Briefing Paper
Environment Module

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Note This paper is a position paper designed to present the case for increased scrutiny and benchmarking of supermarkets' environmental policies and performance, and to present methodologies for how that benchmarking may be carried out. It is written by the coordinator of the Environment Module and does not necessarily represent the views of members of the alliance of organisations involved in the Race to the Top project, or the project's Advisory Group. It is a working document which is being regularly updated.

Introduction to the 'Race to the Top' project

Why is this project needed?

Questions are increasingly being asked about the integrity and safety of our food, the impact of its production on the environment and animal welfare, and the fairness of trade between consumers and workers along the food chain. In the UK and across Europe, there is an opinion that society should be much more directly involved in setting the farming and food agenda, rather than leaving it solely as the domain of government policy and market forces.

Supermarkets exert a huge influence on the rural economy in the UK and overseas, by setting farming standards and by seeking ever greater efficiencies for customers, competition and shareholder value. Their product range and siting policies affect the health of our communities and the environment. Customers trust the supermarkets to look after the environment and be good corporate citizens.

How will Race to the Top work?

The aim is to track the social, environmental and ethical performance of UK supermarkets, and catalyse change within the UK agri-food sector and beyond. An alliance of farming, conservation, labour, animal welfare and sustainable development organisations has developed several indicators of supermarket performance. These will provide comparative data to track progress towards fairer and greener food over the next five years.

By identifying and promoting best practice by supermarkets, the project will point to key issues for public policy, consumers, investors, retailers and campaigners. It will also provide objective data and analysis. An advisory group of independent experts provides advice and quality control.

There are seven groups of indicators:

- Environment
- Producers
- Workers
- Communities
- Nature
- Animals
- Health

Race to the Top will benchmark the major supermarkets annually using these indicators, and publish the results along with case studies of best practice by supermarkets and their suppliers. The RTTT project allows a consolidated, constructive relationship between civil society and supermarkets, rather than the single-issue action-and-reaction dynamic that has characterised civil society scrutiny to date. The project explores the boundary of corporate responsibility, the role for legislation, and responsibilities of consumers.

This briefing paper covers the **Environment** module. Other briefing papers are available which describe the other modules. Each seeks to identify the key issues within the module, and what actions UK supermarkets can take on these issues. There are many other issues which could be included within each module, but those identified are considered by the Race to the Top alliance of organisations to be highly significant representative issues on which retailers can act. Each of the issues is accompanied by an indicator that will be used to track positive supermarket action. It is hoped that these indicators will help to track supermarket progress towards a fairer and greener food system, and that they will provide a basis for discussion on how further progress towards this goal can be achieved.

Introduction to the Environment Module

Overview

Few now doubt the severity of the environmental crisis we face. Quite simply, our current systems of industrial production and consumption are unsustainable. Business as usual is no longer an option. We need to transform our industrial economies. This process is already beginning to happen. Leading companies are implementing environmental management systems, setting performance targets and implementing policies. To meet the expectations of their various stakeholders - including consumers and investors - public reporting is essential. To track progress and compare performance, government and non-governmental initiatives such as the Global Reporting Initiative (GRI) are calling for a more consistent approach to reporting. In the absence of an adequate response from industry the UK Government has threatened mandatory reporting. Guidelines for the reporting of waste, water and greenhouse gas emissions have already been issued. The Turnbull inquiry and the recent Company Law Review will also require company directors to assess and report on the wider risks - including environmental and social risks - faced by their companies and to develop appropriate systems of internal control to deal with them. Environmental management and reporting is no longer just an option.

The human impact on the planet has reached a point where it is posing grave threats to our future prosperity and security. Until a couple of centuries ago we lived comfortably within natural limits, depending upon the Earth's resources without affecting its ability to replace them. But now, our economic systems of production and consumption are taking us beyond critical thresholds in the use of non-renewable resources (and the unsustainable use of renewable resources) and the assimilation of wastes. The planet's life support systems - the provision of an atmosphere and a stable climate, a protective ozone layer, and the absorptive capacities to disperse,

neutralise and recycle the material outputs and pollution generated in ever increasing quantities from our global economic activities - are being overwhelmed and impaired. As a consequence, the Earth's ability to maintain the conditions necessary to support life, let alone economic activity, are being compromised. It is as bad as that.

