

RISK, THE ENVIRONMENT AND THE ROLE OF THE INSURANCE INDUSTRY



PREPARED BY THE UNEP FI AUSTRALASIAN
ADVISORY COMMITTEE ON INSURANCE

JANUARY 2003



UNEP **Finance Initiatives**
Innovative financing for sustainability



Assistance in the publication of this report has been provided by Environment Australia.

PROJECT TEAM MEMBERS

Name	Organisation
Terry A'Hearn	EPA Victoria
Helen Bloustein	EPA Victoria
Elayne Grace	Tillinghast-Towers Perrin
Cami Mok	American International Group
Justin Macinante	The Environmental Rating and Reporting Agency
David Pinch	Environment Australia
Bruce Thomas	Swiss RE
Stephen Westwood	Gerling
Philip Woods	Insurance Australia Group

DISCLAIMER

This report is released by EPA Victoria on behalf on the United Nations Environment Programme Finance Initiatives (UNEP FI) Australasian Advisory Committee on Insurance. The Commonwealth of Australia through the Department of the Environment and Heritage also provided funding for the development and printing of this publication. Unless otherwise stated, all the interpretation and findings in this publication are those of the UNEP FI Australasian Advisory Committee on Insurance. The views expressed do not necessarily represent the views or reflect the policies of the Commonwealth or the State of Victoria.

The Commonwealth of Australia and the State of Victoria do not accept responsibility for the accuracy or completeness of the contents of this publication, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication.

This publication may be reproduced in whole or in part and in any form for educational or no-profit purposes without special permission, provided acknowledgment of the source is made. EPA Victoria and the UNEP Finance Initiatives would appreciate receiving a copy of any publication that uses this report as a source.

© EPA Victoria, January 2003

Printed on recycled paper

INTRODUCTION

1.1 Background.....1

1.2 Structure of Report1

1.3 Invitation to Respond.....2

SECTION A: RISK MANAGEMENT, INSURANCE AND ENVIRONMENTAL RISK

2. INSURANCE AND RISK MANAGEMENT.....3

2.1 Ways of Risk Management.....3

2.1.1 Risk Avoidance3

2.1.2 Risk Reduction.....3

2.1.3 Risk Transfer3

2.1.4 Risk Retention4

3. ENVIRONMENTAL RISK – ONE OF THE POTENTIAL SOURCES OF LIABILITY5

3.1 What is Environmental Risk?5

3.2 Environmental Risk and Risk Management6

3.3 Environmental Risk Factors Used in the Differentiation of Insurance Risk7

SECTION B: WHAT HAPPENS IN AUSTRALIA NOW?

