

# **Managing Corporate Environmental Risk**

## **A Review of Guidance and Selected Industry Practices**

R&D Technical Report E2-056/TR

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This report provides a sector-based review of current practice in corporate environmental risk assessment. It is designed to inform the development of Agency policy and processes that involve influencing business sectors, trade organisations, individual companies, business representative bodies at the corporate/ Board level. Its target audience is senior Agency managers with responsibility for 'Greening Business'. It will also be of interest to industry. It is not a statement of Agency policy.

## **Keywords**

Corporate governance, environmental risk assessment, risk management, Environment Agency, environmental management, environmental performance, waste, construction, financial, agriculture, stakeholders, shareholders

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## EXECUTIVE SUMMARY

The Environment Agency has committed to putting the environment at the heart of business thinking and operations. This report presents the findings of a research project on Environmental Risk and Corporate Governance carried out by URS for the Environment Agency. The project aim was to establish how businesses incorporate environmental risks into their broader corporate risk management practices. Among the many drivers in this area are the reports produced by, amongst others, the Turnbull committee which outline the elements of good corporate governance. In response, many businesses have adopted “business risk management” techniques to integrate environmental risk alongside other business risks. This is an area of potential opportunity where the Environment Agency can influence and support businesses in their management of environmental issues at all levels.

To clearly identify the opportunities, the research was conducted in three phases:

1. A literature review identified the published tools and techniques relating to the management and evaluation of environmental and business risks.
2. Interviews with senior managers within each of the selected industrial sectors (waste management, construction, agriculture and finance) identified current practices and potential opportunities for the Environment Agency to influence those practices.
3. Interviews with senior individuals from the Environment Agency identified current methods that are successful in influencing industry and other existing initiatives which can be adapted to provide greater opportunities for influence.

The literature review identified many sources of guidance and tools for the management and evaluation of risk. Many tools are highly complex and the sector interviews found, in practice, the tools used are limited to qualitative and simple semi-quantitative methods. Whilst some basic tools were found to be of use, interviewees stated that evaluation methodologies need to be practical and not too complex.

Our analysis suggests varying stages of business maturity with respect to the integration of environmental risk within a broader business risk management. The sector interviews indicated that the waste sector is highly focused on the waste management licensing regime. This has resulted in the sector having well developed environmental risk identification and control practices. Although the construction sector has mature business risk management practices, the emphasis placed on environmental risks is relatively low. However, there are signs from recent experiences that environmental risk management is moving up their corporate agenda. Environmental risk management within the agriculture sector is less developed. Perceptions of regulators within the sector will limit the direct influence that the Environment Agency can expect to have. For some time, the finance sector has incorporated environmental risk assessment into lending and insurance appraisals, though there are some information gaps. The practice is less well developed among institutional investors, but there is an emerging trend of employing specialist advisors to inform financial analysts about environmental issues.

Interviews with Environment Agency staff identified a number of initiatives and tools, several of which will result in sound business practices following some adaptation.

The conclusions from the research findings are:

- Each sector is at a different stage in terms of environmental risk knowledge and awareness. Due to different business characteristics, methods that are successful within one sector may not transfer to others with the same degree of success. This is an important consideration for multi-sector regulation such as occurs under the integrated pollution prevention and control regime (IPPC). Individual organisation characteristics such as size and culture will also influence the effectiveness of methods of risk management and influencing across sectors.
- The majority of contact between the Environment Agency and industry is at site level between site representatives and inspectors. Limited influence on corporate level business and environment risk practice is possible through this route.
- The Environment Agency is perceived by parts of the regulated community to be primarily a regulator, not a provider of general guidance and advice. To enable the Environment Agency to influence risk management at all levels, specific advocacy initiatives are needed to address risk identification and control and to encourage a culture that supports risk management. Specific advocacy initiatives will assist the Environment Agency to make the transition from being seen as a regulator to also being seen as an influencer and partner.
- The finance sector undertakes various environmental appraisals as part of its lending, investing and insurance assessments. By working with this sector to improve its appraisal mechanisms, the Environment Agency may indirectly influence the adoption of environmental practices in other sectors.

There are ways in which the Environment Agency can influence the adoption of sound business and environmental risk and management practices both directly and indirectly with industry. Some of the recommendations to exploit these opportunities are detailed below. For information on all of the potential opportunities and recommendations please refer to Table 6.1 of this report:

- ‘Environmental risk’ within businesses is interpreted as something that causes financial and/or reputation risk such as business interruption. The Environment Agency’s perspective on environmental risk focuses on the risk of harm to human health and the natural environment from defined hazards. This difference in perception is something that Environment Agency staff need to be aware of when communicating on these matters with industry.
- Most organisations seek advice from their trade associations or other similar organisations. Strategic dialogue by the Environment Agency is already underway with such bodies. Industry attendees are typically senior members of staff. These existing fora provide clear opportunities for the Environment Agency to promote the benefits of good risk management practices.
- The Environment Agency has already started a number of advocacy initiatives such as sector based codes of practice and ‘NetRegs’. These can be extended to cover issues such as environmental business risk.
- The current Operator and Pollution Risk Appraisal system (OPRA) for waste management licensing includes provisions for recognising and rewarding certified environmental management systems. If recognition for a strong corporate environmental risk management culture could be built into OPRA then this may encourage organisations to adopt corporate risk management processes.

- More contact between Environment Agency staff and Director level individuals within industry is required to promote improvements in business and environmental risk management.
- As the regulatory body in England and Wales responsible for protecting the environment, the development of specific internal processes related to environmental good practice would enable the Environment Agency to act as a leader in this field.

# CONTENTS

<b>EXECUTIVE SUMMARY</b>	<b>i</b>
<b>FOREWORD</b>	<b>vi</b>
<b>LIST OF FIGURES</b>	<b>v</b>
<b>LIST OF TABLES</b>	<b>v</b>
<b>LIST OF BOXES</b>	<b>v</b>
<b>1. INTRODUCTION</b>	<b>1</b>
1.1 Background	1
1.2 Research Methodology	1
1.3 Report Structure	2
1.4 Involved Parties	3
<b>2. WHAT IS RISK</b>	<b>4</b>
2.1 What is the Nature of Risk?	4
2.2 How is Environmental Risk Perceived in Business?	6
2.3 Environmental Issues in the Wider Context of Business Risk	7
<b>3. REVIEW OF GUIDANCE ON RISK MANAGEMENT AND EVALUATION</b>	<b>11</b>
3.1 Introduction	11
3.2 Published Guidance on Managing Business Risk	11
3.3 Risk Evaluation Approaches	14
3.4 Published Tools and Techniques	14
<b>4. HOW IS RISK MANAGED IN INDUSTRY?</b>	<b>22</b>
4.1 Introduction and Methodology	22
4.2 Cross Sector Comparisons	23
4.3 Key Findings from the Waste Sector	25
4.4 Key Findings from the Construction Sector	28
4.5 Key Findings from the Agricultural Sector	31
<b>5. THE FINANCIAL INDUSTRY AND ENVIRONMENTAL RISK</b>	<b>34</b>
5.1 Introduction	34
5.2 Stock Market Investment	35
5.3 Lenders	40
5.4 Insurers	41
<b>6. OVERALL STUDY FINDINGS AND OPPORTUNITIES</b>	<b>45</b>
<b>GLOSSARY</b>	<b>56</b>
<b>BIBLIOGRAPHY</b>	<b>62</b>
<b>APPENDIX A:</b>	Waste Sector Profile
<b>APPENDIX B:</b>	Construction Sector Profile
<b>APPENDIX C:</b>	Agriculture Sector Profile
<b>APPENDIX D:</b>	Finance Sector Profile
<b>APPENDIX E:</b>	Interview Protocol

## **LIST OF FIGURES**

- Figure 2.1: The Firm and its Influencing Factors
- Figure 2.2: The Impact of Five Forces on the Firm
- Figure 3.1: A Selection of Examples of Environmental Risk Evaluation Methods
- Figure 3.2: Marsh reputation@risk™ hexagon
- Figure 3.3: The FMEA Process
- Figure 3.4: The RISQUE flow-chart (Bowden *et al*, 2001)

## **LIST OF TABLES**

- Table 2.1: Rated significance of strategic risks according to individuals with risk oversight within companies (Andersen, 2001)
- Table 4.1: Cross Sector Comparisons and Similarities
- Table 6.1: Summary of Identified Opportunities

## **LIST OF BOXES**

- Box 2.1: What is Risk?
- Box 2.2: Example of Combination of “PEST” Influences in Evaluation Business Risk
- Box 2.3: Illustration of Five Forces Analysis for Food Producers
- Box 3.1: What is An Effective System of Internal Control?
- Box 5.1: ICF Kaiser’s EMS and Environmental Performance Criteria

## FOREWORD

The aim of the research is to understand current practices in environmental risk management and, in particular, how these link to corporate governance, and thereby help the Environment Agency to support the development of environmental risk management as part of corporate governance.

I would like to commend the Environment Agency for their genuine desire to move towards a partnership approach towards risk management. I think the resulting paper offers a significant starting point for innovation in this area. I also found much in this research to confirm the belief that such an approach will enhance the Environment Agency's effectiveness. In particular I would underline:

- The need for a regulator to shift perception and practice so that it can also serve as an influencer and partner. The recognised route for this is through advocacy initiatives, and these are positive provided that advocacy is based on a good understanding of the perspective of the chosen audience.
- The importance of existing industry organisations/initiatives as efficient routes to the target audience. Furthermore, establishing links with other industry associations and organisations extending beyond trade associations may also provide further opportunities for influencing.
- The potential of NetRegs and as a mechanism to help SMEs to improve risk management.

I would also suggest that the research raises two other general issues of which the reader should be aware. There can be an inherent difficulty with generalising about different scales of organisations and thus there is clearly potential that some of the sector findings may not apply across all organisations.

Furthermore, in its scope and findings this research project focuses primarily on management frameworks as influencing mechanisms. These frameworks are the everyday language of the Environment Agency's work. They represent a strong focus of influence, at least in the short term. But there are other opportunities for longer-term influence. At the heart of these opportunities lies the culture of the organisation. Risk can be better managed where a trustworthy culture has been developed. Clear leadership is essential in ensuring that people are steered towards the right behaviours and controls as a matter of will rather than compliance. The Higgs Report, building on the Turnbull recommendations, may offer a particular opportunity to build on this.

This suggests an opportunity for additional research to understand what kind of leadership and corporate culture is associated with the desired behaviours and policies towards sustainability. This in turn would enable such to be built into the Environment Agency's advocacy work.

Mark Goyder  
Director, Tomorrow's Company  
8 February 2003

# **1. INTRODUCTION**

## **1.1 Background**

This report presents the findings of a Research and Development Project on Environmental Risk and Corporate Governance. The project objective was to review current practices in corporate environmental risk management in the broader context of business risk management and to provide a sector-based review, with a view to informing the Environment Agency's work on environmental risk management in the broader context of corporate governance. Specific objectives of the project were to:

- Establish the current level of guidance, activity and the practical status of formalised environmental risk management at the strategic level within large corporate organisations on a sector basis.
- Identify the practical opportunities for the Environment Agency to influence risk management practice at the corporate level through its regulatory responsibilities and influencing activities for the purpose of achieving the objectives of the Environment Agency's vision.
- Report on the type and degree of consideration being given to environmental risk management at the corporate level within key business sectors and the extent to which environmental risks are driving strategic decisions on business risk management.
- Establish (by reference to the above) the role and relative importance of environmental risk management within the business portfolio and demonstrate through research and examples how controlling environmental risks impacts profit.

## **1.2 Research Methodology**

The project was undertaken during the spring and summer of 2002 in three distinct phases: a literature review; structured interviews and sectoral analysis; and interviews with senior Environment Agency staff. The purpose of the literature review was to review existing guidance and practices on the business risk management tools and techniques being used in practice by corporate bodies. The structured interviews and sectoral analysis were undertaken to identify the practical application and approach to business and environmental risk management within the sectors reviewed: waste, construction, agriculture and finance. (These sectors were selected by the Environment Agency). Within the first three sectors, the focus was on risk management for the organisations' businesses, however within the finance sector a key focus was to identify how the practices and policies within investment, insurance and lending could in turn influence other industries.

Interviews with Environment Agency staff were conducted to identify what methods of engagement and influencing are in place and are effective.

A methodology for the industry interviews was developed for this project that covered all aspects of the interview process to ensure that the information gathered was both consistent and of value. This methodology comprised the following steps:

- ***Identification of URS Sector Leads***  
URS identified senior individuals with considerable knowledge of each of the sectors to both select the representatives for interview and undertake the interviews themselves.
- ***Selection of Sector Representatives***  
The URS project manager and sector leaders reviewed each of the four sectors and identified target companies and/or types of companies to enable our sample to comprise a good cross section of the sector both in terms of activities and also size. Each of the identified target organisations were approached to establish whether they would be interested in participating in the work and they were also asked to identify a senior individual with responsibility for environmental management. The interviewees comprised Director level representatives where possible.
- ***Interview Protocol***  
URS identified that whilst consistency between and within the industrial sectors was of great importance for the information gathering stage it was critical that the interviews were allowed to be relatively informal to facilitate a broader discussion relating to corporate risk management practices. With this in mind, a standard interview protocol was developed to act as a prompt and guide for the interviewers to provide the required consistency across the interviews (Appendix E).
- ***Development of Sectoral Profiles***  
Following the sector interviews, the interview records and reports were reviewed by a single individual for each sector to identify the common themes and significant findings. These were then collated into the sector profiles, including identification of opportunities for the Environment Agency, important points to note and identified good practices. Each sector profile was then reviewed by a second individual with sector specific knowledge and experience and reviewed by Environment Agency staff with relevant regulatory policy responsibilities. Sector profiles are presented as Appendices A to D of this report.

### **1.3 Report Structure**

This report has been structured in the following sections to fulfil the above objectives:

- **Section 2.0** – an outline discussion on definitions of risk and how, importantly, it is perceived in business. The information presented in this section is largely based on the initial literature review.
- **Section 3.0** – a discussion on guidance that exists in relation to risk management and evaluation methodologies with specific reference to business and environmental issues. The information presented in this section is largely based on the initial literature review.
- **Section 4.0** – a summary of the findings of the structured interviews undertaken within the waste, agriculture and construction sectors. Discussion of the potential opportunities for the Environment Agency to influence industry that have been identified from these interviews is presented along with some “Points to Note” which URS considers are important. Sector specific profiles including details on the

interview methodology are presented in Appendices A to C with the protocol used to facilitate the interviews provided in Appendix E.

- **Section 5.0** – a discussion of the financial industry and environmental risk. This section covers both some material gathered during the literature review and that collated from the structured interviews within the financial sector. Discussion of the potential opportunities for the Environment Agency to influence decision making within the sector as identified during these interviews is presented along with some “Points to Note” which URS considers are important. A more detailed sector profile including information on the interview methodology presents the findings of the interviews (Appendix D).
- **Section 6.0** – provides an overview discussion of the findings of the study including a few key “Points to Note” and also summarises, in tabular form, all of the potential opportunities that have been identified through the course of this study.

A glossary can be found at the end of the report in section 7.0.

#### **1.4 Involved Parties**

This research has been led and performed by a team of senior consultants with experience and knowledge of environmental management practices within each of the sectors involved in the research. URS Corporation Ltd (URS) provided the overall project management role and sector leaders for the waste, construction and financial sectors with a senior individual from Drew Associates, a specialist agricultural consultancy, taking the lead in the agriculture sector interviews.

The third party organisations participated in the study on the understanding that their identity would be kept confidential from the Environment Agency and thus their names are not disclosed in this document. However, some basic information on each organisation interviewed is provided within each of the sector profiles to allow the reader to identify the type of organisations involved in the study.

Senior individuals from the Environment Agency were involved in the study to provide information on existing initiatives and activities associated with interacting with industry. These individuals were as follows:

- Rod Gall (Head of Financial Management)
- Martin Brocklehurst (Environmental Protection National Service)
- Chris Howes (Environmental Policy Manager)
- Glen Watts (Water Resource Policy Manager)
- Rob Robinson (Agriculture Policy Manager)
- Peter Rudd (Construction Campaign Manager)
- Howard Pearce (Head of Environmental Finance)
- Terry Coleman (Waste Policy Manager)

Two external (non-Environment Agency staff) experts also formed part of the project board to provide over-arching advice and guidance based on their experience; Gus Carrol (Yule Catto) and Roger Adams (ACCA).

## 2. WHAT IS RISK

### 2.1 What is the Nature of Risk?

In its most commonly understood form, risk is a measure of the significance of uncertain or unpredictable events as perceived by a potentially affected party. This significance is usually assessed based upon a combination of the probability or likelihood that such an event will occur together with the severity of its outcome (sometimes called the hazard). Environmental risk can mean fundamentally different things to different stakeholders. This difference in interpretation was summarized by the Harvard Business School as follows;

#### 1.1 Box 2.1: What is Risk?

Risk is generally considered to comprise:

$$\text{RISK} = \begin{array}{ccc} \text{LIKELIHOOD} & & \text{SEVERITY} \\ \text{OF} & \text{X} & \text{OF} \\ \text{EVENT} & & \text{OUTCOME} \end{array}$$

*“Business managers usually understand environmental risk to mean risk to the company that arises from social concern about the environment. Government regulators and environmental activists commonly mean the risk of damage to ecosystems or public health arising from some man-made environmental offence. The two interpretations are not the same, and either kind of risk can exist without the other<sup>1</sup>”*

At a strategic level within companies, therefore, the concept of environmental risk is driven by financial exposure or adverse impacts on business interruption or on the reputation of the company rather than actual impact on the environment or ecosystems. These different interpretations present particular challenges for the Environment Agency in its potential interest in influencing organisations to develop good business risk management. Furthermore, management of the financial risk associated with environmental issues as perceived by business managers may not necessarily deliver the environmental improvement desired by regulators, one of the Environment Agency’s prime objectives.

*Environmental risk means different things to different audiences:*

*Business context:*

*- risk of financial exposure, loss of reputation*

*Environmental context:*

*- risk of adverse impact on the natural environment or public health*

**POINT TO  
NOTE**

Of course, environmental risk to companies does not solely arise from social concerns about the environment, as is suggested in the above quotation – the risk of regulatory action can also be significant. However, Reinhardt rightly points out that the key concern for the company is often not the direct financial cost of receiving a fine, but is more likely linked to potentially more serious impacts resulting from an eroded

<sup>1</sup> Reinhardt F, 2000 *Tensions in the Environment*. FT Mastering Risk Series.

reputation. These impacts can include loss of market share, increased cost of capital, and a decreased ability to retain employees.

More broadly, the basic premise of risk as a concept inseparable from business<sup>2</sup> is that there are two sides to the issue:

1. Risks in the form of threats to the business being able to fulfil its objectives and to the interests of its investors.
2. Risks a business is prepared to take in grasping opportunities to grow the business, through increasing profits or buying other businesses, in order to increase its investors' value.

Management of both types of risk has been the subject of a succession of guidance documents from committees on corporate governance culminating in the Turnbull Committee in 1999<sup>3</sup>. The London Stock Exchange (LSE) has adopted the findings of this last committee, known as the "Turnbull Guidance"<sup>4</sup> as requirements that must be met by companies who are listed on the LSE<sup>5</sup>. The requirements acknowledge the second form of business risk (above) as being within the province of corporate governance.

The nature of environmental risk in business, as currently understood, is that it is mainly concerned with threats to the business that are either financial or reputation linked e.g. potential clean-up costs for pollution incidents. There is a potential that applying the second dimension of business risk (acceptable business risks taken to grasp opportunities to grow the business) may lead to environmental degradation if short-term profits outweigh costs associated with addressing the degradation. There could be opportunities to generate environmental improvements by taking acceptable risks to grow the business, but in practice these currently tend to be limited to industry sectors already in the business of managing environmental issues, e.g. water companies.

*An accepted form of business risk is to "take an opportunity to grow the business." In regard to such impacts with this form of business risk, such environmental "harm" impacts may well become secondary in importance. Non-environmental risks may dominate decisions.*

**POINT TO  
NOTE**

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<sup>2</sup> A useful series of articles on corporate risk management by key business leaders appears in the Foundation for Science and Technology (FST) Journal 17(4): 9-13

<sup>3</sup> For an introduction to the concept of environmental risk see: Pollard, S.J.T and G. Carroll (2001) Recent Developments and New Directions. Chapter 3. In: *Risk Assessment for Environmental Professionals*, Pollard, S. and Guy, J. (eds.) Chartered Institution of Water and Environmental Management, Lavenham Press, Suffolk: 21-30

<sup>4</sup> Institute of Chartered Accountants in England and Wales, 1999 *Internal Control – Guidance for Directors on the Combined Code*, Institute of Chartered Accountants in England and Wales, London

<sup>5</sup> The LSE issued a letter to Company Secretaries of all companies listed on the LSE in September 1999 enclosing the Turnbull Guidance. The LSE issued the letter in its capacity as the UK listing authority, though these responsibilities have now transferred to the Financial Services Authority.

## 2.2 How is Environmental Risk Perceived in Business?

In the UK, the Company Law Review which is in progress at the time of writing this report, is likely to recommend businesses be required to make more widespread public disclosure than they currently are. Inevitably this would include disclosure on environmental performance, which would in turn drive businesses to put environmental risk management under scrutiny. Given that this is still subject to a review process, what is the current perception (in business) regarding environmental risk?

A Financial Executives International (FEI) survey in 2001<sup>6</sup> of risk management within companies asked industry participants responsible for overseeing risk, primarily the Chief Financial Officers (CFOs) of firms, to rate the significance of various risks faced by organisations. The results are presented in Table 2.1. It should be noted that this survey was conducted prior to September 11th 2001, which will have had some impact on corporate perceptions of risk. In this survey, only 79% of respondents, including only 61% of CFOs, ranked environmental risk as significant (highlighted in bold in Table 2.1). This was the lowest scoring received by an ‘operational’ risk issue, although it was noted that the relatively lower rating given by CFOs might be due to environmental risk being overseen elsewhere in the company. This was also reflected by the fact that risk managers felt that, on average, environmental risks were equally well or better managed than other categories of risk within companies, although no respondents rated their management capability of any risk type as ‘world class’.

In the FEI survey, environmental liability risk offered the widest dispersion by industry, being rated as most significant by energy and utilities companies (100% respondents rated it as significant) and pharmaceutical, biomedical and health industries (89%). As may be expected, environment was considered less significant by the financial services sector (53%), government services (59%) and technology, media and communication industry groups (68%).

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<sup>6</sup> Andersen A, – *Risk Management: An Enterprise Perspective Results of FEI Research Foundation Andersen survey*

**Table 2.1: Rated significance of strategic risks according to individuals with risk oversight within companies (Andersen, 2001)**

<b>RISK ISSUE</b>	<b>All</b>	<b>CFO only</b>
<b>[BUSINESS] ENVIRONMENT</b>		
Technology innovation risk	98%	97%
Regulatory risk	93%	87%
Political or country risk	71%	48%
<b>PROCESS – OPERATIONS</b>		
Customer satisfaction risk	98%	96%
Human resources risk	99%	99%
Channel effectiveness risk	91%	84%
Partnering risk i.e. alliances & ventures	91%	83%
Product or delivery obsolescence risk	87%	76%
<b>Environmental Liability Risk</b>	<b>79%</b>	<b>61%</b>
Brand erosion risk	83%	69%
<b>PROCESS – INFORMATION PROCESSING/TECHNOLOGY</b>		
Access risk i.e. security	98%	97%
e-Business risk	83%	69%
<b>PROCESS – FINANCIAL</b>		
Currency risk	65%	36%
Interest rate risk	86%	74%
Commodity price risk	65%	36%
Global credit/counterparty risk	66%	38%
<b>INFORMATION FOR DECISION-MAKING</b>		
Competitive pricing risk	95%	92%
Budget and planning risk	99%	98%
Business portfolio risk i.e. the company will not be able to effectively balance its different businesses in a strategic context	88%	78%

*Based on this FEI survey in terms of overall risks, environmental liability is rated by Chief Financial Officers (CFOs) within the bottom quartile of business risks. Furthermore, environmental liability is considered by Chief Financial Officers of firms to be the least significant “operational risk”.*

**POINT TO NOTE**

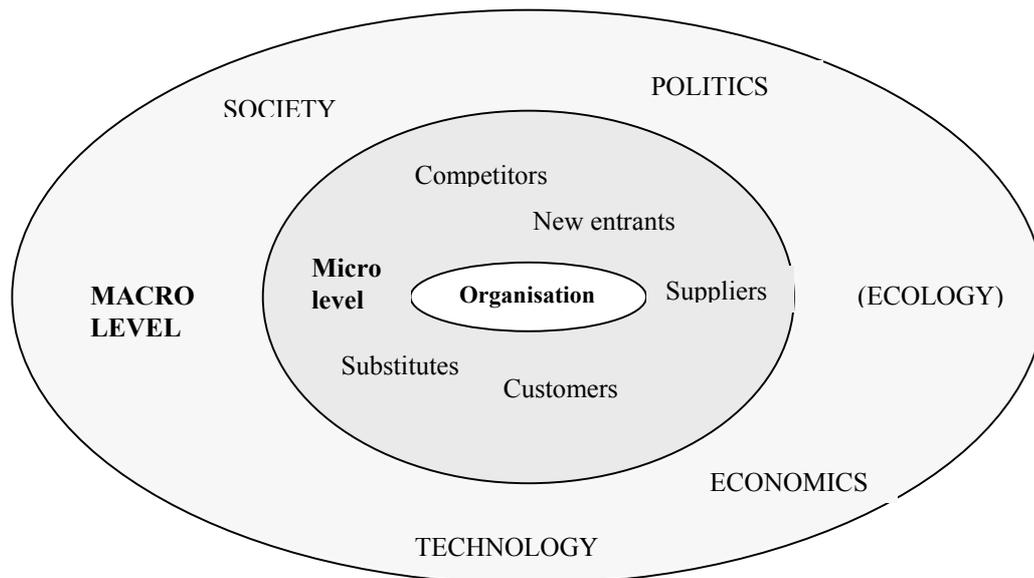
### **2.3 Environmental Issues in the Wider Context of Business Risk**

Various guidance documents on business risk assessment exist that focus on the external influences on an organisation as a means of defining and evaluating business risk. They have a use, however, in understanding the positioning of environmental risk within an overall business risk context and also to see what might comprise other business risks.

External influences on business risk for an organisation exist at two distinct levels, macro and micro. Figure 2.1 below shows these risks and also how they might interrelate.<sup>7</sup>

<sup>7</sup> see also KPMG, 2002 *Corporate Governance in Europe*, KPMG, Switzerland for discussion of these factors

**Figure 2.1: The Firm and its Influencing Factors**



The figure shows the main influencing factors on an organisation's business and the two different levels at which these factors are typically considered to work. Note ecology is presented in parentheses as, within this context, environment and ecology is referred to as a subset of compliance which itself is considered part of politics.

**(a) The Macro Level**

At this level, the analysis of influence of risk is above and beyond the commercial/industry environment and the relative impacts and influences of issues are broken down into the following broad categories:

- Political/legal/regulatory (typically includes ecology/environment).
- Economic.
- Social/cultural.
- Technological.

These factors are sometimes referred to as “PEST” factors and should be regarded as influences acting holistically and synergistically rather than disparately. An example of how these factors can be combined is shown in Box 2.2.

**Box 2.2: Example of Combination of “PEST” Influences in Evaluating Business Risk**

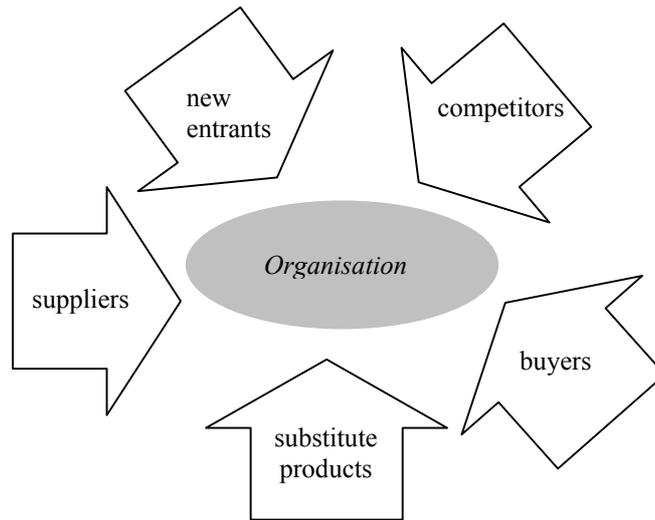
The *technological* advances in genetic modification cannot be judged as having significant earnings growth potential without considering their *social* acceptability (market potential) or the *regulatory* conditions (constraints on the market), the last of which are themselves influenced by *economic* (how might GMOs benefit poorer nations economically) considerations.

**(b) The Micro Level**

Guidance on business risk assessment<sup>8</sup> at the micro level often uses work by Michael Porter<sup>9</sup> who looked at the five forces within an industry sector that determine industry *profitability*. Figure 2.2 shows these five forces.

**Figure 2.2: Five forces within industry**

Figure shows the five “micro” forces or factors that have been identified to impact on a business.



The purpose of considering these factors according to Porter is to understand a firm’s ability to manipulate them to its own advantage to mitigate risk, or grasp opportunities by taking acceptable risks. A specific illustration of how the five forces could influence an organisation is presented in Box 2.3<sup>10</sup>.

<sup>8</sup> see also KPMG, 2002 *Corporate Governance in Europe*, KPMG, Switzerland.

<sup>9</sup> Porter, M.E., 1980 *Competitive Strategy*, The Free Press, New York.

<sup>10</sup> source: HSBC James Capel, 1997 *Strategy Matters*, unpublished, HSBC James Capel.

### **Box 2.3: Illustration of Five Forces Analysis for Food Producers**

Environmentally related influences are in *italics*, and underlined where these are environmentally driven:

#### **1.2 Power of Suppliers**

- Fragmented supply base and commodity nature of suppliers has meant that any pricing of variation in raw materials is passed directly to food manufacturer.
- *Changes in weather patterns could impact on crop yield and therefore raw material supply*

#### **1.3 Customers**

- Structural trends toward food retailing consolidation in Europe resulting in increased buying power.
- *Likely growth in consumer demand for organic products driven by increasing health scares*

#### **1.4 Substitutes**

- Continuous risk of imports from USA in higher value sectors.
- Own label goods a threat to branded consumer goods.
- Blurring of boundaries between food, vitamins and pharmaceuticals.

#### **1.5 New Entrants**

- Distribution and technological barriers to entry at value-added end suggests that acquisition is main route to entry
- Barriers at low value end are lower and thus new entrants are more likely, although profits are lower.