Why? Part of the explanation lies in the failure of markets - it is down to economics. The prices we pay for our goods and services generally do not reflect the full/true costs of their production and consumption. External costs (or externalities) - such as the contamination of ground water, soil erosion, traffic congestion, poor urban air quality, global climate change and so on - are imposed on the rest of society - not the company, individual or organisation responsible for them. The final sales price of a carton of orange juice, for example, does not include the wider costs to society that can be (but are not always) associated with its production, transportation, and storage prior to sale. These costs could include the loss of biodiversity, soil erosion and chemical pollution of watercourses when new orange groves are established and the fruit treated with pesticides. Acidification and health related costs associated with emissions of nitrous oxides, particulate matter (PM) and volatile organic compounds from road transport. External costs attributable to the storage of the juice could include emissions of green house gases from in-store energy use and damage to the ozone layer resulting from the leakage of ozone depleting refrigerant gases. As noted above, these costs are often not borne by the consumer or reflected in the economic transactions along the supply chain. If they were (ie effectively internalised) everything changes - costs, what is and what is not profitable and consequently, what is produced, how it is produced and how it is transported (see Box 1 at the end of this paper for further explanation).

As the world population has increased 6 fold over the last 150 years - from one billion to six billion, the external costs of economic activity have multiplied, particularly over recent decades with the increased globalisation of our markets and supply chains. The evidence of the unsustainability of our economic systems is now all too pervasive, prompting governments and increasingly, business, to act and respond to the key environmental sustainability challenges.

Drivers for Change - Legislation, Consumers, and the Investment Community

The Business Case for Reducing Impacts, Improving Performance and Reporting

Companies are increasingly recognising the need to manage, improve and also report on their environmental performance. Leading companies also recognise that their long term future and ultimate sustainability is inescapably linked to their ability to reduce their environmental impacts and to continuously improve their overall environmental performance - in many cases, beyond legislative compliance. It makes sound business sense, and in many ways, represents best practice in terms of cost and business risk management.

Legislation and fiscal incentives can support the business case. The principle of environmental taxation – shifting the tax burden from labour to environmental outcomes – is one way to internalise external costs. The landfill tax, climate change levy and aggregates taxes provide recent examples of such legislation. Governments throughout Europe are committed to the increased use of such policy instruments. Customer and local communities' expectations and demands for responsible corporate environmental governance are also increasing and the consequences of 'environmental failure' - reputation disasters such as Shell with Brent Spar - have also become all too apparent in our world of global communications and markets.

The City/financial community is showing more interest in assessing corporate environmental performance. Whilst investor/financial market pressure has historically been limited to concern over legal liabilities and to negative risk factors, recent legislative changes and emerging evidence of the link between earnings and environmental management have encouraged analysts to consider the more positive aspects of corporate environmental performance.[1] Increasingly the quality of a company's environmental management is being seen as an indicator to the outside world of the overall quality of its management – a key investment/stock selection consideration. Analysts are being urged to demand new forms of data and information to measure this more positive aspect of corporate environmental governance. A number of commercial environmental risks rating initiatives have recently been launched in response to this demand. New indices based on an assessment of corporate environmental/social/sustainability performance have also been launched, such as the Dow Jones Sustainability Index and FTSE4Good. The demand for environmentally related performance data is likely to increase, and with initiatives like the Global Reporting Initiative (GRI) becoming more widespread, the provision of standardised, comparable data is likely to become the norm, enabling comparisons to be made between good and bad performers.

Without adequate and appropriate environmental management systems in place - whether certified or not - it is unlikely that companies will be able to meet the expectations of their customers, shareholders and the requirements of as more stringent regulatory environment and environmentally aware City in terms of disclosure of environmental performance data.