4. HOW COMPANIES MANAGE ENVIRONMENTAL RISK.....10

4.1 The Consequences of Not Managing Environmental Risk.....10

4.2 How do Companies Manage their Environmental Risks?.....10

5. AUSTRALIAN ENVIRONMENTAL LAW AND ITS IMPLICATIONS.....13

5.1 An Overview of the Legal Framework.....13

5.2 Environmental Law and Insurance14

5.3 Contaminated Site Liabilities and Clean Up Costs14

SECTION C: INSURANCE IN AN ENVIRONMENTALLY SUSTAINABLE FUTURE

6. INSURANCE FOR LIABILITY ARISING FROM ENVIRONMENTAL RISK.....16

6.1 Environmental Insurance: Available Products, Internationally and Locally16

6.2 Casualty Insurance18

6.3 Other Insurance Products18

7. MOVING BEYOND TRANSFERRAL OF LIABILITY FOR ENVIRONMENTAL RISK TO ADDRESSING ENVIRONMENTAL RISK ITSELF.....19

7.1 Opportunities for the Insurer and the Environment including Motor and Home Insurance.....19

7.2 Illustrations of Innovative Motor Insurance Products.....19

7.3 Opportunities for the Insurer and the Environment21

TABLE OF CONTENTS

8. CONCLUSION AND FURTHER RESEARCH.....	24
8.1 Next Steps	24
SECTION D: BIBLIOGRAPHY AND APPENDICES	
9. BIBLIOGRAPHY.....	26
10. ACKNOWLEDGMENTS.....	27
11. APPENDIX 1: CLEAN-UP REGULATIONS - SOME EXAMPLES	28
11.1 Introduction.....	28
12. APPENDIX 2: INTERNATIONAL ENVIRONMENT INSURANCE PRODUCTS.....	32
12.1 AIG (A Selection of Products), USA	32
12.2 Aviva, UK	32
12.3 CHUBB Environmental, USA.....	33
12.4 Gerling-Konzern, Germany.....	33
12.5 Kemper Environmental, USA.....	33
12.6 Swiss RE, Switzerland	34
12.7 XL Insurance, USA	35
12.8 Yasuda Fire and Marine Insurance Company Ltd, Japan	36
12.9 Zurich Insurance Company, Switzerland	36
13. APPENDIX 3: GLOSSARY OF TERMS INCLUDING DETAIL OF ENVIRONMENTAL IMPAIRMENT (EI) COVERS IN EUROPE	37
13.1 A Comparison of Stand-alone Environmental Impairment (EI) Covers	38
13.2 Normal Operation Risk.....	39
13.3 Development Risk.....	39
13.4 Cost Limitations.....	39
13.5 Exclusions.....	41
14. APPENDIX 4: UNEP FI VOLUNTARY STATEMENT OF COMMITMENT.....	42
14.1 Statement of Environmental Commitment by the Insurance Industry.....	42
14.2 UNEP FI in Australasia	43
14.3 UNEP FI Australasian Advisory Committee on Insurance.....	44

1.1 Background

The United Nations Conference on Environment and Development in Rio de Janeiro in 1992 (UNCED, or the 1992 Earth Summit) resulted in a greater emphasis being placed on the role of the United Nations Environment Programme (UNEP) in promoting development that did not compromise the quality of life for future generations. The importance of sustainable development was reinforced at the Johannesburg World Summit on Sustainable Development 2002.

Pursuant to this mandate, and recognising the valuable contribution that the financial sector has to make in protecting the environment while maintaining the health and profitability of its business, UNEP started working with forward-looking organisations in the financial services sector in the early 1990s.

After initially launching a partnership with the banking sector, in 1995 UNEP joined forces with a group of leading insurers, reinsurers and pension funds. This group developed a statement of voluntary commitment for the sector (Appendix 4) whereby companies pledge that they would aim to achieve a balance between economic development, the welfare of people and a sound environment. Over the intervening years, insurers have increasingly acknowledged that taking environmental considerations into their daily business operations not only furthers stakeholder dialogue, but also enhances shareholder value and makes good business sense. To date the most prominent area of activity has been in relation to the climate change debate.

This UNEP collaboration with the financial services sector now proceeds under the name of the UNEP Finance Initiatives (UNEP FI). In Australia, through the agency of the Environment Protection Authority of Victoria, UNEP FI has established four advisory committees to promote

engagement of the financial services sector in Australasia, covering socially responsible investment, environmental credit risk, operational environmental management and the insurance sector.

In 2000, UNEP FI surveyed the global signatories to the insurance sector statement of commitment. Some key results of the survey can be found on page 12. Developing on the themes emerging from that report, the UNEP FI Australasian Insurance advisory committee has undertaken a project that aims to:

- define environmental risk;
- briefly evaluate the consequences of not addressing environmental risk;
- raise awareness of the tools that are used to deal with and manage environmental risk within companies and through this highlight the demand for and supply of insurance products that can either assist in addressing, minimizing, or recognizing environmental risk; and
- highlight how insurance (whether through products for car, home or other insurance, or specialized environmental insurance products) can play a larger role in working towards a more environmentally sustainable future and to assess what might be the drivers for use of these products.

1.2 Structure of Report

The Report is set out in three sections. The first of these begins with a brief consideration of risk management in general and the role that insurance plays in risk management for businesses. It then focuses on environmental risk as one of the sources of potential liability that a business would manage, before considering what the consequences might be of not properly managing environmental risk.

INTRODUCTION

This section is rounded off with general illustrations of how some companies manage their environmental risks.

The second section of the Report provides a closer examination of what currently happens in Australia in relation to environmental risk issues. It sets out a brief overview of Australian environmental law and how environmental risk management issues might arise for companies under that law.