#### **1.6 Rivalry within the Sector**

- Most companies are pursuing consolidation strategies either domestically or overseas but these have yet to radically alter the balance between food retail and manufacture.
- *Pollution Control – IPPC will require tighter controls on emissions from food manufacturing facilities. It is likely to require increased use of abatement technologies, the most significant issues being BOD, SS and heat. Have companies budgeted adequately for this?*
- *Refrigerants – Replacement of banned CFCs and HCFCs will incur costs for replacement over the next 10 years*

### 3. REVIEW OF GUIDANCE ON RISK MANAGEMENT AND EVALUATION

#### 3.1 Introduction

Within this section, we look at some of the published guidance relating to risk management frameworks and tools and techniques that are available for the evaluation and assessment of business and environmental risk. It is not the purpose of this section to provide a comprehensive catalogue and summary of the management frameworks, tools and techniques that exist but rather to provide an overview and present some in more detail.<sup>11</sup>

#### 3.2 Published Guidance on Managing Business Risk

The introduction to this report highlighted the significance of corporate governance and discussed the connection between risk management and corporate governance. It is appropriate therefore to begin by considering guidance that exists in relation to corporate governance. The ICAEW document, Internal Control, Guidance for Directors on the Combined Code (the “Turnbull Guidance”) sets out guidelines on how to comply with Principle D2 of the Combined Code of the Committee on Corporate Governance, that “the board should maintain a sound system of internal control to safeguard shareholders’ investment and the company’s assets”. ACCA has also produced guidance for their members on corporate governance, most notably in the report “Corporate Governance: the stakeholder challenge”<sup>12</sup>, which summarises the current status of requirements, the role of shareholders and the growing importance of stakeholder inclusivity, reputation and e-commerce. However, since the Turnbull Guidance was issued by the London Stock Exchange to Company Secretaries of all the companies listed on it as its own view of the definitive guidance on internal control this report will take its lead from this document.

The nature of a sound system of internal control, as defined in this document, is summarised as:

- embedded in the operations of a company and forming part of its culture; and
- capable of responding quickly to evolving risks to the business arising from factors within the company and from changes in the business environment.

*The presence of a management system will not in itself deliver improved environmental performance or reduced risks. For any management system or framework to be effective it needs to:*

- *suit the organisation;*
- *be flexible to changes in circumstance; and,*
- *be considered a core part of day-to-day practices.*

**POINT TO NOTE**

<sup>11</sup> For the interested reader we have provided some additional reference material to enable further reading around this subject (see bibliography)

<sup>12</sup> Cowe R, 2001 *Corporate Governance: The Stakeholder Challenge*, ACCA, London

Based on the Turnbull guidance and associated appendices as well as other published materials from management consultancies it is possible to summarise the features that might provide an effective system of Internal Control. There are typically considered to be four key aspects:

- risk assessment;
- control environment and control activities;
- information and communication; and
- monitoring

Key considerations relating to each of these are presented in Box 3.1 below.

In terms of published guidance and systems for management of environmental issues, the International Standard, ISO14001, and the standard developed by the EU, Eco-management and Audit Scheme (EMAS) would typically be the first identified. Both of these environment standards focus on impacts to the environment by the subject organisation and the improvement of company environmental performance by minimising risk of environmental impact through a series of management controls leading to continuous improvement. However, as identified within Section 2.0 environmental risk management in businesses' terms is typically considered to refer to risks to reputation or financial status rather than risks to the environment, these environmental standards may not necessarily identify all business environmental risks.

A more general risk management standard has been developed by the Australian/New Zealand Standard Agency (AS/NZS 4360:1999 on Risk Management<sup>13</sup>) that proposes a broad framework for management of all categories of risk affecting companies. The broad structure of the standard comprises risk identification, analysis and evaluation followed by selection of a risk treatment strategy. The process is also performed in conjunction with ongoing communication, consultation, monitoring and review. The AS/NZS standard provides a sound basis for business risk management that could be readily adapted to address environmental risks. As a broad business risk management tool, the AS/NZS standard focuses on the minimisation of risk to the company (i.e. business risk) and thus ties in with businesses' interpretation of business environment risk. Another difference worth noting is that AS/NZS 4360:1999 allows the additional consideration of risk transfer mechanisms (e.g. insurance). However, it should be noted that whilst risk transfer may fulfil business financial objectives, it fails to address environmental impact, merely providing a source of finance to compensate for, or clean up, environmental transgressions.

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<sup>13</sup> Standards Australia & Standards New Zealand, 1999 *Risk Management AS/NZS 4360:1999* Standards Association of Australia

### **Box 3.1: What is An Effective System of Internal Control?**

#### **Risk Assessment**

- What are the company's objectives? How clear are they? How effectively have objectives been communicated? To what extent do staff have sufficient direction on risk assessment and control?
- What are the performance indicators and targets associated with objectives? How well are they understood by staff?
- How regularly/often are risks identified and assessed?
- How well do staff understand what risks are acceptable to the board?

#### **Control environment and control activities**

- How well do the company's culture, codes of conduct, human resource policies, and performance and reward systems support environmental risk assessment and the internal control system?
- What degree of competence and integrity do senior management's actions evidence? To what extent do they foster a climate of trust?
- To what extent do definitions of authority, responsibility and accountability ensure decisions are taken by the right people? How well do staff understand what is expected of them and their freedom to act based on what is communicated to them by the company?
- To what extent do staff and contractors have the necessary knowledge, skills and competencies to manage environmental risk?
- How are processes/controls adjusted to reflect new/changing risks or operational deficiencies?

#### **Information and communication**

- How reliable and relevant is the information provided to the board on progress against objectives and related risks? What form does this information take and how appropriate is it?
- How effectively are information needs reassessed as objectives and related risks change or as reporting deficiencies are identified?
- How effective are communications channels for regulatory breaches and for issues which could adversely affect the company's financial or reputational standing?

#### **Monitoring**

- What ongoing processes are embedded in overall business operations, and addressed by senior management, to monitor effective application of policies, processes and activities related to internal control and risk management? How effective are they?
- How effectively do monitoring processes address the company's ability to re-evaluate risks in response to changes, either internal or external? How effective are follow-up procedures to ensure action occurs in response to changes?
- How effective is communication to the board on effectiveness of ongoing monitoring of environmental risk and internal control? What arrangements are there for monitoring and reporting to the board on risk and control matters of particular importance? How effective are they? These could include matters that could adversely affect the company's financial or reputational standing.

### 3.3 Risk Evaluation Approaches

There are many different approaches to conducting assessments of risk. For the purposes of this review we have identified three methodological approaches to risk evaluation:

- **Qualitative** – most frequently used to obtain a general or screening level indication of risk and uses descriptive terms to define the likelihood and consequences of risk events. Qualitative assessments have the advantage of requiring minimal resources to perform but outputs from the process can also have limited value beyond providing an initial indication of concerns<sup>14</sup>.
- **Semi-Quantitative** – commonly used to derive a more detailed prioritised ranking or scoring of risks than can be derived using the qualitative approach alone. The basis of the approach lies in assigning numerical scores to risk issues based on a qualitative assessment of likelihood and consequence. Semi-quantitative environmental risk approaches include direct comparison of observed values with generic “safe” or “acceptable” values without detailed consideration of the circumstances of the assessment (e.g. screening of contaminated land sites).
- **Quantitative** – may be used for a wide range of applications, commonly requiring more resources to undertake but also resulting in more robust conclusions. Quantitative risk assessment is also used extensively for the assessment of environmental impact, notably for contaminated land, chemical and accident safety evaluations.

### 3.4 Published Tools and Techniques

Using the concept of qualitative, semi-quantitative and quantitative philosophies to risk evaluation as discussed above, Figure 3.1 presents examples of various published tools and techniques, arranged by reference to:

- whether the approach is primarily focused on assessing broad business risk or impact to the environment; and
- the assessment philosophy that is qualitative, semi-quantitative and quantitative.

The following sub-sections describe a few of the evaluation tools mentioned and give some examples of the various approaches available. The objective of the following discussion and the presentation of figure 3.1 (below) is to provide the reader with some examples of methodologies and enable some discussion of the relative advantages and disadvantages of various methods but not to provide a thorough catalogue and discussion of published risk assessment methodologies. Some further references in this area are presented towards the end of the bibliography.

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<sup>14</sup> See Prosser, I. (2002) Risk in the boardroom, FST Journal 17(4): 12-13

<p>Business Focus</p> <p>↑</p> <p>↓</p> <p>Environment Focus</p>	<p><b>Visual Stakeholder Models</b> (e.g. <i>Marsh Reputation Risk Framework</i>); most market risk assessments</p>	<p><b>Capital Risk Rating Systems</b> (e.g. <i>BV-SERM</i>) SRI portfolio screening (e.g. <i>Innovest</i>)</p>	<p><b>Financial/Monte Carlo</b> (e.g. <i>RISQUE</i>)</p>
	<p>Baseline liability audits (high, medium, low); Merger and acquisition screening</p>	<p>FMEA (as applied within e.g. <i>ISO 14001 significance test</i>)</p>	
	<p>Source-pathway-receptor analyses; FEP (features, events and processes analysis in radioactive waste performance assessment)</p>	<p>Operator Pollution Risk Appraisal (OPRA) risk ranking tools; HAZOP ranking tools; flood warning decision box (Environment Agency)</p>	<p>Failure mode and effects analysis; Environmental exposure Assessment (e.g. <i>CLEA</i>) Production chemicals risk assessment tools (eg <i>EUSES</i>)</p>
	Qualitative	Semi-quantitative	Quantitative

**Figure 3.1: A Selection of Examples of Environmental and Business Risk Evaluation Methods**

This figure shows the differences between some of the many risk assessment tools and techniques, in terms of their focus (i.e. business or environment) and whether they are based on qualitative or quantitative techniques<sup>15</sup>.

### Qualitative Evaluations

#### Business Focus: Marsh Risk Framework

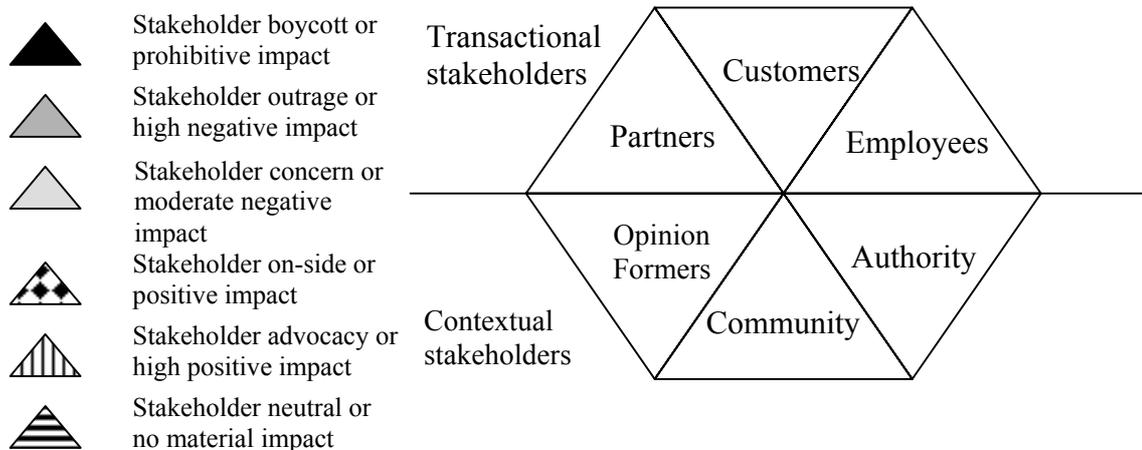
The risk and insurance consulting firm Marsh has developed a reputation risk framework forming part of their “reputation@risk” portfolio of services<sup>16</sup>. This assessment approach is the one that the Association of British Insurers (ABI) suggests organisations might wish to consider using when assessing their social responsibility. The focus of this framework is not strictly environmental; however, it does consider stakeholder perception risks which are generally considered to be influenced by environmental performance.

The approach provides an example of a qualitative risk assessment tool that seeks to present complex interactions and risks in a simple way<sup>17</sup>. Central to the approach is the assignment of qualitative measures of stakeholder concern or impact focusing on six key stakeholder groups as presented below (see Figure 3.2). Each stakeholder group is then an icon that (see key) best reflects their attitude to each issue of concern and allows a visual appraisal of issue priority for the company.

<sup>15</sup> see Pollard, S.J.T (2001) Principles, Tools and Techniques. Chapter 2. In: *Risk Assessment for Environmental Professionals*, Pollard, S. and Guy, J. (eds.) Chartered Institution of Water and Environmental Management, Lavenham Press, Suffolk: 9-20

<sup>16</sup> Association of British Insurers, 2001 *Investing in Social Responsibility – Risks and Opportunities*

<sup>17</sup> see also Arthur Anderson (1999) *Positive risk management*, Arthur Anderson, London, 52pp.



**Figure 3.2: Marsh reputation@risk™ hexagon**

The figure above shows how the Marsh hexagon is developed. Each of the stakeholder triangles which form the hexagon are shaded according to the code on the right to give a graphic illustration of each stakeholder's likely response or impact.

### Semi-Quantitative Evaluation

#### Business Focus: BV-SERM Risk Rating System

This semi-quantitative rating system developed by the Safety and Environmental Risk Management (SERM) rating agency is based upon credit risk rating techniques, rating performance on a 27-point scale from AAA+ to C-. The SERM rating requires three principal types of data to complete the analysis and produce the rating: sector inputs, performance data and financial inputs. The aim of combining these three data sources is to enable the ratings to express the risk to capital from environmental, social, health and safety impacts with a firm's market capitalisation.

The information used in the analysis is typically collected from publicly available sources as well as visits and interviews. The results of this research are submitted to an expert rating panel for review and to ensure consistency of the rating between companies in different sectors. A scenario-based approach is used, where each scenario incorporates a major incident or hazard that could adversely affect a business through both direct costs and tarnished reputation. Each scenario is considered in terms of management system, likelihood and financial impact and uses a mathematical model to calculate the residual risk to the business. This methodology allows companies that routinely deal with hazardous situations but who have well-developed systems for managing them to gain a higher rating than lower-risk companies which have not developed adequate management systems. The overall residual risk to a company is used to determine the SERM rating.

### **Environmental Focus: Operator and Pollution Risk Appraisal (OPRA)**

The OPRA methodologies developed by the Environment Agency are examples of semi-quantitative approaches to risk assessment with the prime purpose of allowing the targeting of regulatory effort on high hazard, poorly operated facilities. They are used to assess the relative environmental pollution risk or hazard of a facility as well as providing a measure of the facility's operational performance. OPRA methodologies comprise a semi-quantitative risk based tool and are able to produce results relatively rapidly and in a repeatable and systematic manner. This is achieved through the assignation of risk scores to a set of pre-determined attributes that, when aggregated, inform the overall risk appraisal<sup>18,19</sup>. Similar tools have been developed in the past for risk ranking assessments in the environmental field such as HALO/RALO for landfill and landfill gas risk assessments and the BREEAM assessment methodology developed to evaluate a building's environmental 'performance'.

These tools, generally welcomed by industry<sup>20</sup>, rely on purposely developed ranking matrices that define what level of actions or progress against a specific issue or question is required to achieve a certain number of points. For instance, within OPRA, a score of one will be obtained against the attribute of recording and use of information for operator performance if there is only limited or non-existent monitoring or records. However, a score of five could be achieved for the same item if the operator records and assesses environmental information to an extent greater than required by conditions within the permit.

These tools are often considered to be an effective, although relatively simple, method of assessing relative priority or ranking of risks but can suffer from inflexibility by nature of being predefined.

### **Environmental Focus: ISO14001 Aspects/FMEA**

The International Organisation for Standardization (ISO) ISO 14000 series of environmental management standards, published in 1997, and its European counterpart EMAS, allow organisations the freedom to determine their significant environmental impacts for management and improvement. FMEA (Failure Mode and Effects Analysis) is a technique to test impact significance that has, amongst many other uses been recommended for this purpose<sup>21</sup> (see Figure 3.3).

FMEA is a well-established risk tool used within the process industries, but as applied within this context, is based upon a subjective rating of the following aspects of a risk issue:

- severity of effect (rated one to ten)
- likelihood of occurrence (rated one to ten)
- likelihood of failure to detect occurrence in time to avoid effect (rated one to ten)

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<sup>18</sup> The Environment Agency (1997) Operator and Pollution Risk Appraisal, Version 2, 34pp., The Environment Agency, Bristol

<sup>19</sup> DETR (1999) Waste Management Licensing. Risk Assessment Inspection Frequencies. Operator and Pollution Risk Appraisal for waste "OPRA for Waste". A Consultation Paper. Her Majesty's Stationary Office, Norwich

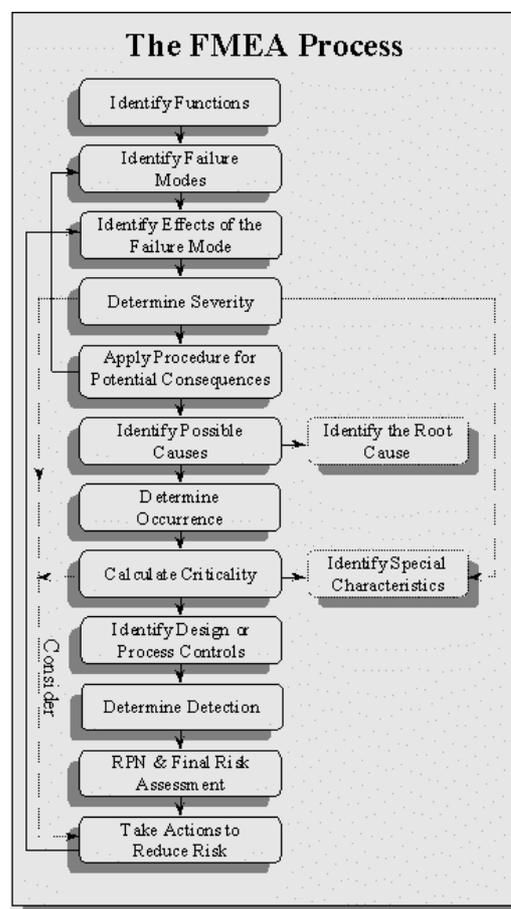
<sup>20</sup> CBI (1998) Worth the Risk, Improving Environmental Regulation, CBI, London, 23pp.

<sup>21</sup> Jones D G, (Ed), 1997 *Environmental Standards Certification Kit* GEE Publishing

The outcome of FMEA here is a Risk Priority Number (RPN) for each issue, equal to the product of the three individual ratings. The RPN therefore ranges from one to 1,000 in magnitude, providing a reasonably sensitive risk-ranking tool.

In URS' experience, a number of companies who have developed quantitative methods for significant testing of aspects within their ISO14001 systems have used scoring systems based on FMEA. Individual adaptation includes the criteria linked to the ratings (i.e. what is considered to reflect a score of one, two three etc) and altering slightly the titles of the three components to reflect the aspect/impact relationship such as:

- likelihood/frequency of aspect;
- severity of impact (geographical, level of damage); and
- business implications (could relate to potential for regulatory non compliance and / or cost of an impact occurring including reputation, clean-up etc).



**Figure 3.3: FMEA Process**

The figure above comprises a step by step illustration of the different tasks in the FMEA assessment technique.

It should also be noted that semi-quantitative risk assessment tools are typically used within health and safety risk assessments in industry. Thus this general approach is one that should be readily understandable and recognisable across industry.

## Quantitative Evaluation

There are many quantitative risk assessment methodologies, and a discussion of these in detail would go beyond the scope of this report. It is worth noting, however, that they can be categorised based on the type of assessment process. The FEI survey on risk management<sup>22</sup> surveyed preferences for types of quantitative risk assessment and covered the following types:

- Volumetric measures — production throughput measures.
- Cost/quality/time — performance measures of cost, quality and time.
- Actuarial valuations — use of quantitative actuarial techniques.
- Gap analysis — compare exposures to predefined risk tolerances and limits.
- Parametric VaR — Value-at-Risk based upon assumed normal distributions.
- Historical VaR — Value-at-Risk using Monte Carlo or historical simulation.
- Earnings-at-Risk — Value-at-Risk calculation adjusted for operating factors such as load and capacity.
- Dynamic simulation — models based on causal factors and interrelationships between factors.

The survey found extensive variations in industry's use of these techniques. Cost/quality/time was the only technique found to be used widely across all sectors (apart from within government departments), while financial and energy/utilities sectors make wide use of Value at Risk and Earnings at Risk. The widest disparity was in use of the Actuarial and Dynamic Simulation techniques, both being favoured most by financial sectors.

The reason for the variability was explained within the survey as a likely symptom of the capabilities of the respondent companies compared to the complexity of the techniques in practice. Based on this finding, and the industry interviews performed as part of this study, it is recommended that the Environment Agency does not look to encourage use of the more complex techniques at this stage. During the interviews, it was identified that even where such sophisticated methods of financial appraisals are being used within industry for assessment of financial risks, they are not being transposed to assessment of broader business risks or environmental risks. There can be danger in trying to make risk assessment methods too complicated in that they become cumbersome and less flexible to suit a changing organisation. However, as an example of what can be achieved with these tools, one formal quantitative business risk tool is summarised below as an example:

### **Business Focus: RISQUE**

Financial modelling tools including Monte Carlo and cost-benefit analysis can be directly applied to strategic environmental issues for companies. A considerable degree of familiarity with the risks and their potential impacts on the business is required to use this approach effectively, however this can be achieved through the facilitation of expert panels consisting of company and external individuals that routinely deal with the relevant risk issues. Expert panel input can also be supplemented with desk-based research into environmental data collected and same-sector or same-issue experiences outside the company. The need for such expert panels and some facilitation from

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<sup>22</sup> Andersen A, 2001 *Examples of Turnbull Disclosures*, unpublished, Arthur Andersen

external parties, means that this approach may not be practical on a day to day basis within industry but could be of benefit when assessing certain strategic or one-off risks.

An example of an approach using these elements is RISQUE (Risk Identification Strategy using Quantitative Evaluation)<sup>23</sup>. A flow-chart overview of the process is presented in Figure 3.4. RISQUE uses financial assessment of environmental and social risks to create cost-probability profiles for companies, projects or transactions. The assignment of financial values to business impact from environmental issues allows integration of disparate risks and cost-benefit analysis when considering risk management options.

### **Environmental Focus: General Comment**

Many of the environmental risk assessment tools used in areas such as determining the significance of land contamination and exposures to chemicals in the environment comprise quantitative evaluation methods. Whilst we acknowledge their presence and importance in these specific technical applications, we have not provided further details of these approaches within this report as applicability to the wider range of business risks is generally accepted as being difficult and not practical. A full discussion of these tools and techniques, including a discussion on recent directions<sup>24</sup>, and the breadth of the approaches used in risk assessment is contained in other Environment Agency publications<sup>15, 25, 26</sup>.

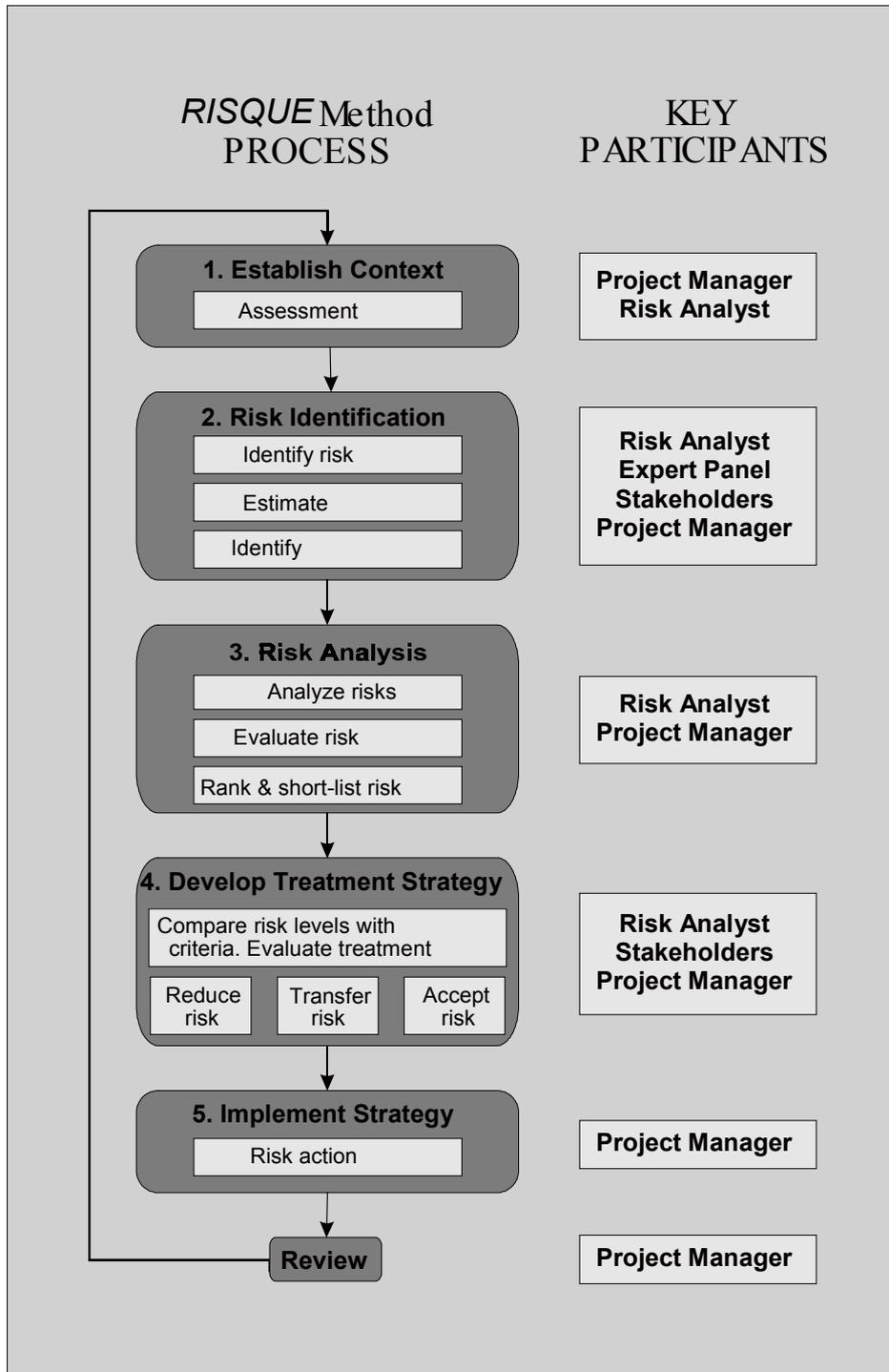
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<sup>23</sup> Bowden A R, Lane M R and Martin J H, 2001 *Triple Bottom Line Risk Management*, John Wiley Press, New York

<sup>24</sup> Pollard, S.J.T., Yearsley, R., Reynard, N., Meadowcroft, I.C., Duarte-Davidson, R. and Duerden, S. (2002) Current Directions in the Practice of Environmental Risk Assessment in the United Kingdom, *Environmental Science and Technology*, 36(4): 530-538

<sup>25</sup> Pollard, S.J.T. (2001) An Overview of the Use of Risk Assessment for Environmental Regulation in the UK – Key Drivers and Regulatory Initiatives, *Risk, Decision & Policy*, 6: 33-46

<sup>26</sup> Duarte-Davidson, R. and Pollard, S.J.T. (2000) *The Environment Agency's Risk Portfolio*, National Centre for Risk Analysis and Options Appraisal, Report 29, Environment Agency London, 73pp.



**Figure 3.4: RISQUE flow-chart (Bowden *et al*, 2001)**

The figure above provides a step by step illustration of who performs which tasks in the RISQUE methodology.

## **4. HOW IS RISK MANAGED IN INDUSTRY?**

### **4.1 Introduction and Methodology**

This section summarises the results of interviews with personnel involved in environmental risk management in the following industry sectors, which the Environment Agency had highlighted as being of specific interest for this study:

- Waste management.
- Construction.
- Agriculture.

Our interviews sought to discover the extent to which environmental risk is managed in businesses in ways consistent with the expectations of the Turnbull Guidance. Within each sector, six companies were targeted for interviews, selected to represent a cross section in terms of size and activities. Where targeted companies declined to be involved in the study, alternative organisations were sought. To enable the most benefit to be gained from the limited number of interviews performed as part of this study, senior management representatives were targeted for the interviews which were conducted by senior consultants. The level of persons interviewed did vary but included Managing Directors and Partners. Prior to the interviews being performed, a protocol was developed to ensure consistency both within and across sectors (Appendix E). This protocol was developed as a prompt for the interviewer rather than as a formal questionnaire for completion, and covered the following broad topics:

- risk assessment;
- risk appetite;
- risk management;
- control environment and control activities;
- information and communication;
- monitoring; and
- support from third parties.

The information gathered from each of the interviews was reviewed and, within sectors, commonalities and similarities were identified to enable the sector profiles to be drafted. The format of the sector profiles was developed to follow that of the questionnaire as outlined above. A review of the draft sector profile was then performed by both the URS consultant who performed the Environment Agency interviews with a further review and quality check by another senior consultant within URS with knowledge of the relevant sector. These sector profiles provide an insight as to how and to what extent environmental and business risk management is aligned and managed. Whilst cultural issues have been considered as part of risk management, more in depth studies within individual organisations are needed to assess this particular aspect of risk management. Sector profiles are presented in Appendices A to C of this report and a discussion of the findings is presented below.

## 4.2 Cross Sector Comparisons

Overall, significant commonalities were identified within sectors in terms of the approach to managing environmental and business risk. However, between different sectors, the general approach to, and structure of, environmental and business risk tended to differ. Table 4.1 below highlights some of the sector similarities and differences.

<i>Table 4.1: Cross Sector Comparisons and Similarities</i>	
<i>SIMILARITIES</i>	<i>DIFFERENCES</i>
<ul style="list-style-type: none"> <li>• Variable levels of integration between business and environmental risk are seen within all sectors. Safety, health and environmental (SHE) management are most commonly integrated.</li> <li>• Environmental and business risks are seen as something to mitigate where commercially practical.</li> <li>• Significance of environmental risk is viewed in terms of adverse impact to finance or reputation rather than environmental degradation.</li> <li>• Auditing/self assessment of operations is performed as part of the control mechanisms within most interviewed organisations.</li> <li>• Risk identification methodologies tended to follow simple qualitative or, in some cases, semi-quantitative methods.</li> <li>• The Environment Agency could provide more assistance in terms of practical guidance on good practice issues providing that it is commercially practical and consistent.</li> <li>• Environment Agency is perceived foremost as a regulator. Few organisations considered that the Environment Agency had an influencing role.</li> <li>• Majority of organisations seek guidance from third parties in particular sector trade associations.</li> </ul>	<ul style="list-style-type: none"> <li>• The waste sector is highly focused on regulatory drivers from waste management licensing. This focus is seen in the structure of risk identification and control.</li> <li>• Environmental impact assessments associated with waste licence applications and working plans are seen as key vehicles for identifying potential risks. Engineering controls during site design tend to be the preference where practical, otherwise managerial controls are applied either through working plans or internal procedures.</li> <li>• Significant proportions of the construction and agriculture sectors comprise small to medium enterprises. The relative number and size of organisations therefore can affect the success of advocacy work.</li> <li>• Unlike the agriculture sector, both the construction and waste sectors focus on risk identification, assessment and mitigation at the early stages of project or site development.</li> </ul>

Based on the similarities identified above a number of opportunities and important points arise, and are outlined below. Opportunities for specific sectors are covered in the sector summaries below. In each case each opportunity has been assigned a unique reference number that enables cross referencing between this section and the overall summary presented in Section 6.0.