The Benefits of Reporting

Environmental reporting contributes to meeting the increasing demands from external audiences for environmentally related data. As noted, a proactive approach to environmental management is seen as a good indicator of the overall management quality within a company. Whilst the City is not interested in reactive ad hoc environmental initiatives, it is interested when a company can demonstrate a systematic approach to consistently delivering greater value, or reducing business risk, through effective environmental management. The public reporting of environmental performance data can also serve as a powerful demonstration of a company's overall commitment to managing and reducing its environmental impacts and hence, publication can also provide an effective means for companies to differentiate themselves in increasingly competitive global markets. This proactive approach could help to secure existing markets and contribute to winning new business. It could also contribute to increasing the demand for the company's share capital, as investors are encouraged to seek out and invest in 'best in sector' (in terms of their overall financial, social and environmental performance) companies.

[1] A recent driver for change in corporate behaviour lies in the recommendations of the of the Turnbull Committee, which lead to the new 'Combined Code.' This requires the boards of a company listed on the London Stock Exchange 'to report on their systems of internal control for identifying risk, including risk associated with their reputation and the environment.' (www.icaew.co.uk). The Company Law Review provides another driver. An expanded Operating and Financial Review (OFR) (in the company's main annual report and accounts) will now have to include a discussion on the company's policies and performance on environmental, community, social, ethical and reputational issues including compliance with relevant laws and regulations (where deemed material by the directors). Irrespective of their materiality, the OFR must disclose a discussion, within the dynamics of the business, on the risks, opportunities and responses relating to environmental costs and liabilities.

What are the UK Supermarkets already doing?

The UK retail sector as a whole, through the British Retail Consortium and its Environment Policy Advisory Group, has taken a first step towards industry-wide improvements in environmental management. In 2001 it published *Towards Retail Sustainability*, which outlined objectives and targets for the next five years. Within the supermarket sub-sector itself, the response to the environmental challenges outlined above and the level and commitment to reporting is varied. Whilst some companies have registered environmental management systems, include references to key environmental issues and aspects of performance in their annual report and produce standalone environmental reports, others don't. The quality of reporting also varies considerably with several companies still limiting their reports to a discussion of the issues, highlighting success stories but failing to set and report against meaningful and comparable performance targets. This project provides an opportunity to address this by developing and implementing an agreed common and comprehensive reporting framework that will enable performance to be ranked and benchmarked across the sector.

THE INDICATORS

The remainder of this paper details the RTTT Environment Module Indicators. They cover three broad areas, summarised in the table below:

ISSUE	INDICATORS
Corporate Commitment to Environmental Responsibility and Performance	**1. Board-level responsibility, training and reporting**
Climate Change	**2. Energy Use and Emissions of Carbon Dioxide**
Waste	**3. Waste Management and Minimisation**

This does not represent a comprehensive list of the key environmental issues and challenges racing the retail sector. For practical reasons - principally the need to keep the total number of questions in the complete RTTT survey at a manageable level - we have had to limit the review of supermarket performance to these three critical areas - common challenges for all companies in this sector. In future years, depending upon the ease of data collection and the standardisation of reporting procedures, other areas may be added. These may include additional questions concerned with contaminated land, emission of ozone depleting substances and impacts on biodiversity.

We acknowledge that many supermarkets, but not all, are already recording and in some instances reporting their performance in these three areas. Supermarkets participating in the annual *Business and the Environment* (BiE) Index of Corporate Environmental Engagement survey will also have had to address some of the questions detailed below in their annual submission to BiE. Consequently, to save time and duplicated effort, we have detailed where there is overlap and degrees of overlap between the questions in both surveys. Those companies completing the BiE survey have the option of submitting their responses to the relevant sections as indicated. Questions which are not identified as being covered in the BiE survey require a direct response from all retailers.

INDICATOR 1.1
Issue: Corporate Commitment to Environmental Responsibility and Performance
Indicator: Board-level responsibility, training and reporting

Why is this important?