The final section of the Report looks at how insurance addresses liability for environmental risk at present. It then considers whether there is a broader role for insurance in an environmentally sustainable future.

1.3 Invitation to Respond

The Australasian UNEP Finance Initiatives advisory committee on Insurance welcomes comments and feedback on this report. Please send comments and suggestions to:

UNEP Finance Initiatives - Australasian Liaison Office

EPA Victoria,

40 City Road,

SOUTHBANK, VICTORIA,

AUSTRALIA 3006

TEL: 61 3 9695 2538, FAX: 61 3 9695 2578

Web site: <http://www.epa.vic.gov.au/programs/UNEP/>

or

E: unep.fi@epa.vic.gov.au

2. INSURANCE AND RISK MANAGEMENT

2.1 Ways of Risk Management

Any organisation is exposed to an extraordinary range of risks, with the range of risks as diverse as the broad spectrum of opportunities afforded to the same organisation. Notwithstanding the range of risks the organisation faces, there are in reality only four possible responses that the organisation may adopt to deal with these risks; it may avoid, mitigate, retain or transfer the risk.

Within the risk management continuum the first two responses (avoidance and mitigation) may be categorised as risk control and the latter two (retention and transfer) as risk financing.

In general terms, the normal approach to risk management is to control all those risks that management feels it can control within the physical resources of the firm and finance the remainder. Effectively, risk financing funds those losses that remain after the application of risk control techniques, including both those risks accepted as not being able to be controlled and those where controls proved inadequate to contain the risk.

These risk management fundamentals apply whether dealing with environmental, financial, property damage or liability risk.

After considering each of these risk management approaches in turn and distinguishing between the relevant factors influencing the various options, management responses from an environmental risk perspective, will be examined.

2.1.1 Risk Avoidance

A business can choose whether to proceed with a particular investment on the basis of its perception of risk and

whether the firm is willing to assume the risk; effectively the threshold is the firm's tolerance for risk. This tolerance for risk will be a function of both the willingness of shareholders and management to accept the risk and also the industry in which the entity is operating. For example a company operating in the pharmaceutical or biotechnology industry may by the nature of its business have a different risk tolerance to a newspaper publisher.

2.1.2 Risk Reduction

The impact of measures such as loss prevention and loss control can be categorised as risk reduction. In a traditional insurance context these measures may include security measures and fire alarms, whilst in a more general context may include the mandatory use of seat-belts in cars and specified standards of building construction e.g. wind loading for buildings in tropical cyclone exposed areas.

In many instances adherence to required risk reduction measures is a prerequisite for insurance coverage, or alternatively is encouraged by insurers who may offer premium discounts for use of these measures.

2.1.3 Risk Transfer

A risk that one organisation is unwilling to bear may be transferred to another. This is insurance! In exchange for the payment of an agreed amount, (the premium) the insurer agrees to indemnify the client for losses that result from specified perils. Insurance is critical to the viability of many businesses, especially small business operating in industries or activities considered very risky for the size of firm.

Options and hedges also operate to transfer risk from one party to another. In some instances the counter-parties may be entities specifically established to engage in the hedging or option trading, but in many instances they will be entities whose risk arises from the opposite movement in a price or

SECTION A: RISK MANAGEMENT, INSURANCE AND ENVIRONMENTAL RISK

volume of supply. For example, a grain grower may hedge against a fall in wheat prices and in doing so may give up all or part of the potential gain from an increase in prices. On the other side of the transaction a flour miller will be prepared to give up potential benefits from a fall in the price of wheat in order to protect against a large increase.

2.1.4 Risk Retention

Risk is retained by businesses both on a voluntary and involuntary basis. Voluntary retention of risk results from a conscious decision to accept that a certain level of risk (for example up to a certain monetary limit) from any source should be retained rather than transferred to another party at a cost that includes a not insignificant frictional loading, i.e., the costs of the various parties in the risk transfer chain. Voluntary risk retention also includes acceptance of a level of risk that may be imposed by insurers; it is always voluntary to the extent that different offerings will always be available, albeit at differing terms. Involuntary risk retention occurs when a firm fails to identify and deal with a risk from within or outside the business and thus bears the risk unknowingly. Failure to recognise or understand a risk results in retention of the risk.