<ul style="list-style-type: none"> <li>• <i>Within industry, environmental risks are considered to be significant in terms of potential for adverse impacts to financial status or reputation rather than being based on potential for adverse impact to the natural environment. When talking to industry both at a site and corporate level, Environment Agency personnel, should be aware of this perception and where possible discuss the required improvements/actions in terms of the financial and reputation benefits that they could bring alongside reducing impact to the environment.</i></li> <li>• <i>Within both the construction and waste sectors, site or project planning is the focus for significant risk identification, evaluation and mitigation. The timing of advice and information can therefore be critical to the manner in which it might be received.</i></li> </ul>	<p><b>POINTS TO NOTE</b></p>
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<p><b>POTENTIAL OPPORTUNITIES</b></p>	<ul style="list-style-type: none"> <li>• <i>Most of the companies interviewed seek advice from trade associations. An opportunity exists for the Environment Agency to work with sectoral trade associations to promote good corporate environmental and business risk assessment. Sector dialogue has already commenced with some trade associations including, for example, the food and drink and cement sectors. Benefits from these actions have included increased engagement and establishment of a clear communication route between regulatory policy makers within the Environment Agency and senior representatives within business. In the example of the food and drink sector this has resulted in active and positive discussions relating to implications of PPC implementation and what actions within the industry are required. (Ref. G1)</i></li> <li>• <i>A common message received was that the Environment Agency does not provide advice or assistance and is seen only as a regulator. To facilitate achieving some of the objectives within its new Vision, the Environment Agency might consider addressing this perception and, in particular, engage more proactively with industry. Based on the Environment Agency interviews conducted, some initiatives in this area already exist, but they appear to be the exception rather than a common element of the Environment Agency's work. Options and/or individual actions that can help achieve this overall aim include, but may not be limited to:</i> <ul style="list-style-type: none"> <li>• <i>Providing good practice guides potentially joining</i></li> </ul> </li> </ul>
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*forces with other organisations such as EnviroWise and trade associations. Some sector good practice guides have been generated with trade associations e.g. timber treatment, but these have been reactive to requests rather than a proactive initiative.*

- *Along the lines of the publication of fines and prosecutions on the Environment Agency website, the production of periodic information identifying good practices noted during site visits by inspectors. The annual Spotlight report does provide some of this information which should be continued and potentially built upon by having this information readily available in an easy to access manner on the internet.*
- *Providing advice and information of general interest during individual site inspections. For SMEs this local contact is particularly important.*
- *Running workshops or conferences on current issues of sectoral interest with other third parties, e.g. the risk assessment workshop held with the Environmental Services Association.*
- *Increased communication of these activities to industry and other third parties. (Ref. G2)*

#### **4.3 Key Findings from the Waste Sector**

- The representatives considered themselves to be highly regulated through the Waste Management Licensing regime. Thus overall business and environmental risk management processes appeared to be focused on maintaining compliance with these permits and not creating adverse public opinion.
- There appears to be a key focus on risk identification and mitigation at an early stage in the development of waste management facilities. The view provided during our interviews was that this process starts during site selection and development with the objective of “designing out” risk through engineering control methods such as the use of landfill liners, and continues with the preparation of permit applications and associated working plans in terms of applying managerial control techniques to support physical controls.
- Against the background of regulation, methods of risk identification, assessment, control and monitoring appeared to be well developed. However, in some instances the level of documentation lagged behind the process development.
- Interaction with the Environment Agency was identified:
  - at a site level associated with day to day operations and compliance with permit conditions; and
  - by a specialist or corporate level individual associated with permit revisions or applications.

- Monitoring of compliance and site risks is performed through site based internal auditing or self assessment at all organisations although the frequency, scope and responsibility for performing these checks varied. The results of these assessments are also communicated upwards to directors or managers.

**POTENTIAL OPPORTUNITIES**

- *Clear communication routes already exist between the Environment Agency and companies within the waste sector. These established routes of communication provide a direct line through which Environment Agency personnel can provide advice and assistance to organisations within this sector:*
  - *Site inspectors could provide added value and thus develop stronger working relationships with site managers by providing general and informal guidance and advice on managing and controlling risks during site visits and generally increasing rapport. Examples of the guidance that could be provided include reference to good practices and solutions that have proved successful on other sites.*
  - *Communication and general advice during the permit application stage with the corporate or specialist technical advisors within the organisation. This individual may well have a broader influence with the company and is typically at a group or higher level within the organisation. Communication with this individual associated with corporate risk management may provide a better corporate interface and enable engagement with Financial Directors. (Ref. W1)*
- *The current OPRA for waste management licensing includes provisions for recognising and rewarding a certified EMS (ISO 14001 or EMAS registered). Is there opportunity to also recognise and reward where the site is part of an organisation that has strong (and documented) corporate business risk identification and management process that includes environmental issues? If such recognition could be built into OPRA then this might provide incentives for organisations to include environmental risks in broader business risk management. (Ref. W2)*
- *Organisations do refer to trade associations. If the Environment Agency could have increased involvement with such parties whether through conferences or providing advice and guiding information at regular trade association meetings it is likely that these suggestions would be disseminated throughout the industry. (Ref. W3)*
- *Consultation and discussions are ongoing relating to Operator Monitoring and Assessment specifically relating to air emission monitoring. Does this model provide an*

*opportunity for the Environment Agency to use compliance self assessments performed by organisations as part of the site inspection process? For instance where an assessment process (and assessor) has been judged by the Environment Agency to be thorough and appropriate, is there an opportunity for review of reports and validation of selected assessments by the Environment Agency to reduce site inspection time? Clearly this would require careful criteria on competence and scope. Such a partnership approach could demonstrate that the Environment Agency respects an organisation's internal processes and through review adds value to internal systems. (Ref. W4)*

- Engagement with industry representatives is important. Environmental risks are considered significant primarily from a financial and reputation standpoint rather than specifically due to a potential to cause harm to the environment. Often this does not provide a conflict with the ultimate outcome, and Environment Agency personnel should continue to provide suggestions relating to potential benefits for operating/liability costs or reputation enhancement as appropriate and not just in terms of improvements to the environment.*
- A number of opportunities arising for the waste sector are driven largely by the way that regulations require broad site based permits. There is therefore a potential that these opportunities can be extrapolated across a wider industry base specifically those subject to the IPPC regime. (Raised as a Point to Note for the waste sector but this is also recognised as a Potential Opportunity for the Environment Agency (G3 (see page 39)).*
- One of the implications of the landfill directive is that there will be a need for increased waste treatment rather than disposal. There will be a need to develop appropriate technologies. The Environment Agency, through technical experts, may be well placed to advise and assist in the development of technologies that result in the desired outcomes (e.g. regulatory, environmental acceptability etc). Close working with the waste industry in this area would enable engagements with industry. However, it could be considered that the Environment Agency involvement in certain technological developments represents approval of these, a perception that needs careful consideration.*

**POINTS TO NOTE**

#### 4.4 Key Findings from the Construction Sector

- Based on the interviews to date, no specific management practices have been identified which are considered to represent potential best practice.
- The sector is highly devolved with many smaller organisations providing specialist trades and services to larger organisations. Awareness of corporate governance is perceived to be more prevalent within the larger organisations with environmental (and social) issues moving up the corporate agenda. Environmental reporting has been undertaken in several of the organisations, but is still in its infancy within the sector as a whole.
- Managing risk is considered to be the nature of the construction industry. However, based on the interviews, environmental risks will only be mitigated if the necessity arises e.g. if required by regulation. Environmental risk was given the same profile as financial risk, within only one organisation, largely due to a recent conviction that radically changed the perception of environmental risk.
- Methods of general business risk identification, assessment, control and monitoring are well developed. Several larger organisations have integrated risk management systems in place and are believed to be in the initial stages of incorporating environmental risk management into these systems.
- There appears to be a focus on risk identification and assessment at the early stages of a project, primarily at the bidding stage, with a focus on mitigating risk through front-end management or physical measures. Generic risk assessments are the usual starting point for this process.
- Environmental risks within each organisation were viewed to be directly aligned to health and safety risks, with the exception of one. Within this organisation, a project is divided into various stages with risks at each stage being integrated and managed by a separate individual.
- In the majority of cases, organisations were performing ongoing monitoring of some form throughout the life of the project with operational risks being reviewed on a regular basis.
- Internal communication was perceived to be essential to enable project based issues to be continually reassessed. Only two organisations actively engaged in external communication.
- Each organisation sought third party advice from trade associations and/or consultants, but communication with the Environment Agency appeared minimal.
- Although well developed supply chain processes tend to exist within the sector (such as supplier performance evaluation, working with suppliers to improve products and services), only two organisations required sub-contractors to comply with environmental policies and/or demonstrate similar internal policies and systems.

**POTENTIAL  
OPPORTUNITY**

- *Each organisation interviewed reported that they did seek advice and/or were active within the construction industry trade associations. If the Environment Agency could have involvement with such parties whether through conferences or providing advice and guidance/information at regular trade association meetings, it is possible that such information would be disseminated more widely throughout the sector through supply chain processes. (Ref. C1)*
- *There is potential for considering the generation of a periodic publication that provides information and advice on issues such as:*
  - *practical advice to overcome situations;*
  - *identification of current legislation and risks and how it relates to the industry. (Ref. C2)*
  - *best practice guidelines for standard problems;*
  - *case studies that provide good examples of environmental solutions within the industry, or alternatively solutions that have not worked; and*
  - *guidance on current legislation as it relates to the construction industry;*
- *Based on discussions with the Environment Agency, URS understands that the top 23 contractors form a “Major Contractors Group”. Some of these organisations would like the Environment Agency to develop generic “operating agreements” with themselves. Such agreements would address particular concerns including: efficient internal practices; enabling a single route into the Environment Agency; and, enable industry to work with the Environment Agency to increase consistency in approach both across regions and between companies. Development of such a forum for discussions and also identifying initiatives that the Environment Agency would like to see over and above regulation would provide the Environment Agency with a clear route for influencing corporate policies. The formal supply chain processes identified within the interviewed organisations should then facilitate dissemination of this influence to a broader spectrum of the industry. (Ref. C3)*
- *Interviews indicated that recent liaisons with the HSE in a partnering approach, which entailed regular meetings identifying both good and bad practices/issues and discussions on general good practice, had been particularly advantageous. Development of a similar approach by the Environment Agency could be of benefit. (Ref. C4)*

- *The Environment Agency procures a significant amount of construction activities itself and therefore needs to be seen to be adhering itself to best practice policies and pushing such practices through its supply chain through contract requirements. The Environment Agency has developed a National Contractors Framework which has included measures to “green” the supply chain for construction works. This framework will have a direct influence on contractors wishing to work with the Environment Agency but is likely, if appropriately publicised, to also encourage other clients to develop similar systems. (Ref. C5)*
- *The Environment Agency could increase site liaison activities within the construction sector, therefore increasing environmental awareness and perceptions of environmental risks at the site and within the organisation as a whole. As a consultee on planning applications, the Environment Agency has an opportunity to identify either large or potentially sensitive construction works to enable prioritisation of such visits. With a significant number of pollution incidents arising from the construction sector it is possible that increased visits by the Environment Agency will raise the priority given to the environment in this sector and thus save monies and time spent chasing pollution incidents and associated fines. (Ref C6)*

- *It appeared that because the construction industry is about managing risk, all organisations perceived internal communication to be essential and extremely effective in allowing project-based issues to be continually reassessed.*
- *Project planning appears to be the time when a significant amount of risk identification, evaluation and mitigation is considered. The timing of advice and information provision can therefore be critical to the manner in which it might be received.*
- *One organisation used the “Environmental Good Practice Guide” from the Construction Industry Research and Information Association (CIRIA) as the basis for managing particular environmental risks associated with projects. Publications from this association do form accepted reference material and therefore a joint approach with CIRIA might provide the Environment Agency with better opportunities than seeking to influence the sector without support.*
- *Environmental risks will generally be mitigated if the necessity arises or if required by regulation. Within only one organisation was environmental risk given the same profile as financial risk, largely due to a recent prosecution that radically changed the perception of environmental risk.*

**POINTS TO NOTE**

- *Project based generic risk assessments are the starting point for the risk assessment process within the construction sector. Risks associated with each and every project are considered at all stages through well defined methodologies.*
- *Organisation management structures within the construction sector are based around the projects rather than sites or facilities. Environmental management tends to follow this structure and thus is integrated in some form with other business management issues.*

#### **4.5 Key Findings from the Agricultural Sector**

Overall the level of interest within the targeted companies in the agricultural sector to participate in the study was considerably lower than that seen for other sectors. Furthermore, the ones with which interviews were held could be considered to be representative of the top quartile of the sector in terms of attitudes to, and perception of environmental risk. Recognition of this is required when considering the findings of this review:

- Few organisations within this sector considered environmental risks separately from business risk. The reason for this may be that the organisations tend to be small and, from a manpower perspective, consider all business risks such as financial, environmental, health and safety etc together with no segregation.
- There appears to be a sense of responsibility for the protection of the environment. However, environment risks do not get a high priority as a result of a lack of resources and information. Financial risk is invariably rated higher than environmental risk.
- One of the organisations within this sector has developed a formal risk assessment process. However, due to complexity it was found not to be practical especially in terms of resourcing and therefore is no longer used.
- It was identified that the organisations are expecting the consideration of environmental risk to be more prevalent within the sector in the future. The driver for this was identified as increased regulation rather than a result of seeking best practice.
- No formal or documented risk management or control mechanisms tended to be in place. With the small sizes of the organisations, communication appeared to occur regularly and to be effective. Conversations between URS & the Environment Agency also noted that mailshots and distribution of leaflets providing advice do not tend to be successful.
- In some cases it was identified that customers have required formal auditing of food production facilities and farms to assess operational and environmental issues.

- A number of the interviewees did not identify regulators as third parties they would go to for advice, with the majority of organisations also indicating they were not interested in engagement with regulators beyond what is specifically required by legislation.

<b>POTENTIAL OPPORTUNITY</b>	<ul style="list-style-type: none"> <li>• <i>Along with regulation, customers, particularly supermarkets, are the main driving force for environmental improvements within the agricultural industry. The Environment Agency therefore has an opportunity to influence the agricultural sector through the supply chain by working with supermarkets and their trade association, the British Retail Consortium. (Ref. A1)</i></li> <li>• <i>URS understands that the Environment Agency is looking to develop a generic “environmental management plan or system” for farms. Therefore a potential opportunity exists to include provisions for risk assessment techniques within this document to identify the aspects or impacts that really require management and control. Furthermore, the Environment Agency may also wish to include or discuss this initiative with the major supermarkets to see if they would like to be involved. A combined initiative may result in a larger take up by the sector. (Ref. A2).</i></li> </ul>
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<ul style="list-style-type: none"> <li>• <i>No specific industry best practice initiatives have been identified from the organisations interviewed. The relatively negative attitude to the Environment Agency and other regulators is considered to represent significant barriers to the Environment Agency being able to actively and directly influence adoption of corporate risk management procedures.</i></li> <li>• <i>A number of the interviewees did not identify the Environment Agency as a third party they would go to for advice, with the majority of organisations also indicating they were not interested in engagement with regulators beyond those specifically required by legislation.</i></li> <li>• <i>Although none of the organisations interviewed had a particularly formalized structure for reporting to the Board, they each appeared to have well defined routes for the communication of regulatory breaches. All regulatory breaches were reported to the individual responsible for the management of environmental risks. No formal procedures were in place to deal with reports, other than a consideration of the appropriate response.</i></li> </ul>	<b>POINTS TO NOTE</b>
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- *In promotion of corporate environmental risk assessment, the Environment Agency should ensure that measures suggested are simple and realistic to adopt at a practical level.*
- *The formal assessment of environmental risk in the agricultural sector appears to be minimal. However, it was considered that environmental risk would become more prevalent in the sector in the future, but only through increased regulation and not through organisations seeking best practice.*
- *Within the agricultural industry, environmental risks are considered to be significant in terms of the potential for adverse financial or reputation impacts rather than the potential for adverse impact to the natural environment. When talking to industry at both a corporate and site level, Environment Agency personnel should be aware of this perception and, where possible, discuss required improvements/actions in terms of financial and reputation benefits that they could bring rather than in terms of reducing adverse impacts on the environment.*
- *No dedicated individual or team existed solely for environmental risk management or identification within the interviewed organisations. In each case, management of business and environmental risk is fully integrated. However, for each of the organisations, there was a clear individual or team with part of their responsibility incorporating environmental risk identification management.*
- *The typical one or two person agricultural organisation has little concept of corporate governance, or of environmental risk management in any formal sense. It should also be noted that the industry is undergoing a period of low financial returns and very little, if any, surplus is available for re-investment. In this climate, business survival rather than environmental enhancement, or even the reduction of environmental risk, is likely to be the chief priority. Despite this, there is a strong sense, particularly in smaller businesses, of responsibility for the environment.*

## **5. THE FINANCIAL INDUSTRY AND ENVIRONMENTAL RISK**

### **5.1 Introduction**

The rationale for looking at attitudes and practices within the finance sector for environmental risk and business risk is based on the influence that this sector can have on industry and other business due to their lending, investment in shares and insurance practices and policies.

The fundamental service provided by the financial sector is to provide investors with a means to invest money, and to provide companies with access to this capital. The financial sector acts as a ‘clearing house’ or intermediary, using market forces to determine how best to match demands for capital from businesses and demands for returns on investment from investors.

Companies primarily raise capital from two sources: debt and equity. Debt equates to a loan, while equity refers to the sale and purchase of shares in a business. Banks will assist companies in raising debt either as a simple loan or in the form of marketable ‘bonds’, which may be bought and sold by investors (such tradable investments are referred to as ‘securities’). Banks also assist companies in raising equity capital via the marketing and sale of shares in a company.

All investment returns are based on an assessment of the risk involved, and this will be reflected in the value of the investment. The higher the risk, the higher the rate of return that an investor will require to invest his/her money in a particular investment. For equities (which have no fixed interest payment or dividend), the risk premium is directly factored into the price of each share by the market (market prices being determined by the accumulated actions of many individual investors/analysts). For bonds, these typically provide a fixed rate of interest to investors over the life of the bond, and then repay the original amount of the loan at the end of the repayment period. The interest rate used is based on current market interest rates for low-risk investments (such as long term government bonds) and a risk-premium is then added based on the perceived credit-worthiness of the company. Specialist rating agencies (such as Standard & Poors, and Moodys) calculate the credit risks posed by companies and investments for use in such calculations.

Banks provide services both to private customers (retail banking) and to corporate customers (investment banking). The range of specific services provided to both sets of customers is different, but the fundamental services offered are the same – providing access to capital, and providing opportunities to invest capital.

Despite the increased popularity of private share ownership, the majority of shares and other securities are held by institutional (or professional) investors such as pension funds and investment funds, who invest and money on behalf of others. For example, pension funds will invest funds from company and private pension plans in order to generate long-term future income for employees in retirement, while insurance companies will invest funds received from insurance premiums to cover possible future claims.

Businesses are also reliant upon providers of insurance to manage the risks that businesses face, for example to indemnify third parties for damage they may have caused them, or for damage to assets they may have incurred themselves through events like fires. Without being able to insure against such eventualities businesses could face significant payments, which would impact adversely on profits and cash flow.

In addition, there are a number of parties involved in the process of share buying and selling, each with their own analysts. Stockbrokers trade shares on behalf of firms to whom they are appointed as its stockbroker, and are named as such in the annual report and accounts. Stockbrokers' analysts produce reports on firms for which the brokers have been appointed to sell its shares, and these reports are used as marketing tools to inform investors about the benefits of owning shares in that company. Stockbrokers also buy and sell shares on behalf of private and institutional investors, and will give them bespoke advice on buying and selling.

Concern has been expressed recently over the degree of independence of advice of stock-broking firms if they are selling shares on behalf of a company and advising investors at the same time. It is not the province of this report, however, to examine that debate since the Environment Agency is not in a position to influence it.

Institutional investors will typically have their own financial analysts. They regularly review and produce reports on firms in which they hold shares, and on firms in which they may consider investing.

The means by which all sets of analysts conduct their reviews and their sources of information are described in this section, with specific reference to how environmental risks and liabilities may be assessed and taken into account in the decision making process.

This chapter therefore reviews and assesses the key features of environmental risk management relevant to the work of investors, lenders and insurers. Full discussion of the approach to environmental risk taken by each of these financial institutions is in Appendix D<sup>27</sup>.

## **5.2 Stock Market Investment**

Within this section we discuss evidence from research that looked into whether share price behaviour can be linked to environmental management or risks. The findings of our research into the work of stock market analysts are then discussed.

### **Implications of environmental events on share price**

There is much anecdotal evidence that stock market reaction to a "disaster" may be to sell, therefore pushing the price down. For instance, a pollution event may require substantial clean up or compensation costs, not to mention fines, all of which would erode value. In addition, it may also call into question the quality of the management, thereby eroding stakeholder confidence in the company.

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<sup>27</sup> The reader should be aware that this area is still evolving and other reports or guidance may have been published since completion of this study in summer 2002

Some US studies have found evidence of this or similar phenomena:

- Union Carbide suffered a reduced stock price after the Bhopal incident<sup>28</sup>.
- So did Exxon after the Valdez spill<sup>29</sup>.
- Further, there could be fall-out affecting other well-managed firms in the same sector, again as happened post-Valdez, while “green firms” in industries unrelated to hydrocarbons saw their share prices rise post-Valdez<sup>30</sup>.

Disclosures required by legislation have also seen declines in stock price for those firms that had previously not disclosed information voluntarily<sup>31 32</sup>. A UK study<sup>33</sup> also found evidence that is consistent with that from the US relating to the decline in value of firms following prosecutions. Falls in share prices are typically temporary in nature, however, no firm wishes to be complacent over taking a hit in share price.

### **Influence of trends and behaviour on share price**

The same UK study as mentioned above has found that firms, which had previously attracted environmental prosecutions, but instigated a corporate environmental policy, saw their share prices rise above the FTSE All Share Index.

One study has found trace of sustained share price increases, associated with positive practices. It should be noted on the one hand that this study, unlike those referred to above, is not from an academic source<sup>34</sup>, so may not have been subjected to the same degree of rigorous academic peer review. ICF Kaiser<sup>35</sup>, a US Environmental and Engineering Consultancy, analysed the share prices of 330 firms from the USA Standard and Poor 500 Index, covering 1980-94. They compared share prices of the firms during that time with the quality of their EMS and environmental performance. They found that improvements to the quality of either or both resulted in more stable share prices. Box 5.1 presents the elements of an EMS and environmental performance that Kaiser identifies as those that will bring about such beneficial results for share price.

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<sup>28</sup> Blacconiere W, and Pattern D, 1993 *Environmental Disclosures, Regulatory Costs and Changes in Firm Value*, Indiana University and Illinois State University, Indiana and Illinois

<sup>29</sup> White M, 1995 *Investor Response to the Exxon Valdez Oil Spill*, McIntire School of Commerce, University of Virginia, Virginia

<sup>30</sup> White M, *op. cit*

<sup>31</sup> Hamilton, J., 1993, *Pollution as News: Media and Stock Market Reactions to the Toxics Release Inventory Data*, Duke University

<sup>32</sup> Blacconiere W, and Northcut D, 1995, *Environmental Information and Market Reaction to Environmental Legislation*, *Indiana University and University of Arizona*

<sup>33</sup> Thomas A, and Tonks I, 1999 *Corporate Environment Policy and Abnormal Stock Price Returns: an Empirical Investigation*, The 1999 Eco Management and Auditing Conference, University of Leeds, 1-2 July 1999, ERP Environment, pp 335-344, Shipley

<sup>34</sup> Though it has consistently been used as evidence in subsequent reports produced by organisations such as Sustainability, AccountAbility, The World Resources Institute.

<sup>35</sup> Feldman S J, Soyka P A, and Ameer P, 1996 *Does Improving a Firm's Environmental Management System and Environmental Performance Result in a Higher Stock Price?*, ICF Kaiser, Fairfax.

### **Box 5.1: ICF Kaiser's EMS and Environmental Performance Criteria**

#### **EMS Criteria**

##### *Commitment to a policy*

- senior corporate official appointed and lines of responsibility and accountability identified
- defined and measurable goals
- adequate resources allocated.

##### *Management systems*

- environmental accounting
- monitoring of inputs (energy, raw materials etc.) and outputs (pollutants, emissions, etc.).

##### *Procedures*

- employee training to ensure they operate processes correctly and address risks proactively
- “design for environment” (e.g. minimizing resources and pollution) on a life cycle basis
- monitoring to ensure compliance with regulatory standards
- creation of a corporate culture which rewards performance related to environmental issues.

#### **Environmental Performance Criteria**

##### *Areas to cover*

- reducing pollutants
- minimizing liability exposure

##### *Performance management*

- data on waste generation, effluent discharges, hazardous spills as a basic requirement
- “the best firms” set and achieve more stringent goals than those required by law
- obtain independent audits to verify stated performance.

Kaiser suggests that the market gains confidence in a firm which improves in all of the criteria identified in Box 5.1. This confidence is shown by the share price becoming more stable. However, Kaiser also caveats its findings, in that other statistically significant factors could also influence the share price. So, whilst environmental influences may well be valid, they should certainly not be considered in isolation. Also, one should not ignore potential impacts of differences between USA and UK financial markets, and even more so, perhaps, the more punitive nature of environmental fines in the USA and the influence these may have on market perceptions. Kaiser also stresses very heavily that a critical success factor is the firm's communication with equity markets: analysts must be made aware of what the firm is doing and the financial context explained, otherwise markets will be largely ignorant.

## **Stock market investors' and analysts' practices**

Business risk is assessed by investment analysts in a qualitative sense using the same concepts outlined in Section 2.3 above, namely PEST factors (politics/legal, economic, social and technological) and Porter's Five Forces. With regard to PEST factors, there are no generic truths about any of the factors that are applicable to all sectors; influence will vary from sector to sector and firm to firm within sectors. What underpins the analysis performed by stockbrokers is an understanding of how different factors affect different sectors, which comes from the analysts' experience of concentrated research into the detail of the characteristics of each industry.

For mainstream institutional investors and their brokers, business risk is evaluated primarily, if not solely, in the context of earnings opportunity or threat, and in a holistic and synergistic sense rather than considering each PEST factor in isolation.

Based on research and knowledge within URS we understand that amongst investors and analysts, the use of Porter's Five Forces model, described in Section 2.3 above, is common practice as a means of judging relative competitiveness of a firm, and therefore its capability to sustain profits. Again, analysis is at a sectoral level, there being many different considerations between different industries for buyers, suppliers, new entrants, substitutes and rivalry.

Environmental issues have historically been perceived to be a subset of political/legal/regulatory factors at a macro level i.e. PEST factor. Coverage within analysis can vary greatly from sector to sector, from extensive consideration of environmental regulatory constraints in oil and gas sectors, to no mention at all in banking. Historically, analysts have been reactive to trends and movements in environmental influences. In specific circumstances, environmental issues may be seen as having an impact on earnings through some transgression or incident incurring fines or clean up costs, or through regulation restricting or banning the use of a material in production, and requiring an alternative method. At a micro level (or Porters Five forces) demands of customers or consumers are perceived to be a growing trend in some sectors, which may be driven by environmentally related issues. For example, in timber products where the growing acceptance of the Forestry Stewardship Council's label for responsibly sourced timber has influenced customer demand and therefore affected competitive conditions.

A more recent phenomenon – it is too early to judge if it is a trend – is for fund managers and brokers to employ environmental (and social) criteria advisors. These specialist environmental advisors provide the following inputs on environmental issues into the stock valuation work of the financial analysts:

- extent of engagement, vision, values, Board level response;
- risks and opportunities, e.g. threat of boycotts, competitors' positions, sector best practice;
- key performance indicators, including waste, water, energy, NO<sub>x</sub>, SO<sub>x</sub>, CO<sub>2</sub>, land, prosecutions, health and safety; and
- policy content, environmental management systems, reporting policy.

**POTENTIAL  
OPPORTUNITY**

*Interviews indicated that some form of independently produced company and/or sector environmental performance profiles that considered sector specific environmental impacts and emissions information, in addition to the more readily available metrics such as fines and prosecutions would be of value. The Environment Agency may be uniquely placed to provide such information. Through the many site inspections performed, the monitoring results and data available, the Environment Agency would be able to develop sector profiles presenting information on overall sector performance, sector impacts, emissions and scale of fines, prioritising those which the Environment Agency considers from its expertise represent the greatest risks to the environment. The information that was expressed as useful included:*

- *Information on typical processes and impacts on a sector basis;*
- *Range of sector performance from emissions to prosecutions with sector averages;*
- *Information on qualification such as size of business and year on year comparisons;*
- *Information on the key challenges found by the sector and implications;*
- *Consideration of future challenges;*
- *Meeting and engaging with industry.*

*(Ref. F1)*

*The financial sector representatives interviewed are interested in dialogue and guidance from parties such as the Environment Agency. It would therefore be beneficial to have periodic meetings with key representatives of the financial sector to enable specific issues of concern to be discussed. This forum will enable active discussion on the differing views on materiality of environmental risks and business risks as viewed by the Environment Agency and interested stakeholder groups and the financial/stock market community. This forum would also enable discussions on the different environmental risks that exist at corporate and site level and how financial institutions need to consider them. (Ref F2)*

However, the ultimate fate of the inputs from these specialist advisors is at the mercy of the financial analysts as fund managers have a duty to investors to invest in ways that maximise returns. They risk being sued by their investors if they base their decisions on criteria that could compromise returns. Environmental criteria may be considered to fall into this category.

*Basing analyses on environmental criteria can be viewed by financial analysts as presenting a risk of compromising investor returns if the environmental issues do not have a significant impact on the core business. Therefore, if the qualitative environmental information provided to them is not considered to indicate a significant risk, in terms of core business financial impact, relative to other information on which they base their valuations, it will not be used in their analyses.*

**POINTS TO NOTE**

*This practice and approach raises an interesting point about the difference between interested parties on what is and should be considered a material risk. This difference is most likely to be linked to values and the different interpretations of environmental risk (see Section 2.0).*

### 5.3 Lenders

The primary concern of lenders when assessing the risk of lending money to a business is a firm's ability to repay a loan. This would apply to site and corporate level risks and interests. This is judged largely by reference to a firm's ability to sustain income and cash flow. Factors such as supply and product chain influences, in both directions (that is customers and suppliers), are a key feature of this analysis. Therefore, environmental risk is considered very much within the context of individual industry sectors. For example, a timber merchant may need to pay careful attention to the demands of not just his retail customers but also the ultimate consumers of the product, and these demands may have impacts on his choice of forestry suppliers as sources of timber.