The business community's response to environmental issues has changed dramatically over recent decades. From the publication of Rachel Carson's *Silent Spring* in 1962, through to the Earth Summit in 1992, the business-environmental arena was typified by unending exchanges of accusation, insult and mutual misunderstanding. Confrontation was the name of the only game in town as Greenpeace, Friends of the Earth, WWF and others slugged it out with increasingly powerful multinationals. By the mid-1980s this began to change. More and more companies were moving from hostility and 'resistant adaptation' to environmental legislation to recognising many of the 'business case' arguments outlined above from adopting a much more proactive, positive and 'beyond compliance' approach to environmental management and performance.[2]

However, whilst leading and more forward-looking companies are committed to making their operations more sustainable, others have not yet accepted the business case for improving environmental performance. The environment can be sidelined to some out-of-the-way department with no clout and no budget. Reporting for many of these companies is virtually non-existent. This is one of the reasons why the UK Government is still threatening to legislate to get FTSE 350 companies to report. With no policies, no targets and no direct board responsibility defined for taking the lead in and being accountable for the company's environmental performance, little action beyond legislative compliance is taken. Commitment at the top is essential to drive through real change. As are programmes to ensure key staff, if not all staff, are made aware of the main sustainability challenges facing their firm and their role and responsibility to find solutions and ways to reduce impacts and improve performance. This module tries to capture this commitment with the following three indicators:

- ***Board level responsibility for operational environmental issues***
- ***Training activity on environmental performance issues within the organisation***
- ***The publication of periodic environmental reports (whether hard copy or web based), detailing policies, targets and reporting and whether or not the data is externally verified.***

How will the indicator be measured?

Board Level Commitment. Board level responsibility for the environment is typically disclosed in one or more of the following company documents: the annual report, environmental report or sustainability report if produced. If the information is not disclosed within these documents, the company will be asked directly via the supermarket questionnaire .

Awareness Raising. In an ideal world all staff would receive some sort of environmental awareness training - covering the key impacts of the company's

[2] ie good environmental management lowers business risk, can result in cost saving opportunities being found and thereby enhance profits, attract and retain the best people, attract new customers and retain existing markets and so on.

activities and operations (many listed within their significant aspects register if ISO14000 registered); the company's policies and procedures relating to environmental performance; accountabilities and responsibilities relating to the environment/environmental performance and risk and their own roles and responsibilities in terms of contributing to delivering the company's policy, and where relevant, targets.

Some companies, such as Interface - the world's largest manufacturer of carpet tiles and floor coverings, have committed to ensuring their entire workforce of several thousand employees undergo a TNS (The Natural Step) sustainability training and awareness programme. It is possible. However, it is appreciated that some staff have a greater potential and role and to play in helping the company deliver its environmental targets. Also, that there are degrees of 'training' and 'awareness raising' that can be carried out. Consequently, it is hoped that we can capture at least some sense of a deeper commitment to raising awareness and commitment to environmental performance throughout an organisation by using data on the percentage of training courses that include an environmental component/module.

It is acknowledged that it will be difficult to ensure that consistent and comparable data is captured for this indicator. For example, the whole population of 'training courses' in itself may be hard to determine, and within the courses identified, establishing what qualifies as 'an environmental component or module' may be equally difficult to capture. Whilst some courses might just inform participants that the company has an environmental policy (and that they should read it), others may go into far more detail and background. Helping participants make the link between their everyday roles - in purchasing, marketing and sales, maintenance etc, impacts and what they may be able to do to reduce them.

Reporting - again, a relatively straightforward indicator to establish. The company either is or is not a reporter! Hard copy or web based reporting, annual or periodic, are all indicative of a commitment to report. However, the quality of the report - clearly stated policies, management structures and accountabilities, the setting of targets, and commitment to report progress against those targets, will also be assessed to determine whether individual companies are approaching environmental management in a truly integrated and strategic way.

INDICATOR 1.2
Issue: Climate Change
Indicator: Energy Use and Emissions of Carbon Dioxide (CO_2)

Why is this important?
Global climate change has been described by many, including the UK Prime Minister, as the biggest public policy challenge we face. Our economies are already having an impact on the climate.[3] Temperatures and sea levels are rising - average global temperatures are now warmer than at any time during the last 120,000 years, - ice caps are melting and there has been an increase in the severity and frequency of extreme weather events - droughts, floods and storms. One of the predictions of global climate change is now a reality: Insurance weather related damage claims, for

[3] In their Third Assessment Report, the Intergovernmental panel on climate change, the IPCC made up of over 2500 of the world's leading scientists, concluded that humankind is now having a discernible impact on the climate. Latest predictions suggest that average temperatures will rise by 2.7 degree centigrade by 2100, perhaps by as much as 5.8 degrees centigrade - a rate of increase higher than any seen since the last ice age. The UK is certainly getting warmer. The six warmest years on record all occurred in the 1990s, with 1998 being the warmest since records began two centuries ago. Sea levels are predicted to rise by between 15-95 cms.

example, exceeded $90 billion in 1998 alone. This represents more weather related damage destruction than reported in the entire decade of the 1980s.