3. ENVIRONMENTAL RISK – ONE OF THE POTENTIAL SOURCES OF LIABILITY

3.1 What is Environmental Risk?

Environmental risk is characterized in many different ways in commercial and financial agreements that try to allocate, manage or transfer risk between parties. It might variously be described as a credit risk, compliance risk, political risk, operational risk, asset impairment risk, or even a technology risk, depending upon the context in which it is considered. However, these descriptions do not so much refer to the environmental risk itself, but rather reflect the manifestation of that risk in a particular situation and the perspective from which it is viewed.

In an empirical sense, 'environmental risk' refers to the likelihood and severity of a potential event that would have an adverse impact on the environment. What the 'environment' is will again depend on the context. For the sake of simplicity in this paper, it might be thought of in terms of the natural environment, as opposed to both the natural and man-made environment.

So environmental risk might be seen as the risk of an adverse impact on our natural surroundings. 'Environmental risk' is the risk to the environment, not the risk from the environment. The risk from the environment, in the form of extreme weather events (cyclones, hailstorms etc), natural disasters (earthquake, volcanic eruption, tsunami), or other catastrophic risk is generally dealt with in commercial agreements as 'force majeure' and as a separate coverage within insurance policy coverage.

Risk to the environment might result in damage to the environment, but it might also result in damage to a person or to their property. The damage to the natural environment may result in prosecution for breach of legislation or for non-compliance with regulatory requirements.

Thus, the environmental risk might manifest itself as a compliance or regulatory risk. If the damage is suffered by a third party, then they might seek to recover damages, in which case the risk manifests itself as the risk of litigation.

If the damage is suffered by the person whose activities have given rise to the environmental risk (that is, the first party) then it may impede that person's ability to carry on operations (an operational risk), it may impair one or more of that person's assets (asset impairment risk, which may be relevant to the person's funding arrangements), or it may generally affect the person's ability to service their debt arrangements (credit risk). Alternatively, environmental risk might manifest itself before any damage to the environment has occurred, through political or community action to prevent the activity taking place (political risk) or through the likelihood of higher standards being imposed on the subject activity (technology risk).

As noted above, how environmental risk is classified in any particular situation will depend also on the perspective from which it is viewed. Hence where an operation causes environmental damage through pollution in contravention of a licence condition, resulting in a direction to clean up and suspension of the licence, the financier might consider this a credit risk, the operator might call it an operational risk, while from the regulator's perspective it is a non-compliance issue.

A simple overall approach might be to consider environmental risk in terms of the types of liability to which it could give rise: these could be criminal, civil or commercial liability. Environmental risk resulting in regulatory non-compliance might give rise to criminal liability through prosecution, while civil liability would encompass directions to clean up or rehabilitate, and litigious actions by third parties. Commercial liability consequences would cover the other risk classifications generally given to the manifestations of environmental risk,

SECTION A: RISK MANAGEMENT, INSURANCE AND ENVIRONMENTAL RISK

such as credit risk, operational risk, and so on. Chapter 5 of this paper makes reference to how the legal framework in Australia operates.

How companies deal with these risks or how insurance covers any of these manifestations or potential consequences of environmental risk will depend on the terms and conditions of the particular policy form in which indemnity is sought.

The historical context of the US Superfund legislation has meant that much of the insurance industry focus with respect to environmental issues has centered on contaminated land and the issue of gradual versus sudden and accidental pollution coverage under general liability policies (see Appendix 3). However, environmental sources of risk may underlie a number of other types of claims.

Probably the most obvious examples of this in the Australian context are claims under professional indemnity policies by local government. Two prominent NSW instances are (i) *Armida City Council v Alec Finlayson Pty Ltd*¹ (negligently approving residential development on contaminated land) and (ii) the Wallis Lakes oyster case², where the NSW Government and Great Lakes Shire council were both found guilty of negligence in the environmental management of the waters where the oysters were farmed.

Another professional indemnity example is the risk for environmental engineers and consultants. Their advice is used by their clients to make decisions on how to manage operational risks and risks to the environment. This especially comes into play where a former industrial site with contamination is redeveloped for another use - whether residential or recreational. Other instances where environmental factors may be the source of insurance

claims are where inadequate management of cooling towers in building result in legionella, or improper maintenance at environmentally hazardous facilities lead to catastrophic results, such as was the case at the Coode Island facility in Melbourne, which resulted in an explosion, fire and toxic plume over urban and city areas.