The state of a firm's premises, particularly the land quality may also evidence a level of environmental performance and enable initial conclusions to be drawn. For instance, interviewees reported that discoloration of vegetation may suggest pollution or contamination of the underlying soils, which may in turn suggest a need for an environmental upgrade to address the cause. Such upgrade works, if significant, could impact on earnings, and therefore affect ability to repay. These analyses appear based on our interviews within the financial industry to be at best, rudimentary, and a more informed input on environmental performance would improve the analysis.

**POTENTIAL OPPORTUNITY**

*An opportunity exists for a third party, potentially the Environment Agency, to develop and provide guidance on methods by which a firm's environmental risk and performance can be identified and judged. Again reference to published guidance on environmental auditing methods such as the new ISO14015 may assist in this area. (Ref. F3)*

Banks continue their historic practice of using land as security for loans. The land is generally used as a contingency for repaying the loan if the firm becomes unable to make its repayments in cash. The predominant environmental issue for land used as security is the potential for contamination, and banks habitually assess land they wish to use for security for the presence of contamination. Again, banks assess the state of the land with reference to the industry in operation on the site and the associated practices,

and previous industries, where this information can be obtained, a process they admit can sometimes be difficult as they find records inconsistent across the UK. The purpose of their investigations is to determine whether the land as valued by the surveyor has a realistic value, or whether it requires to be re-valued. Individuals interviewed within the financial sector reported that there was no common guidance for what these appraisals should cover.

**POTENTIAL OPPORTUNITY**

*Various guidance does exist on scope and coverage of reports and assessments on the implications for contaminated land. Examples comprise the Land Contamination Reports as developed by the professional and technical panel who developed the SiLC (Specialist in Land Condition) registration scheme and the often used and referred to American standard on Environmental Site Assessment (ASTM-1527-000). There is an opportunity for the Environment Agency to work with the finance sector and promote the use of these guidance documents and schemes. Internal use of the SiLC methodology on the Environment Agency's own portfolio may provide practical examples and demonstration. Furthermore, there are also opportunities based on internal knowledge to provide sector/industry type summaries on likely exposure in terms of contaminated land. (Ref. F4)*

*The Environment Agency can also provide advice and information on where to get historical information and guidance. (Ref. F5)*

## 5.4 Insurers

### Liability Insurance and Environmental Risk

The rule in liability insurance is that which is not explicitly excluded is deemed to be included within insurance cover. Insurance principles have been developed to put the insured party under obligation to pass on all relevant information to the insurer to prevent the situation where insured parties could withhold information and prevent some risk or issue being explicitly excluded.

Typically, pollution liability is explicitly excluded from liability insurance cover, which came about in the 1990s after concerns over developments in the USA. However, law courts have interpreted this exclusion, as only applying to pollution that occurred after the exclusion came into force. Furthermore, if the pollution may have manifested itself after the exclusion came into force, but its occurrence can be traced to an event before the exclusion it may be deemed to be included.

Clear understanding of issues and implications for pollution linkages, from source through pathway to target, is therefore required. Insurers do not have the same level of confidence in their knowledge of potential targets for pollution incidents, e.g. the nature and operations of neighbouring businesses that are not their clients, as they do in pollution sources and pathways.

**POTENTIAL  
OPPORTUNITY**

*The representatives of the finance sector interviewed reported that they had difficulty in identifying operations of neighbouring sites (and/or sites in the vicinity) and considering the implications of contamination from and also migrating to these third party sites. There is an opportunity for some training or generation of guidance on identification of an organisation's operation and from this, identification of implications for contamination. The Environment Agency property search project may also provide an opportunity for the Environment Agency in this area. (Ref. F6)*

**Specialist Markets**

Insurance cover for “sensitive industries” has been considered but, based on the experience of one insurer, it is currently not regarded as worth pursuing as an insurance product. An attempt was made by Swiss Re to establish specialist cover for environmentally sensitive industries such as chemicals, based on an “ultimate caution” approach. It did not succeed as firms were generally considered either too poorly run to be insurable or so well run that insurance cover was not really necessary.

**Information Relied Upon**

Insurers obtain information about businesses they are insuring through site visits, inspection of publicly available documents and records, and interrogation of geographical information systems. Their knowledge of environmental impacts has been built up on an industry by industry basis, with a focus on issues pertaining to particular industries, e.g. emissions from chemical processors, rather than taking a generic view of environmental issues across all industries. They stress the need to understand the peculiarities of individual industry sectors.

The quality of site level management is also considered to be a key element for consideration within their assessment and currently this is based on the knowledge of the assessor which could be perceived as a potential weakness.

**POTENTIAL  
OPPORTUNITY**

*As the Environment Agency conducts a considerable volume of site visits by personnel with appropriate training and knowledge there may be an opportunity for the Environment Agency to work with the financial sector to provide such information.*

*A working group may be a good mechanism for achieving this, potentially using the OPRA methodology as an example or starting point. (Ref: F7)*

Independent benchmarks or indices are considered to be of limited value as it is site comparisons that enable an understanding of the balance of risk that most influences insurance decisions. Further, the risks have to be understood within the context of the industry sector, pan-sectoral benchmarks are not meaningful. For instance, an ISO 14001 certificate or a high ranking in an index may give a small degree of comfort that there is management commitment, but it will not influence a decision on whether or not to insure. Furthermore, it was reported that metrics such as fines and prosecutions are

not a good indicator when viewed in isolation, the underlying reasons for the fines/prosecutions being of more interest.

**POTENTIAL OPPORTUNITY**

*With the apparent low value that the sector places on the various benchmarking documents, is there an opportunity for the Environment Agency to use and adapt their benchmarking report “Spotlight” to address the identified concerns and provide the information required by this sector?*

*Of particular importance is the fact that the “Spotlight” is based upon verified performance data rather than qualitative measures of systems or policies. This latter fact being of particular concern to the financial industry, the Environment Agency needs to publicise better the basis of Spotlight so that a wide group understand/perceive its difference from other benchmarking documents. Specific other actions/changes to Spotlight and /or other indices that would also address specific data gaps:*

- *More information on the criteria and methodologies being used for the ranking.*
- *Comparisons within sectors are of more interest than between sectors.*
- *Provision of some information on business size.*
- *Year on year comparisons.*
- *Information on the action that caused the fine is potentially of more interest than the size of the fine itself.*
- *Comparisons at a site level and also between corporations or holding companies. (Ref. F8)*

### **The Association of British Insurers (ABI) and Environmental Risk**

During the 1980s, the ABI established a series of working groups to advise insurers on specific issues. This practice has now declined and the ABI sees itself as more of a lobbying organisation. ABI did establish a working group to develop recommendations for the underwriting of pollution risks, which involved the Environment Agency and the Loss Prevention Council. However, the work of this group has been temporarily shelved following issues such as Y2K and the terrorist attacks of September 2001 and the priority given to the need to address risks associated with Y2K failure and risks from terrorism.

As, in the opinion of our interviewees, the ABI no longer provides a forum for insurers to debate policy issues, there may be inconsistencies across the industry relating to the settlement of claims. For instance, for a particular situation, insurer A may pay out £X, insurer B £Y and insurer C may not pay out. Whilst there is a need to maintain competition between insurers, the absence of a forum to agree broad consensus could be a potential hindrance to progressing improvements.

**POTENTIAL  
OPPORTUNITY**

*Working with the ABI, the Environment Agency could potentially facilitate the insurance industry's understanding of environmental impacts on insurance risk. This would be consistent with the Environment Agency's earlier participation in the ABI working group on underwriting pollution risks (see above). (Ref. F9)*

## 6. OVERALL STUDY FINDINGS AND OPPORTUNITIES

At a broad level, environmental risk assessment and management is occurring within industry typically aligned to some extent with overall business risk management processes. Some common themes and elements were noted in each of the three industrial sectors reviewed:

- Risk assessment and management systems used in practice do not tend to specifically follow any of the formal published risk assessment tools and techniques. The methods however, can be recognised as either qualitative or simple semi-quantitative assessment methods.
- Documentation of processes and methods often lagged behind what is happening in practice. The success and effectiveness of a system should be judged by what and how it is delivering and the degree of integration with the business culture rather than the extent to which a manual has been developed.
- Control, auditing/self assessment and management frameworks were in a number of cases, identified to be more developed and established than a formal risk assessment and evaluation process, with the latter often relying on the knowledge and expertise of a few individuals.

However, taking on board these similarities, the specifics of the structure and extent of alignment were noted to vary slightly within sectors but more importantly significant variations were identified between sectors. External drivers and influences can be identified as being responsible for a number of the cross sector differences.

Based on the sector findings, this research has identified that there are specific areas such as information or knowledge gaps within the sectors. It is likely that effort in these areas such as the Environment Agency providing tools or information to fulfil the formation and knowledge gaps would greatly assist businesses with the adoption of corporate risk management practices. There are therefore five broad areas for consideration:

- The Environment Agency is largely seen as a regulator and primarily deals with industry on a site-by-site basis through the regulatory role. To influence business practices relating to corporate environmental risk management, which is largely an area of good practice, the Environment Agency needs to increase communication with Directors and senior level management.
- The interviewees only considered the Environment Agency as a regulator and not a provider of guidance and advice. To enable the Environment Agency to be able to influence practices in risk management and encourage a culture that supports risk management, it would be advantageous if specific advocacy initiatives are developed to assist in this transition.
- A few current regulatory initiatives and tools developed by the Environment Agency were identified to present opportunities following some adaptation to encourage sound business practices. This would enable the Environment Agency to have some influence through regulatory driven work.

- As the key regulatory body responsible for protecting the environment in England and Wales, development by the Environment Agency of specific internal processes and initiatives that relate to environmental good practice would enable the Environment Agency to act as a leader.
- The finance sector undertakes various environmental appraisals as part of its lending, investing and insurance assessments. Through working with this sector to improve and refine their appraisal mechanisms the Environment Agency will be able to indirectly influence the adoption of environmental practices within industry.

Overall it is considered that there are a number of ways in which the Environment Agency can influence the adoption of sound business and environmental risk management practices both directly with industry and also through working with the financial sector. However, there are some factors that, if not considered, may affect the success of any such measures. These factors are outlined below:

- The Environment Agency is perceived as being a regulator rather than an advisor. To achieve success in influencing industry in the area of corporate risk management, the Environment Agency needs to change this perception into one of being a regulator that also provides practical and pragmatic environmental advice and guidance.
- Each sector interviewed is at a different stage of development in terms of environmental risk knowledge and awareness. Certain measures that are successful within one sector may not therefore automatically transfer to others with the same measure of success. Individual organisation characteristics such as size and culture will also affect the effectiveness of methods of risk management and influencing across sectors.
- The majority of the contact between the Environment Agency and industry at present lies at an individual site level between site environmental managers or representatives and Environment Agency inspectors. Certain business and environment risk practices can be developed through this communication route. However, more contact between inspectors and policy makers within the Environment Agency and especially corporate and Director level individuals within industry is required to enable step changes in business and environmental risk management.

A series of potential opportunities for the Environment Agency to influence industry has been identified and developed through this research. These opportunities have either been identified directly from the industrial sector interviews or in association with interviews that have also been conducted with certain individuals within the Environment Agency. The majority of these have been identified and discussed at the relevant point in the text of this report, however, for ease of reference we have also summarised these opportunities in Table 6.1 under the following five broad goals or categories of opportunities:

- Development of advocacy role in particular, through formal corporate and director level communication.
- Development of specific advocacy initiatives that assist industry (increase engagement).

- Influencing through existing regulatory mechanisms.
- Development of internal processes to demonstrate and support good practice.
- Development of specific initiatives that assist the finance sector to consider environment issues.

**TABLE 6.1: Summary of Potential Opportunities**

**GOAL 1: DEVELOPMENT OF FORMAL ADVOCACY ROLE IN PARTICULAR, THROUGH CORPORATE AND DIRECTOR LEVEL COMMUNICATION**

*The Environment Agency is largely seen as a regulator and primarily deals with industry on a site by site basis through this regulatory role. To influence corporate practices in an area such as risk management, which is largely good business practice, the Environment Agency needs to have formal communication routes that extend beyond those specifically required as a regulator in particular at a Director or corporate manager level.*

Reference	Discussion of Opportunity
G1, C1, C4, W3.	<p><i>Most organisations seek advice from trade associations, and within other Environment Agency initiatives strategic dialogue has already commenced with trade associations. Such interactions have proved beneficial for the Environment Agency and these existing fora provide clear opportunities to promote the benefits of good risk management practices. Supply chain processes should result in the information being cascaded beyond the businesses with whom the Environment Agency deals directly.</i></p> <p><i>The structure and type of dialogue is specific to each trade association and could comprise either formal national level sector agreements, voluntary agreements or informal participation/presence at trade association meetings. Development of further strategic dialogues with trade associations/industry representatives would be recommended both from the perspective of this project but also as part of the Environment Agency's overall vision to become an influencer. This approach is likely to be most successful when the sector is already subject to a volume of regulation policed by the Environment Agency and/or the sector has shown enthusiasm in this area (e.g. some of the top 23 construction contractors have requested this sort of forum).</i></p>
A1	<p><i>Within sectors where organisations have no desire to have increased dialogue with regulators, such as the agricultural sector, use of the supply chain as a means of driving corporate environmental risk management should be considered. For the agricultural sector, specific note has been made of the demands and requirements of key customers such as supermarkets. Interacting with supply chain clients may provide an indirect yet effective manner by which to influence organisations, particularly within the agricultural and construction sectors where there are a large number of small businesses and direct influence by the Environment Agency would not necessarily be effective or efficient.</i></p>
C6	<p><i>Increased site liaison with construction sites could be performed by Environment Agency inspectors. This exercise would assist in raising the environmental awareness and perceptions of environmental risks across the sector and potentially also raise the priority placed on environmental issues within this sector. As a consultee on planning applications, the Environment Agency has opportunities to identify either large or potentially sensitive construction works.</i></p>
C4	<p><i>An interview within the construction sector identified that the Health and Safety Executive (HSE) has developed a strong partnering relationship within one of the organisations. The company concerned reported that they found this partnership to be highly beneficial in particular the quarterly meetings held where good and bad practices within the organisation are identified and discussed by the HSE. The Environment Agency may wish to consider development of similar relationships either with particular companies or industry sector representatives as part of opportunity C1.</i></p>

**TABLE 6.1: Summary of Potential Opportunities**

**GOAL 1: DEVELOPMENT OF FORMAL ADVOCACY ROLE IN PARTICULAR, THROUGH CORPORATE AND DIRECTOR LEVEL COMMUNICATION**

*The Environment Agency is largely seen as a regulator and primarily deals with industry on a site by site basis through this regulatory role. To influence corporate practices in an area such as risk management, which is largely good business practice, the Environment Agency needs to have formal communication routes that extend beyond those specifically required as a regulator in particular at a Director or corporate manager level.*

Reference	Discussion of Opportunity
	<i>Regional and local Environment Agency offices may also wish to consider the potential benefits of developing local partnership agreements through either specific organisations or local trade groups and associations. This is considered to be of particular benefit to industries that are less well regulated and thus typically have less involvement with the Environment Agency, in particular SMEs.</i>
F9	<i>The insurance industry raised some concerns that since the environmental working group has been dissolved by the ABI due to redirection of resources, that the standards and understanding of environmental impacts on insurance risk may be becoming inconsistent. The Environment Agency may have an opportunity to work with the ABI to further develop and facilitate the insurance industry’s understanding of environmental impacts on insurance risk</i>
G3	<i>Although the waste sector interviews identified that non-compliance issues that could affect the ability of a site to maintain a valid site permit were considered to be a significant business risk at all levels within the organisation, it is not known whether this is a common situation across other sectors. It is considered important therefore that the Environment Agency identifies and considers appropriate mechanisms for communicating to Board level members and Financial Directors that IPPC and IPC permits are not just environmental permits but within the regulated sectors are effectively permits to operate. The Environment Agency may consider working in partnership with bodies such as the Institute of Directors, CBI and “100 Group FD” to achieve effective communication on this matter. Furthermore, effective means of communicating this issue to site based Managing Directors and SMEs would also be worth identifying. One such method may be the enhanced director training which all companies are going to have to consider in light of the Higgs Report, and the Institute of Directors moves towards the creation of a Chartered Director status</i>

**TABLE 6.1: Summary of Potential Opportunities**

**GOAL 2: DEVELOPMENT OF SPECIFIC ADVOCACY INITIATIVES THAT ASSIST INDUSTRY (INCREASE ENGAGEMENT)**

*Interviewees only considered the Environment Agency as a regulator and not a provider of guidance and advice. To enable the Environment Agency to be able to influence practices in risk identification and management, URS suggests that the Environment Agency develop specific initiatives that are seen as advocacy.*

Reference	Discussion of Opportunity
G2	<p><i>The Environment Agency has already produced some sector-based codes of practice such as for the metal bending, and timber treatment industries. In each case Environment Agency involvement in producing these guides was reactive. The Environment Agency may wish to consider being proactive and identifying associations with which it can join forces to develop further sector based codes of practice that can encourage sound risk identification and management practices. For instance, interviewees from the construction sector reported that information from the Agency on good practices etc would be considered highly beneficial. Potential partner organisations could include EnviroWise, CIRIA and industry trade associations.</i></p>
G2	<p><i>In its role as a regulator, the Environment Agency posts information on its website relating to recent fines and prosecutions. A number of the interviewees found this information useful to identify poor practices. However, many were of the opinion that presentation of good practices and success stories would also be helpful to provide ideas as to methods of improving performance, and also enable the Environment Agency to praise practices as well as shaming. The web site could be a good forum for the presentation of this information; potentially on the Guidance for Business and Industry page of the Environment Agency web site which is understood to have in the order of 70,000 requests for down loads per month. Spotlight is available on the website and includes both good actions and poor practices but relatively small numbers of instances and mostly applying to large organisations. Links to good practices on the home page as there is for fines/prosecutions would make this information more obvious as well as allow inclusion of a wider range of practices.</i></p> <p><i>Site inspectors perform site visits on a regular basis and therefore hold knowledge relating to the good initiatives and practices that occur within industry. A formal method of communicating such practices through to a central point and guidance as to the type of information that would be beneficial could enable this existing knowledge and information to be collated and posted on the web site.</i></p>
W1	<p><i>Clear communication routes already exist between the Environment Agency and companies within the waste sector. These established routes of communication provide a direct line through which Environment Agency personnel can provide advice and assistance to organisations within this sector. In particular, site inspectors during regulatory inspections could provide added value and thus enhance existing relationships with site managers in terms of providing general guidance and advice during site visits.</i></p>

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*Interviewees only considered the Environment Agency as a regulator and not a provider of guidance and advice. To enable the Environment Agency to be able to influence practices in risk identification and management, URS suggests that the Environment Agency develop specific initiatives that are seen as advocacy.*

Reference	Discussion of Opportunity
C2	<p><i>For industries that are highly regulated such as waste management, considerable guidance exists through licensing application requirements etc. However, for sectors that are less well regulated such as the construction sector the Environment Agency is currently perceived as providing less support. However, these sectors still require Environment Agency time in terms of response to spill incidents and waste management practices. Provision of some guidance documentation could in the medium term reduce poor practices and thus Environment Agency time and resources allocated to addressing problems. The construction interviewees indicated that generation of a periodic publication that provides sector specific information and advice on issues would be highly beneficial within their sector. Of particular interest was:</i></p> <ul style="list-style-type: none"> <li><i>• Practical guidance and advice to overcome real situations.</i></li> <li><i>• Guidance on current legislation, as it relates to the construction industry.</i></li> <li><i>• Best practice guidelines for standard problems.</i></li> <li><i>• Case studies that provide good examples of environment solutions within the industry, or alternatively solutions that have not worked.</i></li> </ul>
A2	<p><i>The Environment Agency is looking to develop a generic “environmental management plan or system” for farms. Therefore a potential opportunity exists to include provisions for risk assessment techniques within this document as a mechanism to identify the aspects or impacts that really require management and control. In addition, care should be taken when developing this to ensure that the text and sense of the document reflect the needs and perceptions of this sector. For instance environmental improvements will provide financial and reputation benefits rather than just less impact to the environment.</i></p>
G4	<p><i>NetRegs is a web site that the Environment Agency is currently developing that is targeted at providing a good practice reference guide for SMEs. This initiative has already seen some considerable interest, based on daily log-ins to the web site and therefore is proving a valuable reference source for industry. There is potential for practical advice on risk assessment and evaluation to be provided via this web site.</i></p>
G5	<p><i>The Environment Agency has a strong policy on looking for mandatory environmental accounting and reporting from industry. More formal communication of this policy at board and Financial Director level within organisations may raise the profile of environmental risks at board level in particular and how these can result in financial risks and liability. A good mechanism for influencing in this area could be through the finance sector.</i></p>

**TABLE 6.1: Summary of Potential Opportunities**

**GOAL 3: INFLUENCING THROUGH EXISTING REGULATORY MECHANISMS**

*To encourage adoption of sound business practice through the Environment Agency's core role of regulation*

Reference	Discussion of Opportunity
W2	<i>The current OPRA for waste management licensing includes provisions for recognising and rewarding for a certified EMS. Is there opportunity to also recognise and reward where the site is part of an organisation that has strong and documented corporate risk identification and management that includes environmental issues? If such recognition could be built into OPRA then this might provide an incentive for organisations to include environmental risks into strong broader business risk management. (If appropriate this opportunity could be applied to all industries covered by OPRA and IPPC)</i>
W4	<i>URS understands that consultation and discussions are underway relating to Operator Monitoring and Assessment (OMA) specifically relating to air emission monitoring. Does this model provide an opportunity for the Environment Agency to use self assessments performed by an organisation as part of the site inspection process? Such an initiative could have the dual benefits of focusing Environment Agency resourcing to more poorly managed organisations and enhancing working partnerships with organisations with strong and robust internal auditing processes. Clearly such an initiative would require careful development of criteria on “auditor” competence and scope of the self assessments as well as development of validation and review mechanisms by the Environment Agency inspectors.</i>
F7	<i>Banks typically assess the quality of site management as part of their overall appraisal methodologies. It was noted that this assessment is currently performed thorough interviews and is based upon the knowledge of the assessor and thus may represent a weakness in the appraisal process. The Environment Agency conducts many site visits by trained personnel is there an opportunity for the Environment Agency to work with the financial sector to provide such information? A working group may be a good mechanism for achieving this, potentially using the OPRA methodology as an example or starting point.</i>

**TABLE 6.1: Summary of Potential Opportunities****GOAL 4: DEVELOPMENT OF INTERNAL PROCESSES TO DEMONSTRATE AND SUPPORT GOOD PRACTICE***Changes to internal process to support and encourage adoption of sound business risk management in industry, i.e. act as a leader*

Reference	Discussion of Opportunity
C5	<i>The Environment Agency procures a significant amount of construction works itself, therefore should be seen to be adhering itself to (and if possible exceeding) best practice and pushing such practice through its supply chain through contract requirements. URS understands that the Environment Agency is working with its top suppliers but to achieve most benefit from this its initiative needs to be better publicised.</i>
G6	<i>The NetRegs project (£3 million over 3 years) is an example of funding that the Environment Agency received for a advocacy initiative. It is understood that the application of the funding considered the potential savings medium to long term in terms of Environment Agency resources that this project might provide. The project targets the provision of good practice advice to SMEs, who in total have been calculated to be responsible for 60-70% of the pollution incidents in the UK and 60-70% of waste arising. Clearly if fewer pollution incidents occurred and improved waste management practices were also achieved, less Environment Agency resources would be required to address these issues. This example demonstrates the benefits of providing a case for an environmental initiative in terms of overall financial and business implications, there may be opportunities for the Environment Agency to get additional funding through presenting applications in these business terms.</i>
G7	<i>The Environment Agency has used a semi-quantitative method of assessing its internal corporate risks as part of its corporate governance process. Communication throughout the organisation of this process and the objectives behind assessing corporate business links would raise the awareness of site inspectors to such processes through a specific example, in turn therefore, site inspectors can then comment on business risk and governance to site contacts during routine visits. (Communication of the process throughout an organisation is also a specific requirement of Turnbull and thus this will also strengthen internal governance processes in line with good practice.)</i>
G8, C6	<i>A common finding with all interviews was the interpretation given to environmental risk within business (i.e. something which gives rise to financial and reputation issues) compared to a more “traditional” or “green” interpretation (i.e. something which causes harm to the environment). This difference in perception is something that all Environment Agency staff should be aware of when communicating with industry. Development of a training module discussing this issue may therefore be of benefit. This affects people at both a policy level who may liaise with corporate and MD/FDs as well as inspectors who would be expected to deal with site personnel and may also be the only contacts with SMEs.</i>

**TABLE 6.1: Summary of Potential Opportunities**

**GOAL 5 DEVELOPMENT OF SPECIFIC INITIATIVES THAT ASSIST THE FINANCE SECTOR TO CONSIDER ENVIRONMENTAL ISSUES**

*The finance sector currently performs various environmental appraisals; certain gaps or concerns expressed within this sector have identified mechanisms by which the Environment Agency could aid improvement and refinement of their environmental appraisal process.*

Reference	Discussion of Opportunity
F1	<i>Equity investors identified that some form of sector or company environmental performance profiles that considered environment impacts, emission information in addition to the more readily available metrics such as fines and prosecutions would be of value to assist in their investment appraisals. Through the site inspections performed across the Environment Agency, the organisation may well be uniquely placed to provide such information and facilitate development of these profiles and thus influence industrial practices through the finance sector.</i>
F2	<i>The financial sector representatives interviewed are interested in dialogue and guidance from parties such as the Environment Agency. It would therefore be beneficial to have periodic, say annual, meetings with key representatives of the financial sector to enable specific issues of concern to be discussed. This forum will enable active discussion on the differing views on materiality of environmental risks and business risks as viewed by the Environment Agency and interested stakeholder groups and the financial/stock market community. This forum would also enable discussions on the different environmental risks that exist at corporate and site level and how financial institutions need to consider these.</i>
F3	<i>Lenders reported that assessment of the environmental risk and performance of a site, in particular associated with potential need for upgrades, is performed by a bank's environmental specialists. The current process by which this is undertaken was identified to be relatively rudimentary and relies upon the expertise of specific individuals performing this analysis. There is therefore an opportunity for a third party, potentially the Environment Agency, to provide guidance on methods by which a firm's environmental performance at a site and corporate level can be judged. Reference to published guidance on environmental auditing standards such as the newly published ISO14015 may assist in this area.</i>
F4	<i>Banks perform assessments of the potential for land that is taken as collateral to be contaminated and thus impact on the land's value. Currently there is no formal guidance used by banks for this assessment. Various documents and guidance exist on scope and coverage of reports and assessments on land and the implications. Examples comprise the Land Contamination Reports as developed by the professional and technical panel who developed the SiLC registration scheme and the often used and referred to American Environmental Assessment Standard, ASTM 1527-00. There is an opportunity for the Environment Agency to work with the finance sector and promote the use of these guidance documents and schemes.</i>
F5, F6	<i>The financial sector, in particular, the lending business identified that they encountered difficulty in identifying historical site information and practices; operations of neighbouring sites (and implications for contamination from and to the subject site). It was reported that they typically relied on local authorities to provide this information and that such information from this source was highly variable. (Clearly this variety in information from the local authorities would be expected to improve over the next few months as contaminated land is better evaluated under the requirements of Part IIA Environmental Protection Act 90). There may be opportunities for the Environment Agency to work with and advise the financial sector on proprietary sources of information that could assist them fill these gaps and concerns. The Environment Agency property</i>

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Reference	Discussion of Opportunity
	<i>search project may also provide an opportunity for the Environment Agency in this area.</i>
F8	<p><i>The finance sector was found to place low value on the various company benchmarking documents such as the BiE index. One reason was that the information typically used is based upon engagement and system development rather than actual performance. The Environment Agency’s benchmarking document “Spotlight” appeared to be less well known by the interviewees; the validation process and provision of ranking on fines and actual reductions in impacts clearly address some of these concerns. This therefore may provide the Environment Agency with an opportunity to amend “Spotlight” to address concerns expressed during the interviews. Additional information which was reported to be helpful included:</i></p> <ul style="list-style-type: none"> <li><i>• Understanding the criteria and data collection methodologies.</i></li> <li><i>• Comparisons within sectors rather than cross sectors.</i></li> <li><i>• Size of businesses and year on year comparisons.</i></li> <li><i>• For fines and prosecutions, what led to the fines (e.g. the root cause) was reported to be of more interest than the fine itself.</i></li> <li><i>• Site information and methods to identify the corporate entity of a site and thus enable corporation performance to be determined as well as at the site level.</i></li> </ul>

## GLOSSARY

**AS/NZS 4360:1999** = Standards Australian & Standards New Zealand (1999) standard on Risk Management which proposes a broad framework for management of all categories of risk affecting companies. The broad structure of the standard comprises risk identification, analysis and evaluation followed by selection of a risk treatment strategy.

**Association of British Insurers (ABI)** = Trade association for the British Insurance Industry.

**ASTM –1527-00** = American standard for Environmental Site Assessments.

**Basel Committee on Banking Supervision** = Provides voluntary codes of conduct and guidance for banks in OECD countries.

**BiE** = Business led campaign for corporate environmental responsibility – part of Business in the Community (BITC). Its aim is to inspire companies to regard environmental responsibility as an essential part of business excellence.

**BiE Index** = The survey compares the extent to which participants are engaged on environmental management and how they assess and manage their environmental performance in key areas of environmental impact.

**BREEAM** = Building and Research Establishment Environmental Assessment Method (BREEAM). An assessment developed to evaluate a building's environmental performance.

**Business Risk** = Risks in the form of threats to the business being able to fulfil its objectives and to the interest of its investors. Also risks a business is prepared to take in grasping opportunities to grow the business, through increasing profits or buying other businesses, in order to increase its investors' value.

**BV-SERM Risk Rating System** = A semi-quantitative rating system developed by the Safety and Environmental Risk Management (SERM) rating agency, based upon credit risk rating techniques, rating performance on a 27 point scale from AAA+ to C-

**CIRIA** = The Construction Industry Research and Information Association (CIRIA) is a UK-based research association concerned with improving the performance of all involved with construction and the environment.

**CFC** = Chlorofluorohydrocarbon, as group of ozone depleting substances.

**Corporate Governance** = Term used to describe the means by which company directors execute direction and control over their company.

**Cost-benefit analysis** = A financial modelling tool that estimates and totals up the equivalent monetary value of the benefits and costs, to the community, of projects to establish whether they are worthwhile.

**DEFRA** = Department for Environment, Food and Rural Affairs.

**Due Diligence** = Process of identifying risks and liabilities, often undertaken prior to property acquisition and divestiture.

**EMAS** = Eco-Management and Audit Scheme (EMAS). The European counterpart of ISO 14001.

**Environmental Risk** =

Business context = risk of financial exposures, loss of reputation.

Environmental context = risk of adverse impact on the natural environment.