The cause - emissions of greenhouse gases from virtually all economic activity. The main source of human enhanced emissions is carbon dioxide from energy use. Carbon dioxide emissions account for over 50% of total anthropogenic emissions (for the UK this figure is nearer to 80%). Emissions result from the combustion of fossil fuel derived energy - from gas, coal and oil used in the generation of electricity and from the combustion of liquid fossil fuels - mainly diesel, petrol and kerosene - in our transportation systems. The globalisation of food supply networks and their associated emissions have become a major concern and a hotly debated issue.

In human terms the consequences of climate change are likely to mean disruption to food supplies, displacement of populations and associated social upheaval, severe water shortages and increased incidence in disease. Agriculture in particular will be hard hit. Areas already prone to environmental stress, like the drylands of Africa, Asia, and closer to home, East Anglia, will be particularly vulnerable. Sea level rises, due to the thermal expansion of the oceans and melting ice caps threaten low lying areas such as Bangladesh and many of the great cities in North America and Europe, including London.

Unless emissions of greenhouse gases are reduced substantially, climate systems are likely to become increasingly unstable. The IPCC suggest that emissions need to be reduced by 60% or more to avoid 'dangerous anthropogenic interference of the climate.' Under the Kyoto protocol to the United Nations Framework Convention on Climate Change, one of the three international agreements reached at the 1992 Rio Earth Summit, the UK is committed to reduce its emissions of greenhouse gases by 12.5% from 1990 base line emission levels by 2012. The UK Government has set a more ambitious target to reduce carbon dioxide emissions by 20% from their 1990 base line and is encouraging companies, under its Make a Corporate Commitment Campaign (MACC2), to contribute to meeting this UK wide policy goal. Given the IPCC's recommendations, as well as that of the UK's own Royal Commission on Environmental Pollution (RCEP) for a 60% cut (by 2050), even this unilateral and more ambitious target runs the risk of doing too little, too late.

How will this indicator be measured?

Ideally it would be good to capture/estimate each organisations total carbon footprint - the total emissions resulting from its activities and operations over the period under review. Emissions would have to be estimated within defined boundaries. For this project, we advocate using the boundary definition used in DEFRA's *Environmental Reporting - Guidelines for Company Reporting on Greenhouse Gas Emissions*. A total carbon footprint/emission quantification would include energy related emissions from offices and stores - ie from heat, light, power and refrigeration and all transport related emissions - as bullet pointed below - from company cars, freight and distribution and so on.

Needless to say, the quantification of a company's total carbon footprint, even using the defined DEFRA methodology, can be a very data intensive exercise. Many companies simply do not have the systems or procedures in place to capture the required information routinely (although there will probably come a time in the not too distant future when they have too). This is why we have decidedto limit the calculation of greenhouse gas emissions to the following two significant source areas:

- **In store use of grid supplied electricity and gas**

- **Road transport related emissions of the distribution fleet - from own vehicles and contracted third party carriers**

These two emission sources are likely to catch the bulk of total greenhouse gas emissions. However, the eventual aim will be to report on total emissions as per the DEFRA Guidelines. This will enable the important and growing emissions source area of air freight to be captured, along with freight and travel movements by rail and sea.

