders, accused some Australian companies of having very negative attitudes toward environmental protection and of using their influence to pressure the Australian government on the direction of its environmental policies.

What is the role of global governance?

Chapter 3 especially argued that because of the global nature of many environmental problems, the increasing concentration of ownership of companies into large MNCs, and the increasing globalisation of the market place, with the spread of free trade, international co-operation is critical to addressing global environmental concerns such as climate change. But, as Keohane and Nye (1989) argue, and negotiations of the Kyoto Protocol aptly illustrates (especially the US and Australian governments' refusals to ratify), international co-operation is not always easy, and is often not achieved.

When discussing global governance two manifestations, global economic rules and multi-lateral environmental agreements (MEAs), were discussed. The role of global economic rules such as those of the WTO, and their influence on national environmental policies, especially policies for CER cannot be ignored. And some analysts argue that national environmental policies are subservient to free trade policies, as shown by recent WTO challenges and decisions. They also assert therefore, that the effectiveness of any government legislative measures, must be seriously at risk of being challenged as barriers to free trade, as the WTO rules currently stand.

MEAs such as the Kyoto and Montreal Protocols are undoubtedly related to CER and can influence sustainable design of production systems and of products: the Montreal Protocol, because of its restriction on ozone depleting gases used as refrigerants in appliances such as refrigerators, freezes and air conditioners; and the Kyoto Protocol because of the need to limit greenhouse gas emissions, which not only affects vehicles, but all production processes requiring energy. The Basel Convention, also an MEA, has implications for CER, as it restricts the exporting to developing countries, of waste that is hazardous or contains hazardous materials.

However, the effectiveness of MEAs can be questioned, due mainly to the fact that the standards, requirements or targets included in these MEAs are being negotiated at lower and lower levels at international forums, especially by conservative governments like those of Australia and the USA. The example was quoted on how during international negotiations on the Kyoto Protocol, countries, especially Australia and USA, negotiated low greenhouse gas reduction targets.

7.3 Key issues

As discussed above, there is no doubt that many companies are saying the right things; the degree to which their actions match their words is the biggest area of conjecture and concern. The research identified two companies for whom their actions substantially match their words, but as studies and reports referred to in this study found, the situation for many companies in the areas reviewed in this thesis is that they are failing to live up to their rhetoric, or are engaged in elaborate exercises of 'green washing'.

The role of national governments in regulating the activities of corporations is the key issue, to the extent that the research conducted in one major sector, EEPs, can be generalised. In light of the pressures on corporations for business as usual, discussed throughout this thesis, I believe there is a real need for national governments to develop holistic, integrated product policies, with strong underpinning legislation to catch freeloaders and create a level playing ground, aimed at minimising environmental impacts over the entire life cycle of products. These integrated policies need measures to encourage or force companies to extend their environmental responsibility through: maximising resource efficiency including reductions in the use of natural resources namely materials, energy and water; elimination of hazardous and toxic materials; producing zero waste through closed-loop thinking; and most importantly through the utilising of design for sustainability principles.

The need for standards was another measure clearly identified in the research. Governments need to set minimum standards for environmental (and social) performance for companies, and these must be internationally coordinated to ensure that companies will abide by them wherever they operate. And, in order to create a global sustainable market place, national governments need to negotiate agreed international minimum environmental standards, based on best practice, for goods and services, covering all lifecycle environmental impacts. As argued by some interviewees, such international environmental standards will benefit producers financially, as there will be common environmental requirements around the world, meaning there will be fewer production runs – that is they will be able to produce more products that are 'global' and that satisfy environmental requirements around the world.

7.4 Research gaps and opportunities for further research

The literature research identified a number of areas where there is a paucity of academic research, which present opportunities for further original research. One such area referred to in the thesis, is the lack of academic research into the degree to which companies environmental performances match their PR rhetoric. As the use by companies of various types of PR, especially on web sites, promoting positive environmental performances, increases, there needs to be valid independent academic studies into the veracity of environmental claims made in these statements. There are numerous reports by environmental NGOs, however, while often being thorough investigations, they lack the rigour of an academic study. Contrasting the environmental performances of companies in developed and developing countries is a valid study that falls into this category.

Another area where there is a shortage of academic research, especially a lack of specific data, is in the area of the performance of new sustainable production policies, especially in Europe. The shortage of specific studies can be justified by the fact that these policies have mostly only recently been enacted, and therefore there has been insufficient time for data to be collected. None-the-less it is a clear gap, and one that presents opportunities for researchers to undertake important primary research.

Related to this is the question of the necessity and the drivers for new products. MNCs are diverse and complex organisations, many of which are made up of numerous subsidiaries with often very different core roles. It is not uncommon for MNCs to have media arms, General Electric is one such company – not only is it one of the world's largest manufacturers of EEP products, as well as a major military hardware and software producer, but it also owns the CBS and NBC television networks in the United States. These companies can create the desire for their new products through their media outlets. So it is valid to ask the question: what comes first, a new product or the desire to have that product?

The so-called 'new economies' in Asia and South East Asia are vibrant and booming, spawning dynamic multinational companies such as LG, Samsung and Hyundai. With the continuing globalising of the market place, these companies' products are gaining rapid inroads into Western markets, presenting a fertile ground for studies on new economies and emerging Asian corporate giants.