**Environmental Management System (EMS)** = The part of the overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.

**EMS** = see above.

**Equity Investment** = Investment through the purchase of shares.

**EU Liability Directive** = EU proposal for a directive covering environmental liability, including identification of responsibility.

**European Investment Fund** = The European Investment Fund is the European Union's specialized financial institution providing venture capital and guarantee instruments for the creation, growth and development of Small and Medium-sized Enterprises (SMEs).

**FMEA** = Failure Mode and Effects Analysis (FMEA) is a technique to test impact significance that have been recommended for management and improvement upon.

**FTSE** = FTSE devise and calculate indices. The FTSE UK series includes the FTSE100, FTSE 250, FTSE 350, FTSE 350 Industry Sectors, FTSE SmallCap and FTSE All Share indices, which are designed to represent the performance of UK companies, providing investors with a comprehensive set of indices which measure the performance of the major capital and industry segments of the UK market.

**Financial Executives International (FEI)** = Professional association for senior financial executives.

**Forestry Stewardship Council (FSC)** = An international non-profit organisation founded to support environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

**Geographical Information Systems (GIS)** = A computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, i.e. data identified according to their locations.

**Government Construction Client Panel (GCCP)** = Panel set up to develop the governments strategy for sustainable construction by producing a sustainability action plan ‘Achieving sustainability on construction procurement’.

**HALO/RALO** = A landfill and landfill gas risk assessments.

**HCFC** = Halochlorofluorohydrocarbons, a group of ozone depleting substances.

**Holistic** = Consideration of all elements.

**ICAEW** = Institute of Chartered Accountants England and Wales (ICAEW), this body regulates the accounting profession in England and Wales.

**ICF Kaiser** = A US Environmental and Engineering Consultancy.

**IPC** = Integrated Pollution Control (IPC) forms part of the Environmental Protection Act 1990, Part 1. IPC covers all major solid, liquid and gaseous emissions to air, land and water from the most polluting and complex industrial processes (Part A processes). This part of the EPA will be revoked once all processes prescribed for IPC have transferred to control under the Pollution Prevention Control (England and Wales) Regulations 2000.

**IPPC** = September 1996, EU Environment Ministers formally adopted a directive on Integrated Pollution Prevention and Control (IPPC). The main purpose of the directive is to prevent and control pollution from listed activities. This is done by preventing, or where that is not practicable, reducing emissions to air, water and land by potentially polluting industrial and other installations.

**ISO14001** = The International Organisation for Standardization (ISO) ISO 14000 series of environmental management standards, published in 1997, specifies requirements for an environmental management system, to enable an organisation to formulate a policy and objectives taking into account legislative requirements and information about significant environmental impacts. It applies to those environmental aspects which the organisation can control and over which it can be expected to have an influence.

**ISO 14015** = Standard that provides guidance on the environmental assessments of sites and entities.

**Key Performance Indicators (KPIs)** = Data sets against which a project or a company can benchmark its performance.

**Management System** = Formal framework for ‘day to day’ business procedures and processes.

**Marsh Risk Framework** = Risk and insurance consulting firm Marsh have developed a reputation risk framework forming part of their ‘reputation@risk’ portfolio of services. The focus of this framework is not strictly environmental, however, it does consider stakeholder perception risks, which are generally considered to be influenced by environmental performance.

**Mitigation** = Make or become less severe or harsh.

**Monte Carlo** = Mathematical technique for numerically solving differential equations. It is used extensively in finance for such tasks as pricing derivatives or estimating the value at risk of a portfolio. It is typically used in a financial setting to solve problems, which require that one or more statistics of a probability distribution be calculated.

**NEBOSH Environmental Certificate** = National Examination Board of Occupational Safety and Health (NEBOSH) Environmental Certificate, designed to equip health and safety practitioners with an appropriate professional level qualification to undertake responsibilities in relation to the risks of damage to the environment posed by work activities.

**NGOs** = Non-governmental organisations.

**OECD** = Organisation for Economic Cooperation and Development.

**OPRA** = The Operator and Pollution Risk Appraisal (OPRA) methodology was developed by the Environment Agency is a semi-quantitative approach to risk assessment. It is used to assess the relative environmental pollution risk or hazard of a facility as well as providing a measure of the facilities management system.

**Part IIA of Environmental Protection Act, 1990** = Part IIA of the Environmental Protection Act is a regulatory regime for the regulation of contaminated land. Its main purpose is to provide an improved system for the identification of land that is posing unacceptable risks to health or the environment, and for securing remediation where such risks cannot be controlled by other means.

**PEST Factors** = External factors that influence business risk at a macro level, (politics/legal, economic, social and technological).

**Porters Five Forces** = External factors that influence business risk at a micro level, (new entrants, competitors, buyers, substitute products, suppliers).

**Qualitative** = Uses descriptive terms to define the likelihood and consequences of risk events.

**Quantitative** = Assigning numerical scores to risk issues based on a qualitative assessment of likelihood and consequence.

**Risk** = a measure of the significance of uncertain or unpredictable events as perceived by a potentially affected party. This significance is usually assessed based upon a combination of the probability or likelihood that such an event will occur, together with the severity of its outcome.

**Risk Appetite** = An organisations attitude to risk i.e. risk adverse, tend to mitigate, live with risk.

**RISQUE** = Risk Identification Strategy using Quantitative Evaluation (RISQUE) uses financial assessment of environmental and social risks to create cost-probability profiles for companies, projects and transactions.

**‘sell side’** = The brokers selling the shares.

**Semi-Quantitative** = Direct comparison of observed values with generic ‘safe’ or ‘acceptable’ values without detailed consideration of the circumstances of the assessment.

**SiLC Registration Scheme** = Specialists in Land Condition (SiLC) registration scheme is the first UK registration scheme for contaminated land professionals and sets a national standard for users of the Land Condition Record (LCR), in order to ensure consistency, clarity, and standardization in handling land contamination data and other related documentation. An individual who becomes registered will be a "Specialist in Land Condition" and be known as a SiLC. The use of a registered SiLC will give the highest level of credibility to the information that is included in the LCR.

**SMEs** = Small and Medium sized enterprises (SMEs) with less than 250 employees.

**‘Spotlight’** = The Environment Agency’s ‘Spotlight on Business Environmental Performance’ report is an assessment of good and poor environmental performance by businesses that the Agency regulates in England and Wales.

**SRI** = Socially Responsible Investing.

**Stockbrokers’ Analysts** = Produce reports on firms for which the brokers have been appointed to sell its shares and these reports are issued to inform investors.

**Stockbrokers** = Sell shares on behalf of a firm to whom they are appointed as its stockbroker.

**Supply Chain** = Customers and suppliers.

**Synergistic** = Working together of two or more individuals to produce an effect greater than the sum of their individual effects.

**The Environment Loan Support Scheme** = Offers cheaper finance for environmentally beneficial projects, initiatives or performance.

**Turnbull Guidance** = The "Internal Control Guidance for Directors on the Combined Code." is guidance on risk management that is sometimes referred to as the "Turnbull Guidance" after the chairman of the working party that developed it. This guidance calls for all companies listed on the London Stock Exchange to have implemented a pervasive risk management plan for their businesses.

**USA Standard and Poor 500 Index** = Consists of 500 stocks chosen for market size, liquidity, and industry group representation. It is a market-value weighted index (stock price times number of shares outstanding), with each stock's weight in the

Index proportionate to its market value. The "500" is one of the most widely used benchmarks of U.S. equity performance.

**Waste Management Licensing Regime** = The Waste Management Licensing Regulations 1994 set out the procedure for obtaining a licence and also deals with revocations and suspensions of licences, appeals, public registers and the definition of fit and proper persons. The Regulations also list the offences under which if a person has been convicted they would not be considered a fit and proper person to be a licence holder.

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## Additional Reference Documents

In some areas within the text we have identified that readers may be interested in reading further about the specific topic or issue. The list below provides a suggested list of additional reading in these areas.

- **Guidance on risk management practices**

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- **Introduction to the Context of Environmental Risk**

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**APPENDIX A**  
**WASTE SECTOR PROFILE**

## CONTENTS

A 1	Background	69
A 2	Introduction	69
A 3	Interviews	70
A 4	Management Structure	70
A 5	Risk Assessment	71
A 6	Risk Appetite	74
A 7	Risk Management	74
A 8	<b>Control environment and Control Activities</b>	75
A 9	Internal and External Communication	76
A 10	Monitoring	78
A 11	Support from Third Parties	79
A 12	Summary	79

## LIST OF BOXES

Box A 2.1:	Background to the Waste Sector
Box A 4.1:	Generic Management Structure
Box A 5.1:	Good Management Practice
Box A 6.1:	Good Management Practice
Box A 7.1:	Good Management Practice
Box A 7.2:	Good Management Practice
Box A 8.1:	What Makes a Good Control Mechanism?
Box A 9.1:	Good Management Practice
Box A 10.1:	Good Management Practice

## WASTE SECTOR PROFILE

### A 1 BACKGROUND

The waste sector profile was produced as an element of Environment Agency Research and Development Project E2-056 on Environmental Risk and Corporate Governance. The overall project objective was to review current practices in corporate environmental risk management in the broader context of business risk management and to provide a sector-based review with a view to informing the Environment Agency's work on corporate governance. The specific objectives of the sector reviews were to:

- Develop an understanding of the current level of guidance, activity and practical status of formalised environmental risk management; and,
- Identify opportunities for the Environment Agency to influence risk management at corporate level within each sector.

The Environment Agency identified four sectors as being the key sectors it wishes to influence; waste, construction, agriculture and finance. Within the first three sectors, the focus was on risk management for the organisations' business, however, within the finance sector a key focus was to identify how the practices and policies within investment, insurance and lending could in turn influence other industries.

The methodology of works undertaken comprised three key aspects:

- URS conducted interviews with appropriate directors and/or managers from a selection of organisations within each of the identified sectors;
- The interviewer was a senior individual with knowledge of the appropriate sector and the likely risks and challenges being faced within it; and,
- A standard questionnaire was developed and used to interview each selected organisation to provide consistency across the sectors (Appendix E).

### A 2 INTRODUCTION

The waste management sector:

- comprises organisations varying in size from small, locally based to large international groups;
- covers a broad range of activities such as collection, treatment, disposal, recovery, recycling and re-use of waste, and
- has an annual turnover of approximately £4 billion, equivalent to about 0.5% of the British economy.

#### **Box A 2.1: Background to the Waste Sector**

The industry considers itself to be highly regulated and thus compliance with regulation and more specifically site-based permits, for example, waste management licences, has been identified as a key driver for robust environmental management provisions.

With regulation as a driver, the environmental risk management policies and practices within the interviewed organisations tended to be relatively systematic and holistic in terms of integration with other business risks and coverage of the management systems. Based on the findings of the interviews, URS has identified both good management practices and also potential opportunities for the Environment Agency to influence the adoption of sound corporate environmental risk management.

### **A 3 INTERVIEWS**

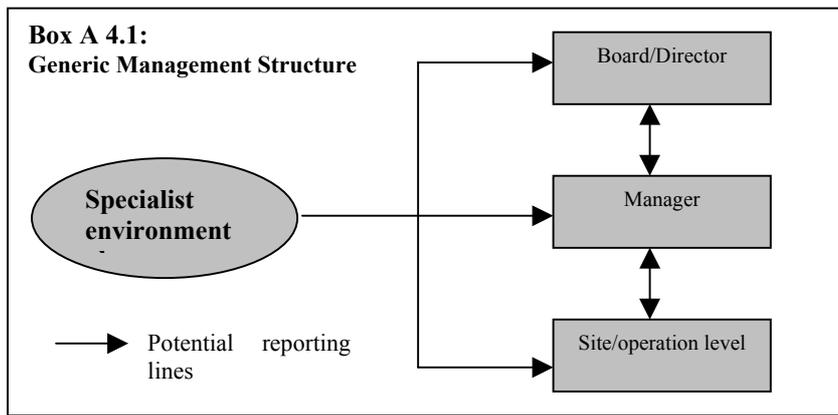
The rationale for selecting companies to approach as part of this project was based on obtaining a relatively broad representation across the business, both in terms of company size, nature of operations and profile/reputation. The list below identifies those organisations with whom URS was able to meet and conduct a structured interview:

1. A medium to large multi-service waste management organisation with a turnover of more than £100 million and with over 600 employees. Operations cover landfilling, waste collection, incineration and power generation from landfill gas. The organisation is the waste management division of a FTSE350 company.
2. Specialised recycling organisation (single solid waste stream) with transfer station-type operations and formally exempt from the Waste Management Licensing Regulations 1994. The organisation comprises the waste management division of a large UK based holding company (FTSE350) and employs in the order of 300 employees.
3. UK based scrap metal recycling/car recovery business with over 400 employees. The organisation is FTSE registered and has no parent or subsidiaries.
4. Waste and recycling service organisation focusing on the collection and recycling of solid household and general wastes. The waste operations, that employ approximately 200 staff, comprise approximately two thirds of this privately owned UK business, which has a turnover of some £25 million.
5. Large European organisation that provides an extensive range of waste management services. UK group is divided on operational terms between waste and chemical services. The organisation employs 2000 staff in the UK with an annual turnover of approximately £500 million and is a FTSE350 registered company.
6. A small recycling and waste management organisation operating waste management transfer stations and landfills. Privately owned UK based organisation that employs approximately 200 staff with an annual turnover of 20 million. There is a planned five-year growth of £100 million.

### **A 4 MANAGEMENT STRUCTURE**

Management structure and level of responsibility for environmental and business risk appeared to vary in detail slightly within the interviewed organisations, however in each case the structure was relatively flat, and with one exception followed operational responsibility. Within the largest organisation interviewed, the operational line responsibility structure for environmental risk was supplemented by two committees:

- independent Environmental Advisory Board that had in its association six external and two internal members, involved in third-party monitoring and for advice sharing with the Corporate Environmental Committee; and
- Corporate Environmental Committee responsible for driving internal environmental policy, advised the CEO and interacted with the independent Environmental Advisory Board.



One of the six organisations was noted to have a slightly different approach, with responsibility assigned to a single individual who reported to the Managing Director and also had responsibility for many other “non-operational” issues such as quality, health and safety and utilities.

It was also apparent within a number of the companies interviewed, that there was an active process for acquiring new sites, driven either by business expansion or the need for replacement facilities as available landfill volumes decrease.

The responsibility for business risk identification (including environmental risk) tended to lie with individuals different from those with responsibility for managing the operational risk. Within one of the organisations, identification was the responsibility of individuals trained to NEBOSH Environmental Certificate level.

*For each of the businesses there is a clear individual, or focused set of individuals, responsible for environmental risk identification and management. In general, these individuals also appeared to be those most likely to be involved in discussions with the Environment Agency generally regarding obtaining waste management licences, which in each case is managed from the corporate office.*

**POINT TO NOTE**

## **A 5 RISK ASSESSMENT**

For all but one of the organisations, risk identification for environmental and certain business issues tended to be at more of an operational or site level, and associated with the financial or reputational implications of not complying with legislative requirements; in particular the terms of site licences. However, identification of the risks at this level did not appear to indicate that this process was removed from corporate risk assessment and management, but more the perception that directors were viewing environmental business risks as being primarily operational and site led. The exception to this was apparent in one organisation that displayed a formal risk assessment process considering risks at several levels (Box A 5.1).

**Box A 5.1: Good Management Practice**

Clear, formal, documented business risk assessment process, which included environmental issues as a core element of the process. Within this organisation the risk assessment process considers risks from both a service led vision (e.g. landfill, incineration, transfer) as well as other types of issues (e.g. environmental, sector consolidation, finance).

Documented risk assessment processes did not appear to exist for business or environmental issues (with exception to the organisation identified in Box A 5.1), and tended to be conducted based on an individual's knowledge and experience by a qualitative or very basic semi-quantitative methodology. For two of the organisations, there did, however, appear to be a formal risk evaluation process, but it had not been documented. For another organisation, it appeared that the waste management application process and associated impact studies comprised the sole methodology for identifying risks, indicating that this company is driven solely by legislative compliance. However, documented, semi-quantitative health and safety risk assessments were performed in several organisations with a methodology that could be relatively simply adapted to provide a more robust and demonstrated environmental risk assessment process.

Based on the discussions of environmental risk identified and those that are considered to be of greatest concern, the lack of any documented risk assessment processes does not appear to have resulted in significant environmental risks being excluded from consideration. However, adequate documentation is important for maintaining a sound knowledge base within an organisation and is also particularly necessary when there is a change in personnel.

Evidence that the waste management licence regime has an impact on risk assessment was apparent within several organisations interviewed. There tended to be a focus on identification of environmental and other business risks at the site selection or planning stage, to facilitate mitigation through either physical or operational measures. This focus may well be attributed to the regulatory framework within which this sector operates and the often transitory nature of sites as an operational concern such as landfills. Furthermore, for two of the organisations interviewed, it was clear that environmental risks do form part of the organisation's pre-acquisition or due diligence liability assessment and that circumstances of environmental issues, either existing or potential due to site sensitivities, affect the driving of business decisions.

Environmental risks were reported as important in each case where the key operational sites were covered by waste management licences. Within the smaller organisations however, environmental risk was often seen as a slightly lower priority than health and safety, except when associated with a potential for loss of a waste management licence as clearly this would have a direct and clear implication for the business. Within the single company where the sites had formal exemption from the requirement for waste management licensing, environmental risk was not seen as very significant, although the comment was that its significance and thus time allocated to it had increased rapidly over the last few years. This would appear to indicate that the approach of focusing licensing on the potentially higher impact sites or processes is raising the profile of environmental risks at these sites, and thus achieving a good environmental outcome.

*Within industry, environmental risks are considered to be significant in terms of potential for adverse impacts to financial or reputation rather than solely based on the potential for adverse impact to the natural environment. When talking to industry at both a corporate and site level, Environment Agency personnel should remember and continue to be aware of this perception of industry and where possible discuss required improvements/actions in terms of financial and reputation benefits that they could bring as well as in terms of reducing impact to the environment.*

**POINT TO NOTE**

The industry appears to be significantly influenced by regulation, in particular, the provisions of the Waste Management Licensing Regulations 1994. As such, focus is very much on maintaining and monitoring compliance with the provisions of these regulations and associated site permits. Corporate risks in the main appear to be focused on the regulatory compliance of site operations, with significant attention being paid to engineering sites to minimise risk, reviewing and mitigating risks during the site permit application process and during the development of the associated working plan. Opportunities therefore may exist for the Environment Agency to influence through its core regulatory role.

**POTENTIAL OPPORTUNITY**

*The current OPRA for waste management licensing includes provisions for recognising and rewarding for a certified EMS (ISO14001 or EMAS). Is there also opportunity to recognise and reward where the site is part of an organisation that has strong and documented corporate business risk identification and management processes that include environmental risks? If such recognition was built into OPRA, then this might provide incentives for organisations to include environmental risks in broader business risk management.*

*A number of opportunities arising for the waste sector are driven largely by the way that regulations require broad site-based permits. There is therefore a potential that these opportunities can be extrapolated across a wider industry base, specifically those subject to the IPPC regime.*

**POINT TO NOTE**

## **A 6 RISK APPETITE**

All six organisations interviewed indicated that their policy was to physically mitigate risk where commercially and financially viable e.g. through engineered controls. Where this was not possible, or to enable management of residual risks, managerial or operational controls would be applied. The philosophy therefore was to apply engineered physical controls in preference to relying on operational and thus procedural controls.

Typically the initial risk assessment process undertaken was used to identify what controls might be needed i.e. at a planning stage. Following the introduction of engineered controls, most organisations, revised the risk assessment to assess the potential significance of the residual risks.

### **Box A 6.1: Good Management Practice**

Risks within a category are evaluated in terms of the probability and financial implications of an event. For high or significant risks, mitigation measures that are in place (or for new risks, these that can be put in place) are then considered; the risk evaluation “score” or rating is re-calculated and the level of residual risk assigned.

## **A 7 RISK MANAGEMENT**

A clear linkage between environmental risk management systems and business risk management systems was really only evident within one of the organisations interviewed. Within this organisation environmental risk management is clearly a line management function with all controls and responsibility resting within the operational reporting line. Environmental specific tools have been developed for management purposes (see monitoring and control) but these are for the use of operations personnel. The largest organisation had in place key environmental performance indicators that were reported against annually in a corporate environmental report.

Whilst the day-to-day environmental risk management within another organisation appears to be integrated with quality, health and safety and operational risk management, the control and monitoring of performance was less clearly integrated. Within the other organisations some linkages between environmental, health and safety and technical/quality risk management systems were evident. It is of note that within one organisation, whilst the environmental risk management system appeared the least integrated with other systems, it was also the most comprehensive and formalised.

No formal alignment of risk management systems and objectives and targets appeared to exist within the organisations. There also did not appear to be specific alignment between business and environmental objectives. Environmental objectives and targets were identified to have been clearly set within four organisations but did not appear to have been driven by the risk assessment processes. The most formalised objective and target setting process was noted to have been developed at two levels and has been identified as a good management practice and is outlined below (Box A 7.1).

### **Box A 7.1: Good Management Practice**

- Corporate: which focused on improvements and changes to the systems to deliver more effective and efficient control on environmental issues (i.e. ACTIVITIES OR SYSTEMS); and
- Site/Operational: which focused on improvements to operational or physical site controls to improve performance (i.e. OUTCOMES).

Generally, risks tended to be assessed at the start of a process/site and then following key changes in activities or legislation. Two organisations demonstrated some additional level of risk review with one being identified as a good management practice (Box A 7.2):

### **Box A 7.2: Good Management Practice**

A site level audit/monitoring process within one company was identified to use a risk assessment type approach to rank the findings. So on a frequent basis the changes to site practices/operations and their subsequent effect on overall risk are reviewed at some level within this system. Furthermore, if an issue is not dealt with by the next audit the risk ranking is re-evaluated and often raised to encourage prompt resolution.

Also, a formal and documented review of the top-level business risk assessment process is undertaken at the second largest company interviewed. This process was reported by the interviewee as being developed over the last few years to address the revised corporate governance requirements within the Turnbull Guidance.

Knowledge of risks and the organisations' approach to risk and thus acceptability appeared to be highly variable from informal communication to a more formal need to know (i.e. limited) basis. This appeared one of the least defined areas of risk management.

*Site planning appears to be at a time when a significant amount of risk identification, evaluation and mitigation is considered. The timing of providing the advice and information can therefore be critical to the manner in which it might be received.*

**POINT TO NOTE**

## **A 8 CONTROL ENVIRONMENT AND CONTROL ACTIVITIES**

Formal control activities appeared to exist within all of the organisations. These systems were based on site/operational level inspections and self assessments/internal audits, with formal reporting routes to the Managing Directors and Executive Committees/Teams. These control activities reflected the main finding of the risk assessment process, in that the focus really appears to be on operational issues

primarily, due to the organisations' size and perception of business/environmental risks. The level of the self-assessment in terms of independence from the site, training of the auditors, formal purpose varied between the organisations but the variations also reflected the general culture of the organisation and the formalisation of the overall risk management system. However, several good management practices were identified, and a culmination of these are outlined in Box A 8.1 below.

Individuals with whom discussions were held in each organisation appeared to have a good understanding and knowledge of the environmental risks within their businesses and practical knowledge to enable problem solving.

**Box A 8.1: What makes a good control mechanism?**

- monthly self assessment;
- 'risk-ranking' to ensure risks not immediately managed are not continually overlooked;
- formal review of environmental reporting at senior level;
- weekly environmental inspections by senior management; and
- independent audits undertaken on quarterly/annual basis.

Within all of the organisations the distribution of responsibility appeared to be well defined and in the main, the approach to delegation of decision making and thus accountability appears to be based on an inclusive process where advice and assistance is readily available, thus fostering trust at all levels.

The training of employees appeared particularly proactive at two of the organisations, where efforts were being made to provide more than the basic environmental awareness training to all employees. At one of these organisations, all operatives participate in a one day training course that considers legislation, transportation, operational procedures, Environment Agency inspections, waste transfer documentation and concludes with a small test. Within another organisation, site managers are encouraged to participate in a formal five day health and safety training course that was reported to focus on practical aspects and from a review of the course material, also spent time discussing the role of risk assessment and different methodologies. The smallest organisation indicated that all individuals involved in risk identification are trained at the level of NEBOSH Environment Certificate. Furthermore, the examples of risks and mitigation measures provided in the course materials did go beyond strict health and safety and included some more environmental and general operational risks.

## **A 9 INTERNAL AND EXTERNAL COMMUNICATION**

### **A 9.1 Internal Communication**

Reporting of information to board level was only direct from the individuals interviewed within two organisations due to the presence of parent companies and/or private ownership. However, clear, defined routes for reporting standard performance metrics such as accidents, incidents and fines on Environment Agency visits all appeared to exist. Discussions indicated that the implications of changes to operations

and legislation would form the part of meetings held by the executive management teams but that within most organisations, this appeared relatively informal. However, given the presence in these meetings of the environmental advisor or Director for two of the organisations the discussion is likely to be focused on risks and issues of importance and relevance. Within the second largest organisation, executive meetings appeared to be more formalised with the corporate risk review being discussed quarterly, in addition to the more formal annual review.

Although relatively informal in four of the six organisations there appeared to be well defined routes for communicated regulatory breaches or potential issues of concern. More formal routes were clearly defined in management systems within two of the organisations, although it was reported that for regulatory breaches the formal documented routes tended just to back up more informal notification and discussions. This informal notification appeared to be occurring as the Managers and Directors of the organisation wished to know of potential issues and problems as early and promptly as possible.

## **A 9.2 External Communication**

In the main, external communications at a corporate level by the organisations tended to be focused on provision of information either to regulators due to legislative requirements or on a “need to know” basis or specifically in response to a request. However, two organisations did indicate that regular stakeholder meetings were undertaken to address specific concerns, including general neighbourhood issues of odour and noise. Neighbourliness was also one of these organisation’s corporate objectives and targets. Some information on performance was noted in annual reports for two of the organisations, primarily relating to policies and systems rather than performance or corporate risks and environmental governance. For these organisations the provision of information from a corporate performance and risk management perspective appeared largely to be reactive.

However, the two larger organisations were noted to produce corporate environmental reports. The largest organisation reported against its key performance indicators in relation to, for example, air and water quality and transport, and also provided case studies.

### **Box A 9.1: Good Management Practice**

The largest organisation had in place an independent Environmental Advisory Board that produced an annual report, independent of the organisation and also provided impartial comments on the environmental management practices and performances of the organisation.

Environmental performance information and data were provided by the other organisation to its parent organisation for inclusion in an annual environmental report. It is unclear if any of these reports specifically discuss corporate governance and risk management.

At site level however, commitment to community involvement through local liaison groups was noted, although the effectiveness of these groups has not been reviewed as part of this study.

It should also be noted that individuals from two organisations were active participants in industry bodies and associations and thus take roles in providing information/advice to other less proactive organisations and are also keen to assist in shaping policy.

<b>POTENTIAL OPPORTUNITIES</b>	<p><i>Clear communication routes already exist between the Environment Agency and waste sector organisations. These established routes of communication provide a direct line through which Environment Agency personnel can provide advice and assistance to organisations within this sector, for example:</i></p> <ul style="list-style-type: none"><li>• <i>Site inspectors could provide added value and thus develop stronger working relationships with site managers in terms of providing general and informal guidance and advice on managing and controlling risks during site visits and generally increase rapport. Examples of the guidance that could be provided include good practices, solutions that have proved successful on other sites; and</i></li><li>• <i>Communication and general advice during the permit application stage with the corporate or specialist technical advisors within the organisation. This individual may well have a broader influence within the organisation and is typically at a group of higher level within the organisation. Communication with this individual associated with corporate risk management may provide a better interface and enable engagement with Financial Directors.</i></li></ul>
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## **A 10 MONITORING**

Monitoring and review mechanisms do appear to be embedded in management systems within each of the six organisations interviewed. Formal reviews of performance, policies and overall strategy was reported to be performed by the senior or executive management teams. What was not specifically clear, within some of the organisations was whether formal systems then exist to ensure that appropriate changes were made to reflect revised strategies. However, one interesting mechanism for monitoring and review was identified and is described in Box A 10.1:

### **Box A 10.1: Good Management Practices**

A site level assessment/monitoring process used a risk assessment type approach to rank the findings. On a frequent basis, internal audits are performed either weekly or fortnightly, changes to site practices/operations and their subsequent effect on overall risk is reviewed at some level within this system. Furthermore, if an issue is not dealt with by the next audit risk ranking is re-evaluated and often raised to encourage prompt resolution. (It is important to note that a limitation of this process was that their auditing process only comprised compliance and nuisance issues, as opposed to waste management licences.)

## A 11 SUPPORT FROM THIRD PARTIES

None of the companies considered that the Environment Agency provided support for corporate risk management and several did not consider that this was within the role as a regulator. There was also a comment from two organisations that increased consistency both in regulation and enforcement across regions and between organisations would enable more use of common working plans and thus working practices as far as site locations would permit and that this would encourage development of corporate driven practices. In addition, a comment was also made that there had been occasions when Environment Agency decisions had been based on strict following of rules rather than considering the environmental outcomes and this was frustrating when changes to plans were proposed to provide environmental improvements. Further to this it was indicated that the Environment Agency should take a more proactive approach to advising the regulated rather than purely regulating.

Another comment indicated that the Environment Agency relies too heavily on the Internet as a form of advice and guidance and should encourage queries regarding environmental risk through direct contact with officers within the Environment Agency.

*A common message was that the Environmental Agency does not provide advice or assistance and is only seen as a regulator.*

**POINTS TO NOTE**

Waste industry associations were referred to by each organisation as being a source of useful advice and support.

### **POTENTIAL OPPORTUNITIES**

*Each organisation interviewed reported that they did seek advice and/or were active within the waste industry trade associations. If the Environment Agency could have involvement with such parties whether through conferences or providing advice and guiding information at regular trade association meetings, it is likely that these suggestions would be disseminated throughout the sector.*

## A 12 SUMMARY

- The representatives considered themselves to be highly regulated through the Waste Management Licensing regime. Thus overall business and environmental risk management process appeared to be focused on maintaining compliance with these permits and not creating adverse public opinion.
- There appears to be a key focus on risk identification and mitigation at an early stage in the development of waste management facilities. This starts during the site selection or site development phases with the objectives of “designing out” risk through physical control methods such as landfill lining and also continues into the preparation of permit application and associated working plans in terms of managerial control techniques.

- With the background of regulation, methods of risk identification, assessment, control and monitoring appeared to be well developed. However, in some instances the level of documentation lagged behind the process development.
- Interaction with the Environment Agency was identified:
  - at a site level associated with day to day operations and compliance with permit conditions;
  - by a specialist or corporate level individual associated with permit revisions or applications.
- Monitoring of compliance and site risks is performed through site based auditing at all organisations although the frequency, scope and responsibility for performing the audit varied. The results of these audits are also communicated upwards to directors or managers.
- A common message was that the Environment Agency does not provide advice or assistance and is only seen as a regulator.