Some of these sources may be more significant/material for some companies/locations than others. Progress on reducing emissions could then be tracked annually. There are numerous options open to companies (and individuals) to reduce their carbon footprint. These include efficiency savings, - using less fossil fuel derived energy in the first place (ie doing more with less). For supermarkets this could be achieved by reducing food miles[4], for example through sourcing more goods and services locally, especially fresh fruit and vegetables when in season, and exploring ways to inform and encourage consumers to choose these products.. Switching to cleaner and greener transport fuels provides another opportunity to reduce emissions. CNG, for example, is associated with lower carbon emissions per kilometre than petrol or diesel. Several companies are also contracting for a proportion of their total electricity demand, or developing their own, on-site renewable energy generating capacity, as part of their overall carbon reduction policies. All of these strategies would contribute to lowering total emissions per £ of turnover, per metre squared of floor space or whatever other normalising factor is used to express emissions. Companies should also be aiming for absolute emission reductions in accordance with Government targets and obligations. Companies will also be asked to provide information on setting and achieving emission reducing targets.

INDICATOR 1.3
Issue: Waste
Indicator: Waste Management and Minimisation

Why is this important?
The UK produces over 78 million tonnes of commercial and industrial waste each year. Perhaps 60% of this waste ends up in the UK's diminishing number of landfill sites. Some 40% is recycled although this does include material recovery for energy generation rather than re-use – i.e. destructive technologies. As noted earlier, the linear nature of our production and consumption systems is inherently unsustainable. We simply cannot carry on indefinitely, on a finite planet, taking materials out of the ground, processing and or manufacturing them only for them to be used, perhaps just once, before throwing them away. This represents an inefficient use of resources and is now beginning to overwhelm us as we run out of holes in the ground to bury it. Producing more from less - ie eco-efficiency - is at the heart of many corporate environmental strategies. This requires accurate measurement and recording of all waste flows.

As noted in the DETR Environmental Reporting *Guidelines for Company Reporting on Waste,* most companies should already be aware of the wastes they produce and where they go. The Environment Protection Act 1990 places a *Duty of Care* on anyone who produces commercial or industrial waste. This means that all companies must secure their waste and can only transfer it to an authorised person with a

[4] Between 1989 and 1999 there was a 90% increase in road freight movements of agricultural and food products between the UK and the rest of Europe. Over the same period, total UK air freight doubled and is predicted to increase by 7.5% each year to 2010. Quoted in *Eating Oil: Food Supply in a Changing Climate*. Sustain, Nov 2001.

transfer note. This implies waste records and recording should be good, or of a standard, even if this data is not being publicly reported. With the Packaging Regulations, Landfill Directive and likelihood of further legislation around the areas of Producer Responsibility and Integrated Product Policy, companies are going to have to develop comprehensive strategies and policies for managing and reducing all of their waste flows. They will have no choice, and the DETR/DEFRA Guidelines have been produced to help them achieve this. Several innovative waste minimisation initiatives already being implemented by several supermarkets are included in the Guidelines. These include examples from Safeway (donation of fresh food waste 370t/year) and Marks and Spencer (recovery for re-use of IT equipment and use of recycled materials in packaging).

How will this indicator be measured?

The bullet points below detail the standard information that we would like to obtain through questionnaires from each supermarket. Where there are gaps or areas where data is based on estimations rather than actual recordings, thought will need to be given as to how systems can be developed to ensure more complete and accurate data is recorded in future years. It may be necessary, for example, to ask third party contractors for some of the information. Sainsbury's, for example, started by estimating waste figures based on a sample survey of stores (22% of them). Data is now provided by their waste contractors as part of their disposal contract.

- **All in-store and head office waste streams – total financial cost of waste sent to landfill, stores participating in food composting schemes or food recovery initiatives.**
- **Setting and achieving waste targets**
- **Post consumer waste – companies will be asked a series of questions about various initiatives they may be involved in to reduce post consumer waste**

For all absolute figures - ie total tonnage - these totals will be normalised by turnover before comparing/benchmarking performance. In future years it would be good to look at other aspects of materials/resource efficiency including water use.