7.5 The final word

As discussed in this thesis, production and consumption of products is the major source of the world's environmental problems. This research concurs with what many political and environmental economists argue, and many of my interviewees stressed, namely, that there is a need for national governments to re-engage with the market place, or as Bell (2002, p304) so succinctly puts it: "the state has a role in constituting and regulating market activity" and "the state is always and everywhere an essential piece of market infrastructure and governance". National governments' key role therefore in the area of CER, is to introduce policy frameworks, containing a mix of voluntary, regulatory and market measures, to require all companies to become environmentally responsible, and most importantly, through regulative measures for reporting, monitoring and enforcement, to move from responsibility to accountability.

Corporations operate in society - they make their profits from the toil of members of society, they access their wealth from the world's resources, they sell their products to members of society – therefore they must operate within the rules and boundaries set by society. If the rules and boundaries are ineffectual and the operations of corporations are harming society and the environment, then those rules and boundaries must be tightened.

What needs to happen? De Leeuw (2005) offers one answer:

> …it is necessary that psychologists, religious groups, and spiritual leaders be exposed to engineers, LCA researchers, and policy makers, and that they work together on tangible demonstration projects. Marketers and entrepreneurs, students, and young people are all needed to bring about holistic solutions for a world in danger. And the lead time from "promising new research tool" to "serious policy option" should not again be 30 years . . . so that we and our children—real people—can all happily live ever after. No other way is possible (p 9).

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Appendices

Appendix 1

Questions for Industry leaders (general)

1. On a scale of 1-5, where 5 is essential, how important is taking responsibility for the environmental impacts of products in your company's management decisions?

2. How does sustainable development fit into your company's decision-making processes? How has this changed in recent years?

3. What policies or strategies exist in your company to encourage environmental responsibility?

4. What do you feel are the main drivers for your company taking greater responsibility?

5. What are the main barriers to your company becoming more environmentally responsible?

6. Do you have a personal view on the need for government policies, especially legislative, to encourage companies to take greater environmental responsibility?

7. What government policies/legislation influences your company's decisions in the area of environmental protection/clean production?

8. What does your company believe is the most effective form of government policies?

9. Would your company support performance based or enabling legislation such as targets for phasing out the use of hazardous materials, or for energy reduction; or landfill bans?

10. Do you think there needs to be international coordination, harmonizing or standardisation of environmental policies, particularly in the area of minimizing environmental impacts of production/products?

   [How do you think this could best be achieved?]

11. Are there any factors you think I should be aware of, that I haven't mentioned here?

   ****

12 What do you think are the main barriers to sustainability being embraced globally**?**

Appendix 2

Questions for Academics

1. Could you briefly tell me what your involvement/research has been to date in the area of EPR/clean production?

2. How would you describe the preparedness of business to take more responsibility for the environmental impacts of their products? Has it changed much in recent years?

3. In terms of EPR, how would you describe the commitment of industry in Australia compared to overseas?

4. From your experience do you have any comments regarding the attitudes of the business community either in Australia or over seas to government legislation to encourage EPR?

5. What do you think are the main drivers to producers taking greater responsibility?

6. What are the main barriers?

7. How important do you think legislation is in encouraging EPR?

8. What do you think is needed in Australia to encourage/force EPR?

9. (Many business leaders of large companies, have stated that they would support legislation, provided it is performance based, such as bans and targets,) Do you think Australian governments and/or national governments around the world, are out of step with the broader business community and the expectations of society, regarding legislation?

10. With globalization, what do you think is needed to encourage sustainable production and EPR around the world? (Do you think some sort of standardization or harmonizing is needed?)

11. [Do you have any ideas about how this could work?]

Appendix 3

Questions for Environmentalists

Over the past 18 months I have interviewed a number of senior managers at major companies - mainly TNCs in Australia and overseas. They have all talked about their company's commitment to environmental responsibility. The following questions are designed to gauge your attitudes, and/or those of you organisation, to the environmental rhetoric of companies.

1. Briefly, what is your interest in the area of company environmental (or social) responsibility?
2. How would you describe corporate responsibility, particularly in terms of environmental responsibility? And why should companies take responsibility for their environmental impacts?
3. Do you think there has been an improvement in company attitudes to environmental responsibility in recent years?
4. How would you describe company attitudes now? Are they doing enough? Do their actions match what they are saying?
5. Why do you think many companies are at least talking about their environmental responsibility?
6. Governments seem to be obsessed with voluntary agreements/measures, do you think national governments need to go beyond voluntary measures to encourage/force companies to take more environmental responsibility and to make them more accountable?
7. What sort of policies should national governments be adopting?
8. The production, consumption and end-of-life of products is a major contributor, if not the major contributor, to local and global problems. With many companies now producing global products for the global market place, can you see any advantages in harmonising environmental legislation globally? Can you see advantages for the environment of beefing up the International Standards Organisation (ISO) as a means to harmonising environmental policies and legislation?
9. Do you have any thoughts about the role of international governance?
10. Where do you see corporate responsibility going over the next decade?