**APPENDIX B**  
**CONSTRUCTION SECTOR PROFILE**

# CONTENTS

<b>B 1</b>	Background	<b>83</b>
<b>B 2</b>	Introduction	<b>83</b>
<b>B 3</b>	Interviews	<b>84</b>
<b>B 4</b>	Management Structure	<b>84</b>
<b>B 5</b>	Risk Assessment	<b>85</b>
<b>B 6</b>	Risk Appetite	<b>87</b>
<b>B 7</b>	Risk Management	<b>87</b>
<b>B 8</b>	<b>Control Environment and Control Activities</b>	<b>88</b>
<b>B 9</b>	Internal and External Information	<b>89</b>
<b>B 10</b>	Monitoring	<b>90</b>
<b>B 11</b>	Support from Third Parties	<b>91</b>
<b>B 12</b>	Summary	<b>92</b>

## LIST OF BOXES

Box B 2.1: Background to the Construction Sector

# CONSTRUCTION SECTOR PROFILE

## B 1 BACKGROUND

The construction sector profile was produced as an element of Research and Development Project E2-056 on Environmental Risk and Corporate Governance. The overall project objective was to review current practices in corporate environmental risk management in the broader context of business risk management and to provide a sector-based review with a view to informing the Environment Agency's work on corporate governance. The specific objectives of the sector reviews were to:

- Develop an understanding of the current level of guidance, activity and practical status of formalised environmental risk management; and,
- Identify opportunities for the Environment Agency to influence risk management at corporate level within each sector.

The Environment Agency identified four sectors as being the key sectors it wishes to influence; waste, construction, agriculture and finance. Within the first three sectors, the focus was on risk management for the organisations' business, however, within the finance sector a key focus was to identify how the practices and policies within investment, insurance and lending could in turn influence other industries.

The methodology of the works undertaken comprised three key aspects:

- URS conducted interviews with appropriate directors and/or managers from a selection of organisations within each of the identified sectors;
- The interviewer was a senior individual with knowledge of the appropriate sector and the likely risks and challenges being faced within it; and,
- A standard questionnaire was developed and used to interview each selected organisation to provide consistency within and across the sectors (Appendix E).

## B 2 INTRODUCTION

The construction industry comprises:

- mainly small organisations with less than three employees (estimated at 83% of the industry); and
- less than 1% of the sector comprises organisations with more than one hundred people.

The construction industry provides one-tenth of the UK's gross domestic product and employs an estimated 1.4 million people.

### **Box B 2.1: Background to the Construction Sector**

The sector is highly devolved with many smaller organisations providing specialist trades and skills being subcontracted by larger organisations and private individuals to carry out specific work.

For the larger organisations, corporate governance and risk management, particularly relating to health and safety is moving up the corporate agenda. Many of the well known larger construction organisations have produced environmental (and social) reports. These are in their infancy in the construction industry and the style and content of the reports reflects this. The reports are being driven by the Government's recent focus on sustainable construction through public procurement initiatives used by the Ministry of Defence and the National Health Service. Also, there has been a certain amount of criticism levelled at the construction sector from investment funds concerning a lack of transparency and attention to softer issues such as environmental and social risk management. Although the sector is in a current growth phase, the profit margins achieved by many organisations are extremely low and this frequently does not allow for 'extras' such as environmental and social reporting with all the data gathering and analysis that such reports entail.

## **B 3 INTERVIEWS**

Organisations were selected to obtain a broad representation both in terms of size and the nature of operations. Of the organisations interviewed, there was unfortunately no representation from small organisations, even though they comprise a very large majority of the sector. Difficulty was encountered in gaining involvement from such parties. However, in URS' opinion, this should not be considered to be of concern as supply chain pressure from the major contractors is likely to be the most effective way of achieving any changes within the smaller organisations within this sector.

Of the organisations interviewed, there was a good representation of different operations within the industry. The list below identifies those organisations with whom we were able to meet and conduct a structured interview:

1. Large sized UK organisation with operations relating to a construction service provider with facilities maintenance capabilities.
2. Medium sized regional contractor, part of a larger UK group.
3. Large sized organisation (part of a much larger offshore organisation) with operations relating to specialist contractors that deal with project and depot issues relating to environmental risk.
4. Very large UK multi-disciplinary service provider.
5. Regional contractor, part of a larger UK group.

## **B 4 MANAGEMENT STRUCTURE**

Management structure and level of responsibility for environmental and business risk appeared to vary within the organisations interviewed. However, a common element of the management structure within all of the interviewed companies is that it is organised around projects. Within four of the organisations, environmental issues are strongly aligned with health and safety. Three organisations also had an individual(s) with specific knowledge and expertise in environmental issues who acted as advisors to the Project Managers and relevant Directors.

*Organisation management structures within the construction sector are based around the projects rather than sites or facilities. Environmental management tends to follow this structure and thus is integrated in some form with other business management issues.*

**POINT TO NOTE**

The responsibility for corporate environmental risk management on a daily basis was similar in all organisations and was assigned on a project basis with responsibility resting either with the Project, Contracts or Operations Managers, or occasionally delegated to Site Managers.

Clear documented reporting lines on business and environmental issues exist in all organisations from the Project Manger up to board level. The simplest of these entailed a direct reporting line from the Contract Manager to the Board via a monthly report. Other organisations had similar reporting lines, however a specialist advisor was often present who, in one organisation, audited the processes and outputs. Reporting in some cases was linked through an integrated management system that assisted in ensuring management consistency throughout the life of a project.

Given that the nature of the construction sector is to take risks, risk identification always occurred at the beginning of the bidding process for a project usually in consultation with a Director. Because risk identification is critical to a project's success, the individuals involved are often highly trained, with past experience also providing a good source of information. External advice was sought if expertise did not exist within an organisation. Within one organisation, risks were identified through a formal workshop with stakeholders. The individuals or teams that initially identify the risk are not necessarily those that manage the risk, however, the information is well documented and transferred to those responsible for delivery of a project, usually through an integrated management system.

## **B 5 RISK ASSESSMENT**

There was a well defined, formally documented, risk assessment process evident in all organisations, generally using semi-quantitative methods, with two of the organisations considering environmental risk as a core business risk defined through integrated management systems. It is important to highlight that generally, all organisations use generic risk assessments as the starting point for all risk assessment process and identified the probability and impact of the risk, usually coupled with financial weighting depending on the size of the project. Quantitative techniques were also used in more sophisticated areas of one organisation, including the use of specialist MonteCarlo techniques. Another organisation used criteria, impact and control measures to identify the risk and indicated that it would accept financial impact to ensure that environmental risk was correctly resolved.

*Generic risk assessments are the starting point for the risk assessment process within the construction sector. Risks associated with each and every project are considered at all stages through well defined methodologies.*

**POINT TO NOTE**

Environmental risks were directly aligned to health and safety risks in several organisations and were often considered in a similar way, indicating a risk would be mitigated if the necessity arose or if it was required by regulation. However, one organisation indicated that environmental risks were considered separate from other business risks and often given the same profile as financial risks. This is largely due to a recent conviction that radically changed the perception of environmental risk within that organisation. With the separation of environmental risks, the organisation also indicated that the culture was more equipped to support environmental risk assessment as a stand-alone issue.

<p><i>Generally environmental risks will be mitigated if the necessity arises or if required by regulation. Within only one organisation was environmental risk given the same profile as financial risk, largely due to a recent conviction that radically changed the perception of environmental risk.</i></p>	<p><b>POINT TO NOTE</b></p>
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<p><b>POTENTIAL OPPORTUNITY</b></p>	<p><i>The Environment Agency could perform regular site liaison within the construction sector, therefore increasing environmental awareness and perceptions of environmental risks at the site and within the organisation as a whole. As a consultee on planning applications, the Environment Agency has an opportunity to identify either large or potentially sensitive construction works to enable prioritisation of such visits. With a significant number of pollution incidents arising from the construction sector it is possible that increased visits by the Environment Agency will raise the priority given to environmental issues across the sector and thus save monies and time spent chasing pollution incidents and associated fines.</i></p>
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<p><i>Within industry, environmental risks are considered to be significant in terms of potential for adverse impacts to financial or reputation rather than based on the potential for adverse impact to the natural environment. When talking to industry at both a corporate and site level, Environment Agency personnel should be aware of this perception and where possible, discuss required improvements/actions in terms of financial and reputation benefits that they could bring as well as in terms of reducing adverse impacts on the environment.</i></p>	<p><b>POINT TO NOTE</b></p>
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All organisations indicated that internal experience was important in the identification of risks, with any useful source of information being potentially used if appropriate. In particular, training was considered to be an important factor along with the use of external consultants.

## **B 6 RISK APPETITE**

Each organisation interviewed indicated that their policy was to mitigate risk through front-end management or physical measures as that was the nature of the business, with the risk assessment process generally identifying action plans for mitigation. Two organisations did indicate that a commercial view on environmental risk was sometimes taken, with another indicating that a solution was often most cost effective when implemented in the early stages of a project.

*One organisation used the “Environmental Good Practice Guide” from the Construction Industry Research and Information Association (CIRIA) as the basis for managing particular environmental risks associated with projects. Publications from this association do form accepted reference material and therefore a joint approach with CIRIA might provide the Environment Agency with better opportunities than seeking to influence the sector without support.*

**POINT TO NOTE**

Typically, the transfer of risk between the client and the contractor was considered difficult but acceptable if, in negotiation with the client, a sensible place to manage the risk was identified. One organisation indicated that it would accept risk for a financial reward, but was trying to seek sustainable business through the ethical share market, and was considered an industry leader. It was noted, however, that the construction industry is about taking on risk, some of which may not be manageable and at some point, the contractor would have to accept risk transfer from the client to be successful on a project bid.

## **B 7 RISK MANAGEMENT**

A clear linkage between environmental risk management systems and business systems was evident in several organisations interviewed, but this appeared to be on an individual project basis. Two organisations also indicated that this system was internally audited. Clearly defined objectives were present and well communicated throughout several organisations down to the operative level, but did not appear to be aligned with the risk management systems. Links between corporate organisational objectives and risk management strategies were evident within some organisations, but were not formal. In contrast, one organisation indicated that although management procedures for health and safety were linked to business systems, environmental issues were not.

Performance indicators appeared to be present and well defined again, within the majority of the organisations. These organisations developed performance indicators in house, however one organisation used external auditors to correlate performances with industry standards whilst others used the industry standards to set performance indicators. All were communicated throughout the organisation and were usually published in documents equivalent to the corporate strategy. Within one organisation alignment between identified risks and Key Performance Indicators (KPIs) was noted.

Given that risks were identified and assessed at the beginning of a project, it was also evident that the majority of organisations had integrated risk management systems in

place, with all organisations performing ongoing monitoring of some form throughout the life of the project, with risks being reviewed on a regular basis.

*Project planning appears to be when a significant amount of risk identification, evaluation and mitigation is considered. The timing of providing the advice and information can therefore be critical to the manner in which it might be received.*

**POINT TO NOTE**

Given the nature of the construction industry, it is perceived that staff understood what risks were acceptable to a Board. Within the organisations that had integrated risk management procedures in place, it was evident that all staff were well versed in acceptable risk, again because of the nature of the business. Within another organisation, managers only received information that was pertinent to operational duties.

## **B 8 CONTROL ENVIRONMENT AND CONTROL ACTIVITIES**

Within all of the organisations formal control activities appeared to exist. These systems were generally based at the operational level on an individual project basis with monitoring activities and regular meetings reported at either Board level or to Managing Directors. This reflected the general perception that risk management is considered most pertinent at project level.

It was also perceived that generally senior management fostered a climate of trust through leadership and by example, with some organisations indicating that management are monitored through reviews.

Responsibility appeared to be very well defined and documented within all the organisations, driven through the quality assurance system and, within four of the organisations, through an integrated management system. In addition, responsibility was defined via a matrix approach that was embedded within the management system. It was perceived that individuals responsible for decision-making had adequate training and/or support. The level of accountability was not so well defined within some organisations, however it was indicated by one organisation that the occurrence of a serious regulatory breach may result in a project team being punished.

Sub-contractors were only required within two organisations to comply with policies or demonstrate a similar environmental management system was present in their organisation. The selection process generally consisted of auditing the contractor to assess if their policies and processes were at least equivalent to that of the organisation in order to pre-qualify for selection. If no environmental policies existed for the sub-contractor, they were required to work to those of the organisation, and if a poor environmental performance was evident, it affected re-employment on another project.

## **POTENTIAL OPPORTUNITIES**

*With the vast majority of the construction sector comprising small organisations sub-contracting to larger organisations, the Environment Agency could potentially have an influence across the whole sector through focusing on larger organisations. From interviews with Environment Agency staff URS understands that the 23 larger construction contractors have formed a forum and some of its members are interested in developed a formal agreement with the Environment Agency, this could provide a good forum for such influence. The formal supply chain processes identified within the interviewed organisations would then facilitate dissemination of this influence to a broader spectrum of the industry.*

*The Environment Agency procures a significant amount of construction activities itself, therefore needs to be seen to be adhering itself to best practice policies and pushing such practices through its supply chain through contract requirements. The Environment Agency has developed a National Contractors Framework which has included measures to “green” the supply chain for construction works. This framework will have a direct influence on contractors wishing to work with the Environment Agency but is likely, if appropriately publicised to also encourage other clients to develop similar systems.*

## **B 9 INTERNAL AND EXTERNAL INFORMATION**

### **B 9.1 Internal Communication**

Reporting to the Board appeared to be a well-documented mechanism within the majority of the organisations, with both vertical and horizontal information being shared in most organisations, however reporting was primarily related to information on specific projects. Two organisations also appeared to have half-yearly and annual reviews by the Board, with one indicating that this also included reporting on objectives by specialist departments. It was evident that this frequent reporting would provide the forum for identification of changes in risk management, but only on an individual project basis. Discussions indicated that in one organisation, there was also a formal internal and external audit that measured progress and compliance of projects which would indicate that risk management would be included in these discussions and again, potential changes required in risk management would occur, but again only a project basis.

Regulatory breaches appeared to also have been reported through clear, well defined routes, and within one organisation a specific system was present, although within the other organisations was a relatively informal process was in place. Several organisations indicated that any issue that could adversely affect the organisation’s reputation or financial standing were always reported immediately to the necessary individuals, usually the Managing Director or Board of the organisation or parent organisation.

*It appeared that because the construction industry is about managing risk, all organisations perceived internal communication to be essential and extremely effective in allowing project-based issues to be continually reassessed.*

**POINT TO NOTE**

## **B 9.2 External Communication**

Good external communication was evident within only two organisations, with the other organisations limiting external information within annual reports to shareholders and information required by clients through the initial bidding process for a project. The open communication policy identified within two organisations includes the sharing of information with local communities, Councils, the Environment Agency and any other stakeholders, with one organisation indicating that there was no difference between the information provided internally or externally. Both these organisations indicated there were good two-way communication streams present. One of these organisations noted that the information shared included problems encountered by the organisations as this approach generally fostered good team relationships as opposed to adversarial confrontation with stakeholders, whilst the other organisation indicated that the scope of the disclosure depended on the audience.

It is important to note that one organisation indicated that although they provided external information only via the annual report, a good external relationship existed with the Health and Safety Executive (HSE). Therefore although information was shared because it was required by law, the HSE worked closely with the organisation providing good feedback on information provided. Also the organisation, primarily through Contract Managers, held quarterly meetings with the HSE who provided examples and direction in relation to health and safety. The organisation indicated that this fostered a partnering approach to projects, and that the general advice and information gained from this interaction was highly beneficial.

### **POTENTIAL OPPORTUNITY**

*Interviews indicated that recent liaisons with the HSE in a partnering approach, which entailed regular meetings identifying both good and bad practices/issues and discussions on general good practice, had been particularly advantageous. Development of a similar approach by the Environment Agency could be of benefit.*

*A common message from industry was that the Environment Agency does not provide advice or assistance and is only seen as a regulator.*

**POINT TO NOTE**

## **B 10 MONITORING**

Formal monitoring and review mechanisms appeared to be embedded within each organisation interviewed with internal, and in some organisations, external auditing present. It appeared that this was limited to an operational level on an individual project basis. However, the systems did allow for the identification of change and the

subsequent potential risk to be re-evaluated and implemented, clear reporting lines were identified to the Boards or Managing Directors and throughout the organisations.

## **B 11 SUPPORT FROM THIRD PARTIES**

All the organisations use internal corporate and external expertise through trade associations, external consultants and even through knowledge sharing with other construction organisations to enable better risk management practices. It was evident that generally the construction industry had a good two-way communication with the Health and Safety Executive and it was indicated that it would be valuable for the Environment Agency to foster a similar relationship.

### **POTENTIAL OPPORTUNITIES**

*Each organisation interviewed reported that they did seek advice and/or were active within the construction industry trade associations. If the Environment Agency could have involvement with such parties whether through conferences or providing advice and guiding information at regular trade association meetings, it is likely that these suggestions would be disseminated more widely throughout the sector.*

There is potential for considering the generation of a periodic publication that provides information and advice on issues such as:

- *practical advice to overcome situations;*
- *guidance on legislation current and future as it relates to the construction industry;*
- *best practice guidelines for standard problems;*
- *case studies that provide good examples of environmental solutions within the industry, or alternatively solutions that have not worked; and*
- *identification of future legislation and risks and how it related to the industry.*

*Based on discussions with the Environment Agency, URS understands that the top 23 contractors form a “Major Contractors Group”. Some of these organisations would like the Environment Agency to develop generic “operating agreements” with themselves. Such agreements would address particular concerns including: efficient internal practices; enabling a single route into the Environment Agency; and, enable industry to work with the Environment Agency to increase consistency in approach both across regions and between companies. Development of such a forum for discussions and also identifying initiatives that the Environment Agency would like to see over and above regulation should provide the Environment Agency with a clear route for influencing corporate policies.*

## **B 12 SUMMARY**

- Based on the interviews to date, no specific management practices have been identified which are considered to represent potential best practice.
- The sector is highly devolved with many smaller organisations providing specialist trades and services to larger organisations. Awareness of corporate governance is perceived to be more prevalent within the larger organisations with environmental (and social) issues moving up the corporate agenda. Environmental reporting has been undertaken in several of the organisations, but is still in its infancy within the sector as a whole.
- Managing risk is considered to be the nature of the construction industry. However, based on the interviews, environmental risks will only be mitigated if the necessity arises e.g. if required by regulation. Within only one organisation was environmental risk given the same profile as financial risk, largely due to a recent prosecution that radically changed the perception of environmental risk.
- Methods of general business risk identification, assessment, control and monitoring are well developed. Several larger organisations have integrated risk management systems in place and are believed to be in the initial stages of incorporating environmental risk management into these systems.
- There appears to be a focus on risk identification and assessment at the early stages of a project, primarily at the bidding stage, with a focus on mitigating risk through front-end management or physical measures. Generic risk assessments are the usual starting point for this process.
- Environmental risks within each organisation were viewed to be directly aligned to health and safety risks, with the exception of one. Within this organisation a project is divided into various stages with risks at each stage being integrated and managed by a separate individual.
- In the majority of cases, organisations were performing ongoing monitoring of some form throughout the life of the project with operational risks being reviewed on a regular basis.
- Internal communication was perceived to be essential to enable project based issues to be continually reassessed. Only two organisations actively engaged in external communication.
- Each organisation sought third party advice from trade associations and/or consultants, but communication with the Environment Agency appeared minimal.
- Although well developed supply chain processes tend to exist within the sector (such as supplier performance evaluation, working with suppliers to improve products and services), only two organisations required sub-contractors to comply with environmental policies and/or demonstrate similar internal policies and systems.

**APPENDIX C**  
**AGRICULTURE SECTOR PROFILE**

## CONTENTS

C 1 Background	95
C 2 Introduction	95
C 3 Interviews	96
C 4 Management Structure	97
C 5 Risk Assessment	98
C 6 Risk Appetite	99
C 7 Risk Management	99
<b>C 8 Control Environment and Control Activities</b>	<b>100</b>
C 9 Internal and External Communication	101
C 10 Monitoring	102
C 11 Support from Third Parties	102
C 12 Summary	103

## LIST OF BOXES

Box C 4.1: Generic Management Structure

## **AGRICULTURE SECTOR PROFILE**

### **C 1 BACKGROUND**

The agricultural sector profile was produced as an element of Research and Development Project E2-056 on Environmental Risk and Corporate Governance. The overall project objective was to review current practices in corporate environmental risk management in the broader context of business risk management and to provide a sector-based review with a view to informing the Environment Agency's work on corporate governance. The specific objectives of the sector reviews were to:

- Develop an understanding the of the current level of guidance, activity and practical status of formalised environmental risk management; and,
- Identify opportunities for the Environment Agency to influence risk management at the corporate level within each sector.

The Environment Agency identified four sectors as being the key sectors it wishes to influence; waste, construction, agriculture and finance. Within the first three sectors, the focus was on risk management for the organisations' business, however, within the finance sector a key focus was to identify how the practices and policies within investment, insurance and lending could in turn influence other industries.

The methodology comprised three key aspects:

- URS conducted interviews with appropriate directors and/or managers within a selection of organisations within each of the identified sectors;
- The interviewer was a senior individual with knowledge of the appropriate sector and the likely risks and challenges being faced within it; and,
- A standard questionnaire was developed and used to interview each selected organisation to provide consistency across the sectors (Appendix E).

### **C 2 INTRODUCTION**

The agriculture sector is typified by small organisations, often comprising one self-employed proprietor, or with labour provided solely by members of the family. Even organisations considered large within the agriculture sector would be rated as small to medium enterprises, and these larger organisations are often family owned organisations or partnerships, rather than listed companies. When larger organisations are engaged in agricultural production it is likely to be as a part of either a diversified or an integrated group, often principally concerned with processing and marketing agricultural produce on a large scale.

*The typical one or two man agricultural organisation has little concept of corporate governance, or of environmental risk management in any formal sense. It should also be noted that the industry is undergoing a period of low financial returns and very little, if any, surplus is available for re-investment. In this climate, business survival rather than environmental enhancement, or even the reduction of environmental risk, is likely to be the chief priority. Despite this, there is a strong sense, particularly in smaller businesses, of responsibility for the environment.*

**POINT TO NOTE**

### **C 3 INTERVIEWS**

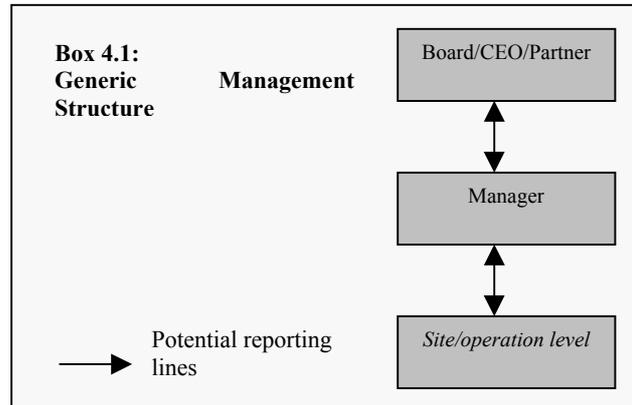
The organisations approached to take part in this project represent a cross section of the industry in terms of size and nature of operations.

Of the ten organisations asked to participate in the survey, two declined absolutely on the grounds of being too busy in working for survival to give time for an interview – one of them saying that he would only take part if paid for his time. Of the remaining seven, six were willing to give time for an interview which provided a good representation of different operations within the industry and to a lesser extent, organisation size. The list below identifies those organisations with whom we were able to meet and conduct a structured interview:

1. A small family partnership whose main income is from egg production within a farming enterprise (1200 ha) of potatoes and cereal crops. The organisation has approximately 150 employees and an annual turnover of just under £20 million.
2. A family-owned, limited organisation with a diverse range of interests including distribution, abattoir and meat production, pet food production, farming (dairy and livestock, 2000 ha). The organisation has over 700 employees and an annual turnover of just under £120 million.
3. The Farms department of a large organisation with an interest in all farming types in Great Britain including dairy cows. There are approximately 270 employees in the Farms department.
4. Small husband and wife partnership with two employees producing cereals, potatoes, sugar beet and oilseed rape. Partnership also includes an equestrian enterprise of cross country course and livery.
5. Traditional family estate with approximately 500 employees. Estate includes 14,000 ha of land comprising 11,700 let agricultural land including non-agricultural activities, with the remainder in hand for arable and stock farming.
6. UK organisation owned by a listed public company. Primary activity includes pig breeding with an annual turnover of £17 million and 50 employees.

## C 4 MANAGEMENT STRUCTURE

Management structures and level of responsibility for environmental business risk appeared to vary slightly within the organisations interviewed, although within each, the management structure was identified to be relatively flat. One basic model is representative of the management structure for the majority of the organisations.



For one organisation, a health and safety team existed which also had the responsibility of managing corporate environmental risk with the Health and Safety Manager overseeing this team. Within the other organisations, individuals were assigned this responsibility as part of their overall roles:

- Within two organisations, the General Manager or Managing Director was assigned responsibility for corporate environmental risk and also respectively, chaired an environmental policy group or crisis management committee.
- Within three of the organisations, including the two smallest, the Agent or individual Partners were assigned strategic responsibility for different aspects of the business including corporate environmental risk, health and safety, property management and several other issues.

The responsibility for identification of business and environmental risk varied slightly across the organisations. In two cases, the same individuals responsible for managing corporate environmental risk were responsible for the identification of risk. Furthermore, within these two organisations, identification and management of individual risks such as financial, health and safety were noted, for example, the Finance Director was responsible for financial risk and the Health and Safety Manager for health, safety and environmental risks. In the small organisations, all staff had responsibility for the identification of local environmental risk, with the Partner being responsible for the corporate environmental risk identification and all general business risks.

*No dedicated individual or team existed solely for environmental risk management or identification within the interviewed organisations. In each case, management of business risks is fully integrated. However, for each of the organisations, there was a clear individual or team with part of their responsibility incorporating environmental risk management and identification.*

**POINT TO NOTE**

## C 5 RISK ASSESSMENT

Financial consequences, market forces and reputation, were the main drivers for risk management, with one exception where environmental harm along with reputation was considered a strong influence.

*Within industry, environmental risks are considered to be significant in terms of potential for adverse impacts to financial or reputation rather than based on the potential for adverse impact to the natural environment. When talking to industry at both a corporate and site level, Environment Agency personnel should be aware of this perception and where possible, discuss required improvements/actions in terms of financial and reputation benefits that they could bring as well as in terms of reducing adverse impacts on the environment.*

**POINT TO NOTE**

Environmental benefits were not generally sought after by the organisations, but it was accepted that benefits did occur as result of a general risk management process, for example waste minimisation. It was also indicated that environmental risk was generally treated as a lower priority than other risks unless there were particular requirements, such as legislation, imposed. However, there was a belief that environmental risk may be given a higher priority in the future because of increased regulation.

*The formal assessment of environmental risk in the agricultural sector appears to be minimal. However, it was considered that environmental risk would become more prevalent in the sector in the future, but only through increased regulation and not through organisations seeking best practice.*

**POINT TO NOTE**

Formal documented risk assessment processes varied across the organisations from well documented procedures to an organisation that indicated it was not relevant to their specialised business. The risk assessment techniques used in one organisation incorporated a risk profiling exercise that had been developed with the assistance of outside consultants and uses a computer programme. Another organisation had used very well documented procedures comprising a formal environmental risk management process which was also used in staff training. Unfortunately, the procedure was considered too expensive and believed to be overly bureaucratic and unrealistic to apply to all facilities within the organisation. Even though to a certain extent processes were present within the other two organisations, there was no indication of the actual methodology of risk assessment in relation to quantitative or qualitative methods used.

*In promotion of corporate environmental risk assessment, the Environment Agency should ensure that measures suggested are simple and realistic to adopt at a practical level.*

**POINT TO NOTE**

Within the two small organisations, one indicated that customers required formal procedures for risk assessment and had found Environment Agency information helpful for this, whilst the other considered that formal risk analysis was not appropriate to their business and considered most risk to be at an operational level. Furthermore, it was indicated that information gathered to assist in identification of risk mainly focused around instructions from suppliers of equipment with little use for trade press or specialist journals. Several other organisations didn't consider specialist or trade press to be particularly useful either. However two organisations indicated that risk information is gathered through guidelines and relevant legislation with one also sourcing information from trade associations. Specialist trade press obtained through a subscription service was used extensively within one organisation for all risk management issues including environmental.

**POTENTIAL OPPORTUNITY**

*URS understands that the Environment Agency is looking to develop a generic "environmental management plan or system" for farms. Therefore a potential opportunity exists to include provisions for risk assessment techniques within this document to identify the aspects or impacts that really require management and control. The Environment Agency may also wish to include or discuss this initiative with the major supermarkets and their trade association, the British Retail Consortium, to see if they would like to be involved as a supply chain initiative. A combined initiative may result in a larger take-up response from this sector.*

## **C 6 RISK APPETITE**

Risk appetite ranged from the very risk averse; mitigating or eliminating risk wherever possible; to high risk acceptance within organisations indicating it was necessary to carry certain risks to stay in business. It was recognised that it was not possible to eliminate risk in its entirety, but most tried to mitigate risk where financially and practically possible, even if only to the level required to avoid prosecution.

With one exception, the organisations did not transfer risk through insurance as it was considered too expensive. One organisation did indicate that, where legislation allows, risk on operations is transferred to the sub-contractors.

## **C 7 RISK MANAGEMENT**

Environmental risk management systems were not considered as stand-alone systems and in all cases were identified as being integrated, either through a common assessment procedure, or as part of a complete business management system. In one organisation, further links existed through management guidance on health and safety.

Formal objectives for environmental policy were identified within one organisation, with managers all having personal objectives that covered environmental risk, however these were not communicated to staff. Within the other organisations, corporate objectives were not formal, however if present, the corporate policy was well communicated to staff either through training, policy statements or procedures.

Performance indicators were only identified in two organisations. These appeared to be driven by health and safety rather than environmental risk within one of the organisations, but some environmental indicators have been included. Another organisation indicated that in the future performance indicators on environmental risk would be built into the performance appraisal system.

Generally, it was unclear when a risk was first assessed, however the majority of organisations did indicate that the identification of risks was an on-going process (particularly obvious risks pertaining to odour and effluent), related to either process changes or in one organisation, if a regulatory requirement is imposed and risk re-assessment is required. Also, risks that were not immediately identified were often picked up through an annual audit. One small organisation indicated that risks were either assessed annually at the start of each seasonal operation or on a three-yearly basis, with no apparent mechanism in place for the ongoing assessment of risks. However, within this and another organisation, employees were considered to be well informed of acceptable risk via mechanisms such as regular discussions or through feedback on reporting of risks and incidents to all staff.

*There is no particular point in time that risks are identified, and it is considered to be an on-going process.*

**POINT TO NOTE**

## **C 8 CONTROL ENVIRONMENT AND CONTROL ACTIVITIES**

Within half of the organisations it was evident that there was a culture that supported risk assessment. One organisation considered that their reputation was in part based on an ethical and environmentally friendly image and thus the culture was supportive of environmental risk assessment and control as part of this overall image, whilst another considered itself to be at the forefront of implementing standards on environmental matters. In contrast, it was stated by another organisation that no group culture was present and that codes and policies were not designed to support environmental risk assessment or management.