3.2 Environmental Risk and Risk Management

Looking at each of the above components or stages of the available risk management approaches (as outlined in Chapter 2), from an environmental risk perspective, it is clear that many of the responses adopted by companies will be dictated by mixes of external and internal pressures and issues. The external pressures will come from a broad range of community interests. Whereas a firm may be willing to accept a significant level of financial risk exposure to, for example, currency movements and this is acknowledged as a normal business risk, exposure to an equivalent risk of loss from an exposure to environmental liability may not be at all acceptable to the broader community, thus forcing on the firm policies of either risk reduction to an acceptable level, or alternately risk avoidance to a material extent.

Risk avoidance and risk reduction are relatively easy, subject of course to an appropriate environmental impact or environmental hazards analysis. If the risk is considered to be excessive, the community response will be that the project or business process with which the risk is associated may not proceed until the relevant risk avoidance/reduction procedures are put in place, and an appropriate monitoring process agreed.

Voluntary risk retention may not be acceptable for many potential environmental liability exposures. In such instances the community and government may require that if certain activities are to be entered into, the firm must provide the relevant authority with an appropriate security to ensure compliance with relevant law or agreed

¹ *Armida City Council v Alec Finlayson Pty Ltd* (1999) FCA 330

² *Graham Barclay Oysters Pty Ltd v Ryan: Ryan v Great Lakes Council; State of New South* (2002) HCA 54

undertakings. This is particularly important where the project or process has a long term time horizon.

Risk transfer of environmental exposures has historically been a problematic class of insurance risk, due mainly to the unwillingness of insurance carriers to accept risk transfer of liability for gradual environmental impairment. For example, with regard to substance emissions, the insurance company may potentially face hard to calculate claims where the basis for liability or regulations on substance emissions may have been retroactively changed. Similarly, a comparatively innocuous substance can have substantially different effects when mixed with others or an operation may cause severe environmental damage that may only be revealed over time (for further information see Appendix 3). Insurers have been willing to give 'sudden and accidental' pollution coverage but many years of experience have indicated that even this coverage is fraught with difficulty as courts in various jurisdictions have applied differing interpretations to the clauses used to define this risk. Another issue may be the company's perception that it may not have as much of an incentive to reduce the risk if an insurance company has taken it on.

Is there behaviour that reduces both insurance risk and environmental risk/damage? Can we find a win-win situation for both the insurer and the environment? Increasingly, insurers are taking into account environmental risk factors when offering and pricing insurance.

3.3 Environmental Risk Factors used in the Differentiation of Insurance Risk

When making decisions on how to price insurance products, a range of environmental risk factors may be considered.

There are many factors for example:

- Age;
- Type of industry;

- Volume of discharges to the environment (greenhouse gas emissions, wastewater, impacted surface water runoff);
- Location of industry (i.e. proximity to rural, residential, industrial, marine environments, or sensitive areas like World Heritage sites);
- Territory (ie. is the operation in a country where there are rigid regulatory controls? Or in a country where regulatory controls may not be very stringent?);
- Types of chemicals and materials used (level of toxicity, longevity of chemicals, radioactive, etc.);
- Community acceptance of industry/operation; and
- Management controls (emergency response plans, contingency plans).

The following paragraphs discuss two of the factors that may be used in pricing insurance with inclusion of possible environmental implications – age and the type of business being undertaken.

Age can be a determining factor in assessing environmental risk. For instance, when rating coverage for underground storage tanks, the following factors are taken into account: size of tank, construction of tank, leak detection systems, monitoring programs in place, but one of the most important factors is the age of the tank. Typically, the risk of contaminant release from an underground storage tank increases significantly over time, especially hastened if the tank is situated in a corrosive environment. Additionally, the longer the underground storage tank has been used, the more likely there is going to be slow but calculable accumulation of releases from filling/fueling activities.

Another factor that is important in assessing environmental risk from an insurance perspective is the type of business being undertaken.