Box 1: The Maintenance of Natural Capital: Something is missing from Corporate Accounts

Can wealth creation and environmental sustainability ever be reconciled or is there an inherent conflict between profits and the environment? Much of the business school rhetoric, from the late 1980s to the present day, would suggest there is no conflict. The talk is all of 'win-win' or 'double dividend' opportunities, measures that bring reduced environmental impact and enhanced profitability. Clean and efficient industries, it is said, will produce new products and technologies without environmental destruction. But despite their obvious appeal, the adoption of clean technology, waste minimisation and the pursuit of energy and eco-efficiency in isolation will never be enough. While these activities need to be encouraged and actively promoted, given the magnitude of the environmental challenges we face, it would be naïve to rely entirely on 'win-win' outcomes to deliver necessary environmental improvements. Producing more from less is not the same as sustainable industrial production.

The Role of Natural Capital:
The problem, in part, stems from the failure of accounting systems – at the national level and at the corporate level – to fully account for 'natural' capital. While companies account for the depreciation of manufactured capital, to ensure that productive capacity and hence the ability to generate future returns and income is maintained, no account is made for the degradation of natural capital when calculating corporate profits. Natural capital can be thought of as the exploitable resources of the earth's ecosystem, its oceans, forests, mountains and plains, that provide the raw material inputs, resources and flows of energy into our production processes. It also consists of a range of 'ecosystem services'. These services include the provision of an atmosphere and a stable climate, a protective ozone layer, and the absorptive capacities to disperse, neutralise and recycle the material outputs and pollution generated in ever increasing quantities from our global economic activities. While some account is taken of the depletion of resources, no account is taken of the degradation of what has been described as 'critical natural capital', the essential ecosystem services without which no life, let alone economic activity, would exist.

Evidence of this incomplete accounting is abundant. For example, while companies may account for the timber (i.e. the actual resource) which they extract from a forest, they do not account for the ecosystem services provided by that forest. These include water storage, soil stability, habitat and the regulation of the atmosphere and climate. Unfortunately, the cost of these essential ecosystem services become all to apparent when they start to break down. In China's Yangtze basin in 1998, for example, deforestation triggered flooding that killed 3,700 people, dislocated 223 million and inundated 60 million acres of farmland. This $30 billion disaster forced a logging moratorium and a $12 billion emergency reforestation programme (Lovins et al., 1999). Similarly, external costs of global climate change are beginning to become more obvious. Storm and extreme weather event-related damage (global climate change is expected to increase the frequency and severity of such events) caused upwards of $90 billion of damage in 1998 alone. This represents more weather related damage destruction than reported in the entire decade of the 1980s (Lovins et al., 1999).

The key to resolving the conflict between profits and the environment, as many have pointed out, lies in getting the prices right. Businesses (and consumers) should pay for the external costs of their activities. Farmers should pay for the contamination of ground water (and not be subsidised to pollute the water in the first place); timber companies should pay for the destruction of water catchments, and industry should pay for its myriad external environmental impacts. These include industry's contribution to global climate change, it's impact on poor and declining urban air quality, loss of agricultural production and productivity as a result of aqueous and gaseous emissions and direct impacts, and disposal of waste to land. Until this happens, the conflict will remain. Only when these costs have been internalised will profits, as reported in financial accounts, approximate to what can be regarded as environmentally *sustainable* profits. One way of getting the prices right is through the process of ecological tax reform (ETR); i.e. moving taxes from the goods, such as employment and profits, to the bads of resource use and pollution. The UK's landfill tax, aggregates tax and climate change levy are examples of ETR. The revenues raised from these taxes are redistributed back into the economy by reducing employers' National Insurance (NI) contributions. However, these taxes do not fully reflect the extent of the external impacts resulting from the disposal of waste, use of aggregates or the business use of fossil fuel derived energy.

In the absence of the political will to establish a comprehensive and radical ETR programme, companies committed to improving their environmental performance need to move beyond simple corporate environmental reporting, to begin to account more completely and transparently for both their internal environmental costs and their external impacts. In effect, they need to begin to account for the depreciation of 'natural capital' in the same way that accounting rules and standards require them to account for the deprecation of manufactured capital. Once these costs are internalised, everything changes: prices, costs and what is or is not profitable.

Source: Corporate Environmental Accounting: Accounting for Environmentally Sustainable Profits. Chapter in Greening the Accounts (Eds) John Proops and Sandrine Simon. *A Volume in the International Library of Ecological Economics*, Edward Elgar Publishers, UK. 2000.