The apparent levels of competence and integrity of senior management differed between the organisations. In one organisation, this was achieved partly through formal training and associated qualifications in risk management. This organisation, together with two other organisations, indicated that open communication was important and occurred through discussions at all levels of staff fostering a climate of trust and integrity. It was also apparent within one organisation that although senior management was informed and aware of formal risk management identification techniques (a formal risk profiling exercise had been undertaken), they did not give a high priority to communicating and working with staff to minimise environmental risk.

The distribution of responsibility within all organisations appeared to be well defined with clear delegations in decision-making formally documented. The level of accountability was not well defined in any organisation, however one small organisation indicated that pay structures were being reviewed so that bonuses reflected the dedication to assessing and avoiding risk. There could be a negative aspect to this approach, as it was perceived that there was lack of competence due to the absence of formal training and staff often used an instinctive management approach.

Contractors within several organisations were required to, at minimum, operate within company policy or to have a policy compatible with the associated organisation, and in some instances, the need for additional specific environmental requirements was mandatory.

## **C 9 INTERNAL AND EXTERNAL COMMUNICATION**

### **C 9.1 Internal Communication**

There appeared to be no formalised structure in place in any of the organisations for reporting to the board and it seemed apparent that reporting occurred on an ad hoc basis in relation to specific issues, with one exception. Monthly reports were provided to the board within this organisation on social and environmental responsibilities with a quarterly audit report undertaken by independent assessors also being fed into these reports. This report extended to the parent organisation for serious issues. However, there was currently no re-assessment of information required for reporting as objectives changed or deficiencies arose, but re-assessment would occur in the near future. One organisation indicated that reporting occurred half yearly on environmental issues (quarterly on health and safety) with another organisation indicating that reporting occurred as the necessity arose. However, it is important to note that in both of these instances, reporting structures were soon to be formalised and reporting subsequently expected to occur on a more regular basis. In the smallest organisation it was indicated that risks and incidences were reported both in writing and verbally, with the board not having a fixed agenda and formal meetings only occurring on specific strategic issues. However, it is important to recognize that a more formalized structure in some organisations may not be appropriate considering their size, with the board often consisting of two Partners who are family members.

*Although none of the organisations interviewed had a particularly formalized structure for reporting to the Board, they each appeared to have well defined routes for the communication of regulatory breaches. All regulatory breaches were reported to the individual responsible for the management of environmental risks. No formal procedures were in place to deal with reports, other than a consideration of the appropriate response.*

**POINT TO NOTE**

Formal mechanisms were evident within one organisation to identify and assess new information that was required. This was implemented through staff sign-off sheets for all risks and incidents that occurred, which also identified the need for new information or reporting procedures.

## C 9.2 External Communication

External communication in two of the organisations was either non-existent or limited to current and potential customers, or in the case of one organisation preferring to keep a low public profile. However, although limited to customers, the small organisation did provide a booklet with an environmental section that covered issues such as a recycling policy and chemical usage. One organisation included environmental policy information on their Internet site and within an annual report, however the information provided was solely focused on environmental policy despite environmental objectives and performance indicators being present within the organisation. Within the small organisations, environmental information on products and processes were required by most customers and were usually in the form of an audit report. One organisation did actively promote and provide potential customers with environmental policy information through marketing and promotional leaflets for supermarkets and some general information communicated to the public and retail sector, via presentations whilst another provided general environmental management information to estate visitors and retail customers. However, all external material lacked information pertaining to performance on corporate risk, with statements primarily relating to policies and systems.

### **POTENTIAL OPPORTUNITY**

*Along with regulation, customers, particularly supermarkets, are the main driving force for environmental improvements within the agricultural industry. The Environment Agency therefore has an opportunity to influence the agricultural sector through the supply chain by working with supermarkets.*

## C 10 MONITORING

Monitoring and review processes were present in varying degrees within each of the organisations. In one small company, a formal monitoring process existed as part of 'traceability'. This provided management with the ability to determine for each process, the associated person, time, place and machine, however this is not compiled in structured management reports. It is evident that this monitoring is only at an operational level and no formal reviews of performance and overall strategy are undertaken at corporate level. This organisation did perceive that monitoring was a method of maintaining a clean reputation (in the interests of the business as opposed to the environment) and expected the monitoring of processes and procedures to identify factors that may have been a potential risk to their reputation or the financial viability.

Two organisations undertook audits either quarterly or annually to determine performance on policies at the corporate level, with one also performing special audits if required (the requirement for the special audits was not identified). However, this same organisation indicated that this auditing methodology was a suitable means of monitoring the effectiveness of the policies and processes and was reported to lead to a continual reduction of risk. There were no formal monitoring procedures in place for the other organisations.

## C 11 SUPPORT FROM THIRD PARTIES

Each organisation indicated that they did not receive support from the Environment Agency on corporate environmental risk management. One organisation did not

consider this was within the role of the Regulator. One of the organisations indicated that it may consider support from the Environment Agency if it could identify any potential benefit for the organisation.

*A number of the interviewees did not identify the Environment Agency as a third party they would go to for advice, with the majority of organisations also indicating they were not interested in engagement with regulators beyond those specifically required by legislation, which included the Environment Agency.*

**POINT TO  
NOTE**

Consultant and/or trade association support was sought by all organisations in relation to specific issues. Not a great deal of consideration had been given to other areas of corporate environmental risk management that third parties could provide support for, apart from identifying and assessing new processes and materials with only one organisation actively seeking material for corporate and environmental risk management. Furthermore following discussions, one organisation perceived that third parties could not provide much support in environmental risk management at all. However, the Turnbull report was perceived as very influential within two organisations and was identified as the key factor in helping define responsibilities for senior officers and directors. Regarding ABI Guidance, despite neither of these organisations being a public company, one organisation still perceived that due to the nature of its constitution and policies, the ABI was a significant guiding influence in many areas, whilst the other thought it irrelevant.

Overall, the organisations did not perceive the Environment Agency as having a great supportive role in regards to corporate risk management support. One organisation did indicate that consultation was sought in relation to river management, but would not seek advice from the Environment Agency for corporate environmental risk management. Another organisation indicated that they were not exactly sure what the Environment Agency did, but did not perceive corporate risk management as their role and similarly to other organisations, emphasised that they were not looking for more third party support, particularly from the Environment Agency. On a more positive note, it was indicated by two organisations that the Environment Agency could potentially provide greater and better support at a strategic level if it took a more constructive approach. It was considered however that the Environment Agency was currently too detached from the agricultural industry and business principles. One of these organisations also indicated that to be effective, it was important for the Environment Agency to keep pace of industry, but not too far ahead.

*No specific industry best practice initiatives have been identified from the organisations interviewed. The relatively negative attitude to the Environment Agency is considered to represent significant barriers to the Environment Agency being able to influence actively and directly adoption of corporate risk management procedures.*

**POINT TO  
NOTE**

## **C 12 SUMMARY**

Overall the level of interest within the targeted companies in the agricultural sector to participate in the study was considerably lower than that seen for other sectors. Furthermore, the ones with which interviews were held, could be considered to be representative of the top quartile of the sector in terms of attitudes to and perception of

environmental risk. Recognition of this is required when considering the findings of this review:

- Few organisations within this sector that were contacted considered environmental risks separately from business risk. The reason for this may be that the organisations tend to be small and consider all business risks such as environmental, health and safety etc together with no segregation.
- There was a sense of responsibility for protection of the environment, however it does not get a high priority as a result of a lack of resources and information. Financial risk was invariably rated higher than environmental risk.
- One of the organisations within this sector developed a formal risk assessment process. However, due to its complexity, it was found not to be practical especially in terms of resourcing and is therefore no longer used.
- It was identified that the organisations are expecting consideration of environmental risk to be more prevalent within the sector in the future. The driver for this was identified to be increased regulation rather than as a result of seeking best practice.
- Environmental risk management and control systems are not stand-alone systems they are fully integrated with other broad business issues.
- No formal or documented risk management or control mechanisms tended to be in place. With the small sizes of the organisations, communication appeared to occur regularly and be effective. In conversations with the Environment Agency also noted that mailshots and distribution of leaflets providing advice do not tend to be successful.
- In some cases it was identified that customers have required formal auditing of food production facilities and farms to assess operational and environmental issues.
- A number of the interviewees did not identify the Environment Agency as a third party they would go to for advice, with the majority of organisations also indicating they were not interested in engagement with regulators beyond what is specifically required by legislation.

**APPENDIX D**  
**FINANCE SECTOR PROFILE**

## **CONTENTS**

<b>D 1</b>	Background	<b>107</b>
<b>D 2</b>	Introduction	<b>107</b>
<b>D 3</b>	Lending	<b>109</b>
<b>D 4</b>	Equity Investment Appraisals	<b>117</b>
<b>D 5</b>	Insurance	<b>121</b>

## **LIST OF BOXES**

Box 2.1:	Background to the Finance Sector
Box 3.1:	Sector Concerns
Box 3.2:	Key Environmental Aspects Considered by Banks
Box 3.3:	Green Products

## FINANCE SECTOR PROFILE

### D 1 BACKGROUND

The finance sector profile was produced as an element of Research and Development Project E2-056 on Environmental Risk and Corporate Governance. The overall project objective was to review current practices in corporate environmental risk management in the broader context of business risk management and to provide a sector-based review with a view to informing the Environment Agency's work on corporate governance. The specific objectives of the sector reviews were to:

- Develop an understanding of the current level of guidance, activity and practical status of formalised environmental risk management; and,
- Identify opportunities for the Environment Agency to influence risk management at the corporate level within each sector.

The Environment Agency identified four sectors as being the key to influence; waste, construction, agriculture and finance. Within the first three sectors, the focus was on risk management for the organisations' business, however, within the finance sector a key focus was to identify how the practices and policies within investment, insurance and lending could in turn influence other industries.

### D 2 INTRODUCTION

The rationale for looking at attitudes and practices associated with environmental risk within the finance sector is based on the influence that this sector can have on other business from their lending, equity investment and insurance practices and policies.

#### **Box D 2.1: Background to the Finance Sector**

The fundamental service provided by the financial sector is to provide investors with a means to invest money, and to provide companies with access to this capital. The financial sector acts as a 'clearing house' or intermediary, using market forces to determine how best to match demands for capital from businesses and demands for returns on investment from investors.

Companies primarily raise capital from two sources: debt and equity. Debt equates to a loan, while equity refers to the sale and purchase of shares in a business. Banks will assist companies in raising debt either as a simple loan or in the form of marketable 'bonds', which may be bought and sold by investors (such tradable investments are referred to as 'securities'). Banks also assist companies in raising equity capital via the marketing and sale of shares in a company.

All investment returns are based on an assessment of the risk involved, and this will be reflected in the value of the investment. The higher the risk, the higher the rate of return that an investor will require to invest his/her money in a particular investment. For equities (which have no fixed interest payment or dividend), the risk premium is directly factored into the price of each share by the market (market prices being determined by the accumulated actions of many individual investors/analysts). For bonds, these typically provide a fixed rate of interest to investors over the life of the bond, and then repay the original amount of the loan

**Box D 2.1: Background to the Finance Sector (cont.)**

at the end of the repayment period. The interest rate used is based on current market interest rates for low-risk investments (such as long term government bonds) and a risk-premium is then added based on the perceived credit-worthiness of the company. Specialist rating agencies (such as Standard & Poors, and Moodys) calculate the credit risks posed by companies and investments for use in such calculations.

Banks provide services both to private customers (retail banking) and to corporate customers (investment banking). The range of specific services provided to both sets of customers is different, but the fundamental services offered are the same – providing access to capital, and providing opportunities to invest capital.

Despite the increased popularity of private share ownership, the majority of shares and other securities are held by institutional (or professional) investors such as pension funds and investment funds, who invest and money on behalf of others. For example, pension funds will invest funds from company and private pension plans in order to generate long-term future income for employees in retirement, while insurance companies will invest funds received from insurance premiums to cover possible future claims.

Businesses are also reliant upon providers of insurance to manage the risks that businesses face, for example to indemnify third parties for damage they may have caused them, or for damage to assets they may have incurred themselves through events like fires. Without being able to insure against such eventualities businesses could face significant payments, which would impact adversely on profits and cash flow.

In addition, there are a number of parties involved in the process of share buying and selling, each with their own analysts. Stockbrokers trade shares on behalf of firms to whom they are appointed as its stockbroker, and are named as such in the annual report and accounts. Stockbrokers' analysts produce reports on firms for which the brokers have been appointed to sell its shares, and these reports are used as marketing tools to inform investors about the benefits of owning shares in that company. Stockbrokers also buy and sell shares on behalf of private and institutional investors, and will give them bespoke advice on buying and selling.

Concern has been expressed recently over the degree of independence of advice of stock-broking firms if they are selling shares on behalf of a company and advising investors at the same time. It is not the province of this report, however, to examine that debate since the Environment Agency is not in a position to influence it.

Institutional investors will typically have their own financial analysts. They regularly review and produce reports on firms in which they hold shares, and on firms in which they may consider investing.

The means by which all sets of analysts conduct their reviews and their sources of information are described in this section, with specific reference to how environmental risks and liabilities may be assessed and taken into account in the decision making process.

This profile therefore has a slightly different emphasis from the other sector profiles, in that it reviews and assesses:

- how current practices in corporate lending appraisals address environmental matters;
- how current practices in stock market investment appraisals address environmental matters;
- how current practices in insurance address environmental matters; and
- ways in which the Environment Agency could provide more support for lenders, investors and insurers.

Based on our knowledge of these different aspects of the finance business and the findings from the interviews and literature review, we have structured this profile to discuss separately lending, equity investment and insurance. Within this profile the majority of the views and comments made are those expressed by the interviewed parties. Where URS, through senior members of its UK environmental due diligence practice based in London, has provided additional comment this is clearly expressed as such.

## **D 3 LENDING**

### **D 3.1 Interview Methodology**

Interviews were conducted with two banks focusing on their lending activities. Both of these banks are FTSE 100 companies. In each case, we interviewed individuals responsible for environmental risk policy in lending, both of whom have been in their present position for several years, and have prior backgrounds in lending risk policy.

For the interviews that were focused on understanding practices and policies associated with environmental risks in lending, the following topics formed the basis of the discussions:

- Security
- Ability to repay
- Qualitative assessments
- Relevant time periods for assessments
- Interest rate considerations
- Reputational risk and enhancement for lenders
- “Green loans” and “green bonds”
- Support from third parties.

### **D 3.2 Security (Collateral)**

Banks have historically used land, buildings and other tangible assets as security for loans and overdraft facilities. Although now the applicant’s ability to repay comprises a significant element of the loan assessment, taking security for certain loans is still regarded by banks as an important aspect of lending.

Where a property is to be taken as collateral, UK clearing banks generally require a statement of the property’s environmental condition to support a lending application.

Consultation papers arising out the Basel Committee on Banking Supervision<sup>36</sup> stipulate that property to be taken as collateral must be subject to environmental appraisal and thus re-enforce the general approach taken by the UK banks. However, this consultation paper fails to extend the guidance to providing an indication of what the appraisal should cover and/or how it should be conducted. Thus in practice, the scope and approach to an environmental appraisal for this purpose tends to vary both across countries and also between different banks. To enable development of an approach for such an appraisal, it is important to understand the rationale or objective behind the appraisal. Property tends to be taken as collateral based on the value of the property as determined by surveyors. The banks are therefore interested in understanding whether the environmental condition of the site could reduce the value of the property.

**POTENTIAL OPPORTUNITY**

*Various guidance does exist on scope and coverage of reports and assessments on the implications for contaminated land. Examples comprise the Land Contamination Reports as developed by the professional and technical panel who developed the SiLC (Specialist in Land Condition) registration scheme and the often used and referred to American standard on Environmental Site Assessment (ASTM-1527-00). There is an opportunity for the Environment Agency to work with the finance sector and promote the use of these guidance documents and schemes. Internal use of the SiLC methodology on the Environment Agency's own portfolio may provide practical examples and demonstration. Furthermore, there are also opportunities based on internal knowledge of providing sector/industry type summaries on likely exposure in terms of contaminated land.*

*The Environment Agency can also provide advice and information on where to get historical information and guidance.*

The interviewers reported that a relatively common practice is for the banks to require valuers to complete a land-use questionnaire that aims to identify symptoms of potential environmental issues, e.g. discoloration of vegetation. A seconded environmental consultant then reviews the completed questionnaire and considers the facts contained within this document to assess whether environmental issues could affect the property's value. Based on this, either the surveyor would be asked to revalue or in relatively few instances, a consultant would be requested to prepare a report. In URS' experience this general process is mirrored by that of other banks and lenders with whom we have worked.

Based on our discussions, it is evident that banks do consider risks based on two key aspects:

- The potential for contamination arising from the current site activities typically based on broad industry sector characteristics. Some indication was also given that

<sup>36</sup>The Basel Committee on Banking Supervision provides voluntary codes of conduct and guidance for banks in OECD countries.

banks may also consider uses of land outside the norm for the industry sector where these are evident.

- The potential for contamination arising from the historical site activities is considered where such information can be obtained. Interviewees reported that in their experience this information tends to be less readily available than information on current usage, primarily as in their experience the consistency, and availability, of such information from local authorities (their main source) was highly variable. With the provisions of Part IIA of Environmental Protection Act 1990, URS considers that this concern should over the course of the next few years be addressed.

**Box 3.1: Sector Concerns**

During the interviews two specific issues of concern were raised by the interviewees relating to environmental issues and property values:

- Is today's remedial action sufficient to meet tomorrow's standard? Current property valuation is based on the land being clean and fit for use, but if regulations, such as contamination provisions, tighten then additional remedial works might be required to meet these new provisions. Comment was made regarding how should such uncertainties be addressed, mention was made of whether discounting of land value could reflect the risk. At present this is more postulation than practice and there is as yet no consensus on what the approach ought to be.
- Will remediated land be stigmatised necessitating a discounted value? Comments were made relating to the stigma that remediated land has started to carry in the USA that has seen a decrease in land values. Again, recent legislative provisions, Part IIA, are going to enable third parties and the public to identify whether land that is now fit for the purpose it has been remediated, within the industry there is postulation as to whether this will adversely affect land values as seen in the USA and if so how it might be able to be addressed in valuations.

### D 3.3 Ability to Repay/Credit Risk

The primary concern of lenders when assessing the risk of lending money to a business is over a firm's ability to repay a loan, and this is judged largely by reference to a firm's ability to sustain income and cash flow. Even if collateral will be or has been taken against a loan, this is generally considered to be a secondary or contingency source of repayment. Factors such as supply chain influences, in both directions (that is customers and suppliers), are a key feature of this analysis. Environmental risk is, therefore, considered very much within the context of individual industry sectors. For example, a timber merchant may need to pay careful attention to the demands of not just his retail customers but also the ultimate consumers, and these demands may have impacts on his choice of forestry suppliers as sources of timber.

*The ability of an organisation to maintain (and grow) cash flow to enable settlement of the loan is a key focus of any lending appraisal. The uncertainty of any environmental risk and in particular its potential to influence the cash flow of an organisation comprises a key concern for lending organisations.*

**POINT TO NOTE**

In interviews it was also commented that within their appraisals, lending organisations use state of a firm's premises, particularly the land to provide evidence of the level of environmental performance, particularly at the initial stages of an appraisal. For instance, interviewees report that discoloration of vegetation may suggest pollution or contamination of the underlying soils, which may in turn suggest a need for an environmental upgrade to address the cause. Such upgrade works, if significant, could impact on earnings, and therefore affect ability to repay. These analyses based on our interviews within the financial industry, seem, rudimentary, and a more informed input on environmental performance would improve the analysis.

**POTENTIAL OPPORTUNITY**

*An opportunity exists for a third party, potentially the Environment Agency to develop and provide guidance on methods by which a firm's environmental risk and performance can be identified and judged. Again reference to published guidance on environmental auditing methods such as the new ISO14015 environment auditing standard may assist in this area.*

Based on our discussions with the lending banks, a number of environmental aspects were identified that are considered and/or reviewed associated with an organisation's ability to repay a loan (see Box 3.2). Information to enable these reviews to be performed would be gathered from sources such as interviews, site visits, third party information, consultant reports etc.

### **Box 3.2: Key Environmental Aspects considered by Banks**

#### ***Wider use of information gained on land conditions.***

- Conditions of the land identified can give indications of environmental upgrades, and therefore expenditure, that may be required that may impact on a customer's financial position. Such information may also provide a broader insight into a firm's environmental performance, which may have knock-on supply chain implications, e.g. if corporate clients/customers require their suppliers to demonstrate good environmental performance to secure contracts.

#### ***Supply chain considerations***

- Demonstrating good environmental performance may be required by firm's customers, and poor environmental performance may have a negative effect on the company's ability to win work and thus reduce earnings and increase the credit risk. A firm's environmental performance in the perception of its customers may also include reference to its own suppliers, e.g. retail firms as customers of a timber merchant may scrutinise from where the merchant buys its timber. Understanding the business context of supply chains is therefore important to determine whether this area could impact on a company's earnings. Assessing supply chain impacts was reported not to be new in lending appraisals, the inclusion of environmental issues/impacts in such assessments has evolved as they have featured as significant in supply chains.

#### ***Environment is not viewed in isolation within the supply chain***

- Interviewees considered that it is normal for banks in the UK and other OECD (Organization for Economic Cooperation and Development) countries to consider environmental issues as part of broader environmental-socio-ethical issues relevant to a supply chain. For instance, assessing the supply chain impacts associated with timber may not be limited to environmental considerations, but may also include assessment of labour conditions if these are likely to affect buying decisions, and therefore income streams.

#### ***Reputation has impact beyond supply chain***

- Damage to reputation through poor environmental (socio-ethical) performance can lead to loss of business affecting revenues. This may also lead to managers being deflected from their main function of generating earnings having to instead focus on restoring reputation.

### **D 3.4 Qualitative Assessments**

The lending banks all indicated that they tend to make a qualitative judgement on the quality of the management team and this section deals with the process. The rationale behind this element of the overall appraisal is that higher quality management teams are typically able to manage and operate the business in a more effective manner and should be expected to generate cash flow that will enable the loan to be repaid.

In discussions, it became clear that the bank's judgement is largely influenced by whether it appears that the management team understands the issues: what is their overall awareness? How do they meet customer requirements? Do they understand what

affects business opportunities? Although the presence of an environmental management system or specific individual or team responsible for environmental matters will be considered within the assessment, such factors typically have a minimal effect on the overall assessment. It was also noted by the interviewees that generally speaking, within established bank/industry relationships, the larger the company the more that the quality of the management team is taken as a given, and less of an issue that requires assessment. Where it is subject to scrutiny the likelihood is that it will be for negative reasons. We may speculate that the emergence of indications of corporate wrongdoing in firms such as Enron, WorldCom and Xerox may lead to a change in this practice by banks, though it should be noted that at the time of interviewing, the full implications of these cases for banking practices had not been resolved.

**POTENTIAL  
OPPORTUNITY**

*As the Environment Agency conducts a considerable volume of site visits by personnel with appropriate training and knowledge there may be an opportunity for the Environment Agency to work with the financial sector to provide such information.*

*A working group may be a good mechanism for achieving this, potentially using the OPRA methodology as an example or starting point.*

### **D 3.5 Relevant Time Periods**

There is no such thing as a typical length of a loan. The term of a loan is negotiated and linked closely to a customer's ability to make repayments, the purpose of the loan and the amount. Environmental issues are often of a longer-term nature for businesses than a particular borrowing facility they are using, and for one-off transactions, it is common to assess the nature of environmental impacts over similar timescales to the term of the loan. But where the customer's banking relationship is more permanent, banks may well assess the environmental implications of a firm's activities in a long-term context for reputational reasons, especially if they are named as principal bankers in the firm's annual report and accounts.

It was recognised that because environmental appraisal is not an exact science, issues that have been considered to come into effect in the future, may in practice cause impacts including financial impacts at a much nearer point in time. It was noted that this is generally not systematically appraised and not understood uniformly. It is recognised as an issue but banks currently struggle to address it in way they can feel comfortable.

### **D 3.6 Loan Pricing Considerations**

Loan pricing (interest rate and arrangement fees) is primarily driven by the expected frequency of default and is a reflection of the entirety of lending risk. Factors such as ability to make repayments from expected cashflows, realisable value of collateral, financial standing of the organisation, character and trustworthiness of the individuals, amount and term of the loan all typically influence loan interest rates.

**Box 3.3: Green Products**

The Environmental Loan Support Scheme offers cheaper finance for environmentally beneficial projects, initiatives or performance. Retail banks act as agents for the European Investment Fund and either offer cash back or reduce loan interest rates. Environmental consultants confirm the beneficial nature of the business while the loan is assessed by banks in the standard way for assessing any loan. The primary target is SMEs.

Interviewees reported that negative environment risk is unlikely to affect pricing in isolation. They stated that the issue is whether banks are comfortable with an environmental risk, it is not whether customers are happy with a higher interest rate. Interviewees advised that where banks are comfortable, they will accept the risk, if not they will require ways for it to be mitigated and managed as discussed under the sections on collateral and ability to repay, (see sections 3.2 and 3.3).

**D 3.7 Reputational Risk and Enhancement for Lenders**

An emerging phenomenon over recent years has been potential reputational risk to lenders through association with firms who have attracted negative publicity from NGOs and special interest groups. An extreme, though acknowledged to be exceptional example, is the campaign directed at the bankers to Huntingdon Life Sciences in 2001, including picketing of offices and threatening behaviour toward individuals.

Based on the interviews, environmental issues are characterised as a reputational threat rather than opportunity. Typically within a bank, group-level risk committees review propositions which may give rise to adverse press coverage. The main issue for medium sized customers is land and whether it is contaminated, for larger firms (FTSE100) it is not so big an issue as they do not rely on land as much for collateral. For FTSE100 customers a relevant issue is the emerging phenomenon of environmental NGOs now targeting banks, for example over paper and pulp business in Asia.

The comment was also made that a key element is to know your customer. At the heart of the issue is whether a bank wishes to be named as a firm's banker in its annual report and accounts. Institutional providers of finance do not want to be associated with firms with poor reputations. Interviewees considered that this is part of long established banking practice.

Comment was also made that through the Environment Agency's work as a regulator, enforcement actions can provide some objective metrics to assess potential for poor reputation.

**D 3.8 Support from Third Parties**

Use of various third party sources of information by banks and lenders to support environmental appraisals was identified during the interviews. Those of particular note and/or specific concern for the interviewees are outlined below:

- The various indices providing relative ranking of businesses and sites were reported to be of limited value. Indices such as the BiE index were used to provide an indication of the level of engagement within a firm rather than being decision-making tools themselves. There appeared to be only very limited awareness of the

Environment Agency's Spotlight. There was comment that Spotlight's table of fines and prosecutions has only limited value for their assessment process, the feeling was that of greater interest to lenders would be sector averages for fines to enable comparisons and also the specific reasons behind the fines.

**POTENTIAL OPPORTUNITY**

*With the apparent low value that the sector places on the various benchmarking documents, is there an opportunity for the Environment Agency to use and adapt their benchmarking report "Spotlight" to address the identified concerns and provide the information required by this sector?*

*Of particular importance is the fact that "Spotlight" is based upon verified performance data rather than qualitative measures of systems or policies. This latter fact being of particular concern to the financial industry, the Environment Agency needs to publicize better the basis of Spotlight so that a wide group understand/perceive its difference from other benchmarking documents. Specific other actions/changes Spotlight and/or other indices that would also address specific data gaps*

- *More information on the criteria and methodologies being used in ranking.*
- *Sector comparisons are of more interest than across sectors.*
- *Provision of some information on business size.*
- *Year on year comparisons of performance.*
- *Information on the action that caused the fine is potentially of more interest than the size of the fine itself.*
- *Comparisons at a site level and also between corporations or holding companies.*

- Interviewees expressed some concerns with apparent inconsistencies between how local authorities appear to be assessing potential for land to be contaminated. There was also the comment that planning consents typically specify "appropriate environmental assessment and remediation strategy" and there have been occasions where the bank has determined, with the assistance of their consultants, that significant risks may still exist say associated with contaminated land. This has caused antagonism between customer and bank, as the customer believes he has dealt with these issues appropriately by achieving the consent.
- One interviewee raised the point that waste management bonds are on a three year rolling basis at no fixed amount. The unpredictability of the potentially rising amount therefore presents a risk. This risk could be reduced by making the bonds for a fixed amount to last for three years, and the bond would then be replaced with a new bond for a new amount. With the growing feeling that EU regulations will put more emphasis on bonds, especially relating to environmental performance.

### **D 3.9 Summary**

The primary concern of lenders when assessing the risk of lending money to a business is over a firm's ability to repay a loan, and this is judged largely by reference to a firm's ability to sustain income and cash flows. Factors such as supply chain influences, in both directions (that is customers and suppliers), are a key feature of this analysis. Environmental risk is, therefore, considered very much within the context of individual industry sectors. For example, a timber merchant may need to pay careful attention to the demands of not just his retail customers but also the ultimate consumers, and these demands may have impacts on his choice of forestry suppliers as sources of timber.

Banks continue their historic practice of using land as security for loans. The land is generally used as a contingency for repaying the loan if the firm becomes unable to make its repayments in cash. The predominant environmental issue for land used as security is the potential for contamination, and banks habitually assess land they wish to use for security for the presence of contamination. Again, banks assess the state of the land with reference to the industry in operation on the site and the associated practices, and previous industries where this information can be obtained by banks, a process they admit can sometimes be difficult as they find records inconsistent across the UK. The purpose of their investigations is to determine whether the land as valued by the surveyor has a realistic value, or whether it requires to be re-valued. Individuals interviewed within the financial sector reported that there was no common guidance for what these appraisals should cover.

## **D 4 EQUITY INVESTMENT APPRAISALS**

### **D 4.1 Interview Methodology**

Interviews were conducted with individuals specifically employed within three mainstream investment firms to provide input to their financial analysts on environmental, social and ethical issues. They covered sell-side and asset management contexts. All firms interviewed are FTSE 100 companies.

Interviews did not cover SRI funds. These are a deviation from the norm as their portfolios are constructed based on predetermined ethical/social/environmental criteria.

Within the equity investment area, the interviews covered the extent to which environmental matters influence equity investment appraisals, and addressed the following topics:

- Quantitative assessments
- Qualitative assessments
- Relevant time periods for assessments
- Reputational risk and enhancement for equity investors

Throughout this section of the report we refer to two types of individual:

- “Financial analysts”, who assess market valuations of shares to determine whether they represent good value for money or not – how they do this is described in general terms in what follows.
- “Environmental advisors”, who provide environmental information to the financial analysts to assist them with their work on valuations. Within each organisation, the

environmental advisor performs an environmental appraisal of firms and provides a report to the financial analysts.