SECTION A: RISK MANAGEMENT, INSURANCE AND ENVIRONMENTAL RISK

Generally insurers assess risks in relation to those prevalent in different industries. According to Best's Underwriting Guide, published by AM Best in North America and used extensively by insurance industry professionals, the most hazardous occupations from an Environmental Impairment Liability (EIL) perspective include:

- Municipal governments;
- Petroleum refineries;
- Offshore drilling & production;
- Pesticide manufacturing; and
- Pulp and paper mills.

Based on the analysis in Best's Underwriting Guide, the range of environmental liabilities that different industries may be exposed to can be seen by looking at each of the above activities individually:

- Municipal governments:
 - Pollution exposures can arise in 3 ways: direct pollution for the authority's operations (e.g. dumps or landfills, incinerators, wastewater treatment plants), indirect pollution from failure to license or regulate others (e.g. sewerage system installers, pest control firms, disposal site operators) and indirect pollution liability from the failure to control or stop the spreading of pollution of others.
- Petroleum refineries:
 - The exposure of a petroleum refinery to environmental liability ranges from fuel storage, wastewater discharge, potential atmospheric pollution, sudden and accidental contamination to thermal pollution of surrounding water by discharge of heated water into nearby watercourses; and

- Discharge of noxious gases within and external to the plant may imperil nearby communities resulting in substantial liability for costs of cleanup and emergency response.
- Offshore drilling rigs and production platforms:
 - The potential for catastrophic environmental liability following a major incident includes; oil or gas blow-out, pipeline breach or rupture and uncontrolled flow from the well head;
- Pesticide manufacturing:
 - Pollution can occur during manufacture, storage, transportation and waste disposal activities. Exposure to both raw materials and the finished product may be applicable depending on the toxicity of the relevant materials; and
 - Contamination of water from manufacturing processes - both ground water and waste water is a potential issue and needs to be considered.
- Pulp and paper mills:
 - Use and discharge of water used in the processing of pulp to paper is a major environmental issue that has caused concern for many years;

Other well known industries and a selection of the potential environmental risks associated with their operations include:

- Car/Truck Dealerships, Service Stations, and Garages:
 - Under or above ground fuel and waste oil storage tanks and piping; disposal of waste oils, paints, ethylene glycol (antifreeze), used oil filters, asbestos brake linings, etc.;

SECTION A: RISK MANAGEMENT, INSURANCE AND ENVIRONMENTAL RISK

- Wastewater contaminated with oils/solvents from service bays into sanitary sewers or septic systems; and
- Drummed chemicals (including paints, solvents, and degreasers).
- Dry Cleaning and Laundry Facilities:
 - Improper use, storage and disposal of organic solvents, filters and waste residue;
 - Solvent emissions and spills during unloading to solvent tank;
 - Wastewater discharges from industrial laundries may contain a wide variety of contaminants from the industries serviced; and
 - Chlorinated solvents when exposed to fire can decompose into hazardous products (such as phosgene and carbon monoxide).
- Landfills (Municipal Solid Waste):
 - Leachate migration and subsequent contamination of soil, surface water, and groundwater in the vicinity of the landfill; potential impact of downgradient private water supply wells;
 - Air emissions released from the decomposition of landfill wastes resulting in the release of methane gas into the nearby community (e.g., methane gas detected in basements through foundation walls);
 - Contaminated landfill stormwater runoff into nearby soil and groundwater; and
 - Landfill location adjacent to wetlands resulting in leachate contamination of a surface waterbody and possible toxicity to aquatic life.

The above examples are only an illustration of the types of environmental risks that affect different industries. The next section of the paper looks at the implications for businesses of not taking these considerations into account.

SECTION B: WHAT HAPPENS IN AUSTRALIA NOW?

4. HOW COMPANIES MANAGE ENVIRONMENTAL RISK

4.1 The Consequences of Not Managing Environmental Risk

The impacts from not managing environmental risk can include:

- Reputational risk;
- Negative perception of company by community;
- Impact on company shareprice;
- Negative perception of company by regulatory agencies;
- Exposure to fines and penalties for breaches of environmental legislation, even jail or prison terms;
- Causing injury or death to people;
- Harm and damage to air, land, water ways, and groundwater;
- Harm and damage to flora/fauna;
- Magnification of environmental risk because not addressed in a timely fashion; and
- Campaign target of environmental pressure groups.

In the future there will also be increasing pressure put on companies from a reporting and corporate governance point of view.

The following section includes an examination of the approaches taken by some Australian companies to address environmental risk and avoid the types of consequences outlined above. The section also reports some of the findings from a UNEP FI survey about some of the environmental risk methodologies used at an international level.

4.2 How do Companies Manage their Environmental Risks?

In looking at how Australian companies manage their environmental risks, discussions were held with a range of companies and industry groups including: The Australian Industry Group, Business Council of Australia, BP, Rio Tinto, Telstra and Visy. In compiling these discussion points it is noted that the companies that volunteered their time to provide input to this project are only a small sample of the market as a whole. Due to the size of their balance sheets and their potential ability to self-insure these companies may not be representative of the many smaller businesses whose operations have environmental risk issues.

Key points from the discussions included:

- In general, the environmental risk management philosophy of the companies interviewed was to try and manage the risk in the first instance through an environmental management system or mitigation process whether this is through certification such as ISO14001 or physical control. Any residual risk may then be eligible for insurance coverage.

Case Study 4.1

Rio Tinto manages its environmental risks using various tools including through Environment Management Systems (EMS). The company's requirement is for all managed operations to have an EMS in place.

Certification is at the discretion of the operation. The EMS describes how the operation will comply with Rio Tinto policy, including the principle of compliance with statutory requirements. A key step in developing an EMS is to ensure that risks are identified, prioritised and then mechanisms developed through which environmental risks are managed. The risks are monitored, reported against and reviewed. Audits are a key component of this process. Audits basically ensure that sites are complying with appropriate regulations and the objectives of the Rio Tinto and operation's policies. Rio Tinto has a centralised reporting and tracking system for significant environmental (and health, safety and community) risks identified through the EMS, audits and other corporate oversight activities.

Rio Tinto generally treat environmental risks as one aspect of a broader insurance product.

- Environmental management systems may take some time to set up and be operating effectively within the whole company. Depending on the size of the company, it may therefore be 2 to 5 years before management can reasonably quantify the range of environmental risks it has exposure to.
- Only one of the companies spoken to had a policy whereby, unless there was statutory obligation in a particular region, they would generally not take out insurance, preferring instead to make an assessment

of the maximum probable loss and choosing to cover this risk from their own balance sheet.

- In general, statutory obligations and the consequent insurance or bank guarantee obligations plus the acquiring or divesting of businesses would be the occasions when companies specifically look at environmental risks in terms of insurance.
- Companies view banks as being more likely to provide bonds or guarantees at a cheaper rate than that at which the purchase of specific environmental insurance is possible.
- Companies generally integrate environmental risk assessment with their normal business risks and insurance requirements (i.e third party, general or public liability, marine and crime). Alternatively the company may be able to fund its own insurance program and be eligible for a form of tax benefit.
- Most companies view contaminated land liability as the environmental issue they are most likely to deal with. This typically involves the ownership or purchase of properties that have had a lengthy industrial use, with resulting impacts to soils, groundwater, etc.
- Many companies have not yet developed detailed approaches to address other more complicated environmental issues such as salinity and greenhouse gas emissions.
- Companies interviewed noted that environmental insurance products are typically not purchased because:
 - In Australia most general liability policies will provide for sudden and accidental cover;
 - The cost is often too high and there are rarely associated financial incentives with purchasing the product;

SECTION B: WHAT HAPPENS IN AUSTRALIA NOW?

- Insurance capacity in the market is too low and that which is available is not worth chasing; and
- The process (completing surveys etc) is seen as too onerous for the company to undertake.

Case Study 4.2

At BP the assessment of environmental risk is integrated into the whole organisation and is not separately assessed. The main risk hurdle for management is 'delivery of performance contract'. By looking at the maximum probable loss throughout the organisation, it is likely that BP can cover the potential loss on its own balance sheet.

In 1999 a survey was distributed to all signatories and associates to the UNEP Insurance Industry Initiative. While primarily aiming to review the level of implementation of the Statement's principles by signatories, the survey also explored some of the environmental products offered by signatories and environmental risk control methods they used with their clients.