#### **D 4.2 Quantitative Assessments**

When equity analysts make their valuations they rely heavily on the quantitative data provided by the organisation, particularly items in the balance sheet and profit and loss account in the annual report and accounts. It was clear from the discussions, however, that little financial data are applied to environmental (or any other “sustainability”) criteria, except perhaps charitable donations. Thus environmental criteria can get excluded from this type of assessment.

Based on our discussions if equity analysts are to include environmental issues in their quantitative assessments toward valuation, they need to have relevant information presented in a quantified manner. The type of information that might be considered useful according to the interviewees includes data such as expenditure on environmental matters and revenues and/or cost savings from environmental sources, for example as collected by the DEFRA survey on annual environmental expenditure, particularly for benchmarking purposes. It was reported that these types of data are not available within the sources currently used, however, there would be interest in exploring what type of data could be available.

#### **D 4.3 Qualitative Assessments**

In addition to quantitative data, equity analysts also assess the quality of a firm’s management. These assessments aim to establish the extent to which the firm’s management is capable of implementing strategies that will deliver sustained competitive advantage, and thus maintain a strong revenue stream. Interviews revealed that analysts review firms’ publications, including annual report and accounts, media coverage, trade press and brokers’ reports, and conduct regular dialogue with firms’ financial directors and investor relations managers, and meet the Chief Executive Officer (CEO) at least annually. Their conclusions aim to establish how profitably the firm is managed internally and how well the firm competes against its rivals and serves its customers. These qualitative assessments will influence the analysts’ valuation of stock along with the quantitative assessment.

The specialist environmental advisors interviewed indicated that their inputs on environmental issues into the stock valuation work of the financial analysts are as follows. The reports produced by these internal environmental advisors were identified to vary significantly in size, one to 16 pages, though the information covered appeared relatively consistent:

- extent of engagement, vision, values, board level response;
- risks and opportunities, e.g. threat of boycotts, competitors positions, sector best practice;
- key performance indicators, including waste, water, energy, NO<sub>x</sub>, SO<sub>x</sub>, CO<sub>2</sub>, land, prosecutions, health and safety; and
- policy content, environmental management system descriptions, reporting policy.

Environmental analysts currently obtain their data from firms’ published reports (e.g. environmental, corporate social responsibility and annual reports and accounts),

meetings and conversations with key personnel, including investor relations, human resources, environmental (where there is a specific unit) managers, the company secretary and the CEO. In addition, the reputation among stakeholders is considered, either in terms of company reputation or product reputation where the company name may not be meaningful to some stakeholders. Stakeholders include customers, staff, investors, NGOs, governments/regulators and their agents.

Mainstream fund managers have a duty to investors to invest in ways that maximise returns. They risk being sued by their investors if they base their decisions on criteria that could compromise returns. Basing analyses on environmental criteria can be viewed by financial analysts as presenting a risk of doing this where the environmental issues do not have a significant impact on the core business. Therefore, if the qualitative environmental information provided to them is not significant, in terms of core business financial impact, relative to other information on which they base their valuations, it will not be used in their analyses.

*Basing analyses on environmental criteria can be viewed by financial analysts as presenting a risk compromising investor returns if the environmental issues do not have a significant impact on the core business. Therefore, if the qualitative environmental information provided to them is not significant, in terms of core business financial impact, relative to other information on which they base their valuations, it will not be used in their analyses.*

**POINT TO NOTE**

In the above context, it was suggested by interviewees that oil companies investing in renewable technology would not brief their stock broker's analysts on it and merely keep to briefing them on exploration, as that is the part of the business generating the most significant returns. That being the case, it was questioned whether the issue of renewable technology research would feature in financial analysts' outputs, notwithstanding that their environmental advisors may have briefed them independently on it. One interviewee speculated that the business reality may be that a firm currently not investing in renewable technology research may buy a renewable technology business when the economics of the industry are more favourable, and that financial analysts may currently recognise this as an acceptable business risk to take.

#### **D 4.4 Relevant Time Periods**

Within equity investment, the time periods on which judgements and decisions are made tend to be relatively short:

- review and appraisal of financial performance of funds and fund managers tends to be assessed quarterly (every three months); but
- where the annual dividend paid out by a firm on a share is a planned and expected income stream for the investor, financial projections are typically considered/calculated over a two year period, although in extreme cases it was reported that 10 years might also be considered.

Influences that have short-term effects on financial performance are those that tend to be considered. Since financial analysts base their analyses on information to which they

themselves are confident they can attach a reasonable degree of certainty, factors with longer-term but uncertain influences may not be considered until the effects can clearly be determined. This short-term view means that the analysts may be limiting their consideration of environmental factors. For example, climate change may be viewed as an issue affecting the leisure industry, e.g. firms specialising in ski holidays where availability of good skiing conditions is decreasing. However, climate change could in the future have financial implications for a far wider spectrum of industry, although these are in many areas the subjects of current scientific debate, for instance the appropriate timescales relevant to a move from fossil fuel to renewable technology in energy sectors. Within current practices, climate change is unlikely to influence valuations within these other industry areas until the affect can be seen in a tangible way that it is with the leisure industry above.

#### **D 4.5 Reputational Risk and Enhancement for Equity Investors**

An emerging phenomenon over recent years has been potential reputational risk to equity investors through association with firms who have attracted negative publicity from NGOs and special interest groups. An extreme, though acknowledged to be exceptional example is the threatening behaviour directed at the bankers to Huntingdon Life Sciences in 2001.

*Reputational risk to equity investors through association with firms who have attracted negative publicity is one that in URS' experience is causing increasing worry to investors.*

**POINT TO NOTE**

Based on our discussions it would appear that current practice is for the fund managers to discuss these issues prior to acting, with their customers who are typically trustees of pension funds and charities. They would have policies and process in place to enable reputational issues to be addressed through dialogue with their customers.

#### **D 4.6 Summary**

Business risk is assessed by investment analysts in a qualitative sense using business risk and management concepts during on internal expertise and knowledge of how certain factors affect organisations in different sectors. For mainstream institutional investors and their brokers, business risk is evaluated primarily, if not solely, in the context of earnings opportunity or threat in a holistic manner. Environmental issues have historically been perceived to be a subset of political and legal business risk issues. The coverage and consideration of environmental issues can vary widely across sectors dependent on a variety of factors including regulatory constructions and stakeholder and customer demands. More recently fund managers and brokers have started to employ environmental criteria advisors who provide inputs on environmental issues as part of a stock valuation analysis. However, the ultimate fate of the inputs from these specialist advisors is at the mercy of the financial analysts, as these individuals risk being sued if they base decisions on criteria that could compromise returns. Environmental criteria are often considered to fall within this category.

## D 5 INSURANCE

### D 5.1 Interview Methodology

Two large, FTSE 100, insurance firms were selected. Between them they represent a substantial proportion of the UK insurance market. Interviews were conducted with an environmental advisor in one insurance firm and with a liability risk manager in the other. Interviews with insurance providers looked at how environmental issues are addressed in insurance. The discussions covered the following topics:

- Support from the Environment Agency
- Liability insurance and environmental risk
- Property insurance and environmental impacts
- Specialist markets
- Information relied upon
- The Association of British Insurers
- The EU Liability Directive

#### Liability insurance and environmental risk

The rule in liability insurance is that what is not explicitly excluded is deemed to be included within insurance cover. Insurance principles have been developed to put the insured party under obligation to pass on all relevant information to the insurer to prevent the situation where insured parties could withhold information and prevent some risk or issue being explicitly excluded. Clear understanding of issues and implications for pollution linkages, from source through pathway to target, is therefore required. The interviewees expressed confidence in their knowledge and ability in the identification of potential pollution sources from information obtained on site activities and conditions. They indicated a similar degree of confidence on identifying pathways from the information they get on local conditions. However, they indicated that they were not always confident in their knowledge of potential targets for pollution incidents, e.g. the nature and operations of neighbouring businesses that are not their clients.

#### **POTENTIAL OPPORTUNITY**

*The representatives of the finance sector interviewed reported that they had difficulty in identifying operations of neighbouring sites (and/or sites in the vicinity) and considered the implications of contamination from and also migrating to these third party sites. There is an opportunity for some training or generation of guidance on identification of an organisation's operation and from this, identification of implications for contamination. The Environment Agency property search project may also provide an opportunity for the Environment Agency in this area.*

Typically, pollution liability is explicitly excluded from liability insurance cover, which came about in the 1990s after concerns over developments in the USA. It was reported during the discussions with the insurance representatives interviewed, however, that law courts have interpreted this exclusion, as only applying to pollution that occurred after the exclusion came into force. Furthermore, if the pollution may have manifested itself after the exclusion came into force, but its occurrence can be traced to an event before the exclusion it may be deemed to be included.

## D 5.2 Property Insurance and Environmental Impacts

Based on the interviews, the main issue perceived within the property insurance business is cover against fire damage. It was reported that cover can specify the fire fighting substances to be used and these may often include those that are not environmentally damaging. However, in some cases there are no alternatives to environmentally harmful substances.

Interviewees queried whether environmental performance of replacement goods should be specified or considered during claim settlement. Within current practices, this does not appear to be considered, however there is potential scope for requiring replacement goods to be environmentally beneficial (or not harmful).

## D 5.3 Specialist Markets

Insurance cover for “sensitive industries” has been considered but, based on the experience of one insurer, it is currently not regarded as worth pursuing as an insurance product. Anecdotal evidence was provided by one interviewee that an attempt was made by Swiss Re to establish specialist cover for environmentally sensitive industries such as chemicals, based on an “ultimate caution” approach. It did not succeed as firms were generally considered either too poorly run to be insurable or so well run that insurance cover was not really necessary.

## D 5.4 Information Relied Upon

Insurers obtain information about businesses they are insuring through site visits, inspection of publicly available documents and records, and interrogation of geographical information systems. Their knowledge of environmental impacts has been built up on an industry by industry basis, with a focus on issues pertaining to particular industries, e.g. emissions from chemical processors, rather than taking a generic view of environmental issues across all industries. They stress the need to understand the peculiarities of individual industry sectors.

### **POTENTIAL OPPORTUNITY**

*Interviews indicated that some form of independently produced company and/or sector environmental performance profiles that considered sector specific environmental impacts and emissions information, in addition to the more readily available metrics such as fines and prosecutions would be of value. The Environment Agency may be uniquely placed to provide such information. Through the many site inspections performed, the monitoring results and data available, the Environment Agency would be able to develop sector profiles presenting information on overall sector performance, sector impacts, emissions and scale of fines, prioritising on those which the Environment Agency considers from its expertise represent the greatest risks to the environment. The information that was expressed as useful such as:*

- *Information on typical processes and impacts on a sector basis;*
- *Range of sector performance from emissions to prosecutions with sector averages;*
- *Information on the key challenges found by the sector and implications;*

- *Consideration of future challenges;*
- *Meeting and engaging with industry.*

It was also mentioned that the quality of site level management is considered to be a key element for consideration within their assessment. Currently this is based on the knowledge of the assessor.

***POTENTIAL OPPORTUNITY***

*As the Environment Agency conducts a considerable volume of site visits by personnel with appropriate training and knowledge there may be an opportunity for the Environment Agency to work with the financial sector to provide such information.*

*A working group may be a good mechanism for achieving this, potentially using the OPRA methodology as an example or starting point.*

Insurers consider that they generally have good postcode and sub-postcode related data drawn from public sources and their records of site visits. Geographical information systems (GIS) are also helpful informing on potential sources of pollution.

The interviewees indicated that independent benchmarks or indices are considered to be of limited value as it is site-by-site comparisons to enable an understanding of the balance of risk that most influences their decisions. Further, the risks have to be understood within the context of the industry sector, pan-sectoral benchmarks are not meaningful. For instance, an ISO 14001 certificate or a high ranking in an index may give small a degree of comfort that there is management commitment, but it will not influence a decision on whether or not to insure. Furthermore, it was reported that metrics such as fines and prosecutions are not a good indicator when viewed in isolation, the underlying reasons for the fines/prosecutions being of more interest.

**POTENTIAL  
OPPORTUNITY**

*With the apparent low value that the sector places on the various benchmarking documents, is there an opportunity for the Environment Agency to use and adapt their benchmarking report "Spotlight" to address the identified concerns and provide the information required by this sector?*

*Of particular importance is the fact that "Spotlight" is based upon verified performance data rather than qualitative measures of systems or policies. This latter fact being of particular concern to the financial industry, the Environment Agency needs to publicize better the basis of Spotlight so that a wide group understand/perceive its difference from other benchmarking documents. Specific other actions/changes Spotlight and/or other indices that would also address specific data gaps*

- *More information on the criteria and methodologies being used in ranking.*
- *Sector comparisons are of more interest than across sectors.*
- *Provision of some information on business size.*
- *Year on year comparisons of performance.*
- *Information on the action that caused the fine is potentially of more interest than the size of the fine itself.*
- *Comparisons at a site level and also between corporations or holding companies.*

**D 5.5 The Association of British Insurers (ABI)**

During the 1980s the ABI established a series of working groups to advise insurers on specific issues. This practice has now declined and the ABI sees itself as more of a lobbying, political organisation. ABI did establish a working group on environmental risk which involved the Environment Agency and the Loss Prevention Council. However, the work of this group has been temporarily shelved following issues such as Y2K and the terrorist attacks of September 2001 and the priority given to addressing risk associated with Y2K failure and terrorism.

During the interviews, it was indicated that as the ABI no longer provides an effective forum for insurers to debate policy issues, there may be inconsistencies across the industry relating to the settlement of claims. For instance, for a particular situation insurer A may pay out £X, insurer B £Y and insurer C may not pay out. Whilst it was acknowledged that there is a need to maintain competition between insurers, the absence of a forum to agree broad consensus was felt to be a potential hindrance to progressing improvements.

**POTENTIAL  
OPPORTUNITY**

*Working with the ABI, the Environment Agency could potentially facilitate the insurance industry's understanding of environmental impacts on insurance risk. This would be consistent with the Environment Agency's earlier participation in the ABI working group on underwriting pollution risks (see above).*

**The EU liability directive**

In 1993, the European Commission published for discussion a green paper on Remedying Environmental Damage, this document which contains the principle of “polluter pays”, has since been succeeded by a White Paper in 2000. The polluter pays principle is confirmed within this document but also included two additional principles of environmental protection: prevention and the precautionary principle, and thus result in more responsible behaviour on the part of business.

For the insurance sector these proposals have introduced concerns, a key feature of the original proposal was mandatory insurance. Interviewees reported that the insurance industry is not in favour of mandatory insurance for environment-related matters. They explained that proposals relating to biodiversity give cause for concern mainly on two key points:

- How can damage to biodiversity be quantified consistently?
- Is insurance is the correct mechanism for addressing biodiversity?

The theory of insurance is that a third party should be restored to the position they were in before the incident that gave rise to the claim. In the case of biodiversity, who would be the third party, the statutory body responsible for environmental protection, the landowner or the polluter? Remedial costs are dealt with by a statutory charge, which is meant to teach the polluter a lesson. Being able to take out insurance cover would not teach the lesson.

The issue of retrospectiveness also gives cause for concern for the insurance industry, as it is not aligned with current practice. There is a principle generally applied that premiums collected at an earlier point in time would not cover an aspect that is introduced now.

**D 5.6 Summary**

With respect to liability insurance, where pollution is not excluded from policies, insurance companies review and consider the implications of pollution issues and linkages (i.e. source, pathway, receptor). This information is gathered based on experience and also site visits and publicly available documents and records.

Independent benchmarks or indices were considered to be of limited value, with pan-sectoral benchmarks also not considered meaningful. Site-by-site comparisons were considered important as they enabled a better understanding of the balance of risk along with an understanding of peculiarities associated with individual industry sectors.

**APPENDIX E**  
**INTERVIEW PROTOCOL**

# **INTERVIEW METHODOLOGY FOR ENVIRONMENT AGENCY ENVIRONMENTAL RISK RESEARCH AND DEVELOPMENT PROJECT 2002**

## **Introduction**

This paper describes the methodology for the structured interviews for the Research and Development Project on Corporate Environmental Risk Management for the Environment Agency (EA). This methodology is for interviews in the waste, construction and agricultural sectors only since the EA has specific requirements for interviews in the financial sector.

The paper sets out the basic structure for the interviews under headings reflecting key topics to be discussed, namely:

- Risk assessment
- Risk appetite
- Risk management
- Information and communication
- Monitoring
- Support from third parties

The paper describes the method by setting out questions which the interview should seek to answer. The questions should not, however, be taken as a script to work from verbatim. The danger with that approach is that it may result in unrepresentative answers, e.g. the question *how well do staff understand what risks are acceptable to the board?* If asked directly this may get a very positive answer from an interviewee keen to make a good impression. Interviewers should use their experience to draw out answers to the questions, such as the example just given, by probing around the issues.

## **Rationale for the Methodology**

The methodology aims to meet the objectives of the EA in the project, namely to identify

- Current practices in corporate environmental risk management, with particular focus on relationships with corporate governance, and
- Ways in which the EA could provide more support for corporate environmental risk management.

The methodology will also reflect the findings of the literature review phase of this project, a key finding of which was that the basic premise of business risk is that there are two sides to the issue:

1. Risks in the form of threats to the business being able to fulfil its objectives and to the interests of its investors, its own staff and wider stakeholders.
2. Risks a business is prepared to take in order to add value, through increasing profits, reducing cost of capital, gaining access to more capital and in order increase its investors' value.

The risk assessment section of the interviews will seek to address the above finding, while a section of the interview is devoted to exploring how the EA could provide more support, but without being explicit about this objective. Coverage of risk management with particular focus on relationships with corporate governance is explained as follows.

London Stock Exchange Requirements on Corporate Governance, state that “the board [of directors] should maintain a sound system of internal control to safeguard shareholders’ investment and the company’s assets”. The Turnbull Committee (referred to above) sets out guidelines on how to comply with those requirements and lists the following components of a sound system of internal control:

- Risk management
- Control environment and control activities
- Information and communication
- Monitoring

In order to judge the effectiveness of each of these elements, the guidance lists some example questions. These questions are reflected in the methodology.

The methodology is now described in the form of questions the interview should seek to answer.

### **Management Structure**

- What is the management structure for dealing with corporate environmental risks? Are environmental risks managed by a dedicated team/individual or in concert with other disciplines, e.g.:
  - health and safety
  - facilities/property
  - corporate social responsibility
  - finance
- Who has responsibility for management of day-to-day corporate environmental risk-related issues?
- What are the reporting lines, vertical and horizontal, for addressing corporate environmental risks?

### **Risk Assessment**

- Who has responsibility for identifying risks within the organisation? What sources of information are accessed?:
  - What people – e.g. regulators, trade association, supply chain, competitors, etc.
  - What media – e.g. trade press, specialist environmental media, etc.
- How is a “risk” defined by the organisation? What factors influence evaluation of a risk? E.g.:
  - Degree of environmental harm, and how that is calculated
  - Degree of financial impact and how that is calculated
  - Market/competitive issues and they are defined
  - Stakeholder reputational/issues and how they are defined
- How are environmental risks characterised as being distinct from business risks? How are environmental risks rated/ranked compared to other business risks?
- How is materiality defined?

- How are business risks that may result in environmental benefits identified by the organisation? What is the balance between identifying environmental risks in the form of threat and in the form of opportunity within the organisation?
- What tools and techniques are used for environmental risk assessment, and for what type of assessment, i.e. qualitative, quantitative or semi-quantitative, e.g.
  - Software applications
  - Guide books
  - Widely available methodologies, e.g. OPRA, FMEA etc.
 Why have they been used? What are the perceptions/opinions of them?

### **Risk Appetite**

- How is the organisation's approach to environmental risk generally characterised, e.g.
  - Accept the risks in view of relative financial consequences
  - Mitigate the risk (why?)
  - Transfer the risk e.g. by insurance (why?)
- How is the organisation's interpretation of the difference between gross risk and residual risk, i.e. risk taking account of control systems in place, characterised? How does this difference influence its risk appetite?

### **Risk Management**

- What are the connections and linkages between environmental risk management systems and other business risk management systems?
- What are the company's objectives? How clear are they? How effectively have objectives been communicated? To what extent do all levels of staff have sufficient direction on risk assessment and control?
- What are the performance indicators and targets associated with objectives? How well are they understood by all levels of staff?
- How regularly/often are risks identified and assessed?
- How well do all levels of staff understand what risks are acceptable to the board?

### **Control environment and control activities**

- How well do the company's culture, codes of conduct, human resource policies, and performance and reward systems support environmental risk assessment and internal control system?
- What degree of competence and integrity do senior management's actions evidence? To what extent do they foster a climate of trust?
- To what extent do definitions of authority, responsibility and accountability ensure decisions are taken by the right people? How well do staff understand what is expected of them and their freedom to act based on what is communicated to them by the company?
- To what extent do staff and contractors have the necessary knowledge, skills and competencies to manage environmental risk? To what extent is there an insistence on contractors to have environmental policies?
- How are processes/controls adjusted to reflect new/changing risks or operational deficiencies?

### **Information and internal communication**

- How reliable and relevant is the information provided to the board on progress against objectives and related risks? What forms does this information take and how appropriate are they?
- How effectively are information needs reassessed as objectives and related risks change or as reporting deficiencies are identified?
- How effective are communications channels for regulatory breaches? For issues which could adversely affect the company's financial or reputational standing?

### **External communication/disclosure**

- Who are the audiences for corporate environmental risk information?
- What information is communicated to them? In what media and formats?
- How do audiences typically react to the information communicated to them?
- Is communication a two-way or one-way process?

### **Monitoring**

- What ongoing processes are embedded in overall business operations, and addressed by senior management, which monitor effective application of policies, processes and activities related to internal control and risk management? How effective are they?
- How effectively do monitoring processes address the company's ability to re-evaluate risks in response to changes, either internal or external? How effective are follow-up procedures to ensure action occurs in response to changes?
- How effective is communication to the board on effectiveness of ongoing monitoring of environmental risk and internal control? What arrangements are there for monitoring and reporting to the board risk and control matters of particular importance? How effective are they? These could include matters that could adversely affect the company's financial or reputational standing.

### **Support from third parties**

- What support does the organisation currently receive from the EA for its corporate environmental risk management? How effective does it consider this support to be?
- For what areas of corporate environmental risk management does the organisation receive support from other sources, e.g. trade association, consultants, guidebooks, international standards, etc. How effective is this support?
- For what other areas of corporate environmental risk management does the organisation consider third parties could provide valuable support? How might this support be provided?
- For what other areas of corporate environmental risk management does the organisation consider the EA could provide valuable support? How might this support be provided?

### **Impact of Turnbull and Association of British Insurers guidance**

- What has been the impact on corporate environmental risk management practices of
  - Turnbull guidance on internal control?
  - ABI guidance socially responsible investment?

# **INTERVIEW METHODOLOGY FOR ENVIRONMENT AGENCY ENVIRONMENTAL RISK RESEARCH AND DEVELOPMENT PROJECT 2002**

## **Introduction**

This paper describes the methodology for the structured interviews for the Research and Development Project on Corporate Environmental Risk Management for the Environment Agency (EA), addressing specific requirements for interviews in the financial sector.

The paper sets out the basic structure for the interviews under headings reflecting key topics to be discussed, namely:

- Lending appraisals
- Investment appraisals

The paper describes the method by setting out issues which the interview should seek to address. All interviews will be conducted by Andy Hughes, a former commercial lending officer with NatWest, who has also assisted Prudential Portfolio Managers with research into connections between corporate environmental performance and stock valuations.

## **Rationale for the Methodology**

The methodology aims to meet the objectives of the EA in the project, namely to identify:

- current practices in corporate lending appraisals toward addressing environmental matters;
- current practices in stock market investment appraisals toward addressing environmental matters, and
- ways in which the EA could provide more support for lenders and investors.

The interviews will also address the findings of the literature review phase of this project, a key finding of which was that the basic premise of business risk is that there are two sides to the issue:

1. Risks in the form of threats to the business being able to fulfil its objectives and to the interests of its investors.
2. Risks a business is prepared to take in order to add value, through increasing profits, reducing cost of capital, gaining access to more capital and in order increase its investors' value.

A section of the interview is devoted to exploring how the EA could provide more support without being explicit about this objective.

The methodology is now described. It is divided into three parts:

- Lending appraisals

- Equity investment appraisals
- Governance arrangements relevant to both lenders and investors.

### **Lending Appraisals**

The interviews will address the following topics:

- Security
- Ability to repay
- Quantitative assessments
- Qualitative assessments
- Relevant time periods for assessments
- Interest rate considerations
- Reputational risk and enhancement for lenders
- “Green loans” and “green bonds”
- Support from third parties.

Throughout the interviews will differentiate between how lenders deal with natural but unpredictable occurrences, e.g. weather extremes, and unnatural but predictable occurrences, e.g. EC directives.

### **Security**

Banks have historically taken land, buildings and other tangible assets as security for loans and overdraft facilities. Interviews will aim to discover the extent to which environmental issues influence security valuation policies. They will also seek to identify the relative importance of taking security for loans compared to assessment of the ability to repay.

### **Ability to Repay**

Revenue streams, operating expenditure, retained cashflow and cost of capital will all, inter alia, influence a firm’s ability to repay a loan. Interviews will seek to identify how environmental considerations affect such issues, for instance

- Threats to revenues from environmental poor environmental performance, e.g. customer boycotts.
- Increased operating costs from clean-up activities or fines, or reduced costs through greater resource efficiencies.
- Environmental risk to capital.

### **Quantitative Assessments**

The interviews will aim to answer questions such as the following:

- What performance figures are used in lending assessments?
- How are adjustments/discounts made for future projections?
- What environmental influences on the above are taken into account and how are they assessed?

### **Qualitative Assessments**

The interviews will aim to answer questions such as the following:

- To what extent does “quality of management” influence lending appraisals?
- How do lenders define “quality of management”?
- What environmental factors might influence “quality of management” and how?

### **Relevant Time Periods**

Lending facilities fall into two categories:

- Loans with a fixed term
- “Rolling” facilities subject to periodic review and renewal.

Since environmental issues are often of a long term nature for businesses, in the case of fixed term loans, the interviews will aim to discover how environmental matters are appraised, e.g. whether just in the context of the life of the loan or beyond it. For rolling facilities the interviews will seek to identify the time horizons generally applied for future projections and how these are applied to environmental matters.

### **Interest Rate (and fee) Considerations**

Varying interest rates and arrangement fees provide opportunities for lenders to differentiate between those responsible for environmental harm and those for environmental benefits. Interviews will aim to discover the extent to which lenders are taking these opportunities and what their motivations are in so doing, e.g. protecting their financial interests or fulfilling an element of their own corporate policy to address environmental performance.

### **Reputational Risk and Enhancement for Lenders**

The criteria described so far deal with financial risk to lenders. An emerging phenomenon over recent years has been potential reputational risk to lenders through association with firms who have attracted negative publicity from NGOs and special interest groups. Postulating further, it may be that lenders recognise scope for reputation enhancements through financing environmental improvement projects. Interviews will address:

- The extent to which lenders assess risks and opportunities for their own reputation from the environmental performance of their borrowers.
- How such risks and opportunities are assessed, quantitatively and qualitatively.

### **“Green Loans”, “Green Bonds”**

Interviews will aim to discover the extent to which there may be a valid market for green loans or green bonds, addressing such questions as:

- What types of purpose might attract a green loan or green bond?
- How might a green loan or green bond be differentiated, e.g. in pricing (interest), duration, security required etc.?
- What is considered to be the likely demand for such financial products?
- What would be the benefits to a bank of offering such products?

### **Support from Third Parties**

- What support do lenders currently receive from the EA for dealing with environmental risk in commercial lending appraisals? How effective does it consider this support to be?
- For what areas of understanding environmental risk do lenders receive support from other sources, e.g. trade association, consultants, guide books, international standards, etc. How effective is this support?
- For what other features of understanding corporate environmental risk management do lenders consider third parties could provide valuable support? How might this support be provided?

### **Equity investment Appraisals**

The interviews will be concerned with the extent to which environmental matters influence equity investment appraisals, and will address the following topics:

- Quantitative assessments
- Qualitative assessments
- Relevant time periods for assessments
- Reputational risk and enhancement for equity investors
- Support from third parties.

Throughout the following descriptions, it should be born in mind that interviews will address equity investment appraisals in the context of day-to-day share dealing and IPOs.

Throughout the interviews will differentiate between how lenders deal with natural but unpredictable occurrences, e.g. weather extremes, and unnatural but predictable occurrences, e.g. EC directives.

### **Quantitative Assessments**

The interviews will aim to answer questions such as the following:

- What performance figures are used in equity investment appraisals?
- How are adjustments/discounts made for future projections?
- What environmental influences on the above are taken into account and how are they assessed?

### **Qualitative Assessments**

The interviews will aim to answer questions such as the following:

- To what extent and how does “quality of management” influence equity investment appraisals?
- How do equity investors define “quality of management”?
- What environmental factors might influence “quality of management” and how?

### **Relevant Time Periods**

Equity investors are often criticised for taking a short term view in their assessments, since environmental issues are often of a long term nature for businesses. The interviews will aim to identify time horizons used in equity investment appraisals and the rationale for the periods chosen, asking what drives investment income strategy, e.g. long term dividend yield or profits from short term trades. Interviews will then address how environmental matters are appraised, i.e. the time horizons generally applied for future projections and whether these are applied to environmental matters or whether they are lengthened.

### **Reputational Risk and Enhancement for Equity investors**

The criteria described so far deal with financial risk to equity investors. An emerging phenomenon over recent years has been potential reputational risk to equity investors through association with firms who have attracted negative publicity from NGOs and special interest groups. Postulating further, it may be that equity investors recognise scope for reputation enhancements through financing environmental improvement projects. Interviews will address:

- The extent to which equity investors assess risks and opportunities for their own reputation from the environmental performance of their borrowers.
- How such risks and opportunities are assessed, quantitatively and qualitatively.

### **Support from Third Parties**

- What support do equity investors currently receive from the EA for dealing with environmental risk in commercial equity investment appraisals? How effective does it consider this support to be?
- For what areas of understanding environmental risk do equity investors receive support from other sources, e.g. trade association, consultants, guide books, international standards, etc. How effective is this support?
- For what other features of understanding corporate environmental risk management do equity investors consider third parties could provide valuable support? How might this support be provided?

### **Governance arrangements relevant to both lenders and investors**

#### **Management Structure**

What is the management structure for dealing with corporate environmental risks? Are environmental risks managed by a dedicated team/individual or in concert with other disciplines? E.g.:

- health and safety
- facilities/property
- corporate social responsibility
- finance
- Who has responsibility for management of day-to-day corporate environmental risk-related issues?
- What are the reporting lines, vertical and horizontal, for addressing corporate environmental risks?

#### **Control environment and control activities**

- How well do the company's culture, codes of conduct, human resource policies, and performance and reward systems support environmental risk assessment and internal control system?
- What degree of competence and integrity do senior management's actions evidence? To what extent do they foster a climate of trust?
- To what extent do definitions of authority, responsibility and accountability ensure decisions are taken by the right people? How well do staff understand what is expected of them and their freedom to act based on what is communicated to them by the company?
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