To briefly summarise some of the results from the survey include:

- Emphasis within companies was placed on risk management and loss prevention (as opposed to product design/management, claims handling or asset management);
- In terms of gathering data on environmental factors, ensuring legal compliance was of primary importance. Other data considered included: industry/sector risk level, nature and extent of risks and liabilities,

contingency planning, evidence of sound management, company reputation, conformance with multilateral guidelines, conformance with voluntary codes and public opposition;

- Risk assessment methods applied included: manual and computer desk top review, site visits, scientific investigation, divisional reports, impacts on society and ISO14000 audits;
- Methods used to control environmental risk exposures included: working with the client, risk related pricing, environmental assessment, contract clauses and conditions, internal guidelines of approving/declining transaction;
- Specific restrictions to insure environmental exposures that reward environmentally proactive insureds and penalise poor environmental performers were not commonly used, however they have been considered in terms of environmental performance assessment; and

Environmentally related products offered by respondents included: Environmental Impairment Liability cover (40%); environmental investment products (23%); catastrophe risk bonds (12%); lender liability environmental cover (9%). Other examples include green motor policies offering premium discounts based on driver travel rates and/or eco-friendly vehicles, environment risk consultation and assessment services.

5. AUSTRALIAN ENVIRONMENTAL LAW AND ITS IMPLICATIONS

5.1 An Overview of the Legal Framework

The common law legal system Australia inherited from England is built on the fundamental concept of the ownership and protection of private property. As such, it has often been difficult for the common law to accommodate the notion of environment protection to the extent that the environment is viewed as the 'global commons' as opposed to a private possession.

Consequently, law relating to protection of the environment derives for the most part from legislation. While early examples of environmental legislation might be seen as relating to the allocation and protection of property rights in natural resources, environmental law is now multi-faceted covering, directly or indirectly, a broad range of subjects that includes land use planning and development control; environmental impact assessment; natural resource development, use and management; nature conservation and cultural heritage preservation; pollution control and waste management; product design and use; urban infrastructure; and supply of essential services.

On a broader scale, environmental law is manifest not only in domestic legislation, but also in public international law, following the massive growth in the last four decades in the number of bilateral, regional, multilateral and global treaties addressing environmental issues.

In Australia, three levels of government play significant, albeit differing roles in the development and application of environmental law.

The Australian Constitution does not confer on the Commonwealth direct legislative power over the environment. Instead the Commonwealth has in the past enacted legislation using other heads of power, such as the

corporations and external affairs powers, in order to achieve environmental outcomes. Examples include the prevention of sand-mining on Fraser Island in Queensland, blocking dam construction in Tasmania and stopping the logging of old growth forests, also in Tasmania. Primarily, however, the Commonwealth regulates the activities of its own agencies and matters seen as coming within the ambit of its powers, for example, the domestic implementation of international treaties.

Environmental regulation is for the most part State and Territory based. Dedicated environment protection regulatory authorities (EPAs) exist in some States. Resource management is also mostly regulated at the State level. At the local level, local government authorities (councils) provide both environmental services to constituents and regulate activities and premises considered too small or localized to be dealt with at the State level.

In this legislative framework, national consistency (to the extent that there is such) is derived through the operation of Ministerial Councils. The Environment Protection and Heritage Council (EPHC, formerly ANZECC) is the council of Commonwealth, State and Territory environment protection and heritage ministers.

Better national environmental policy setting developed from the signing and endorsement in 1992 of the Inter-Governmental Agreement on the Environment (IGAE) by the Commonwealth and the States. The main outcome of this process is the Commonwealth National Environment Protection Act, which is mirrored in complementary State and Territory legislation. This Act sets up the National Environment Protection Council (NEPC) to develop national environment protection measures setting standards, guidelines, goals and associated protocols.

More recently, in order to develop a more effective framework for intergovernmental relations on the

SECTION B: WHAT HAPPENS IN AUSTRALIA NOW?

environment, the Council of Australian Governments (COAG) endorsed development of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The EPBC Act replaces 6 Commonwealth statutes and primarily focuses on a more consistent approach to environmental impact assessment, nature and biodiversity conservation, world heritage and national parks.

5.2 Environmental Law and Insurance

To the extent that the purpose of insurance is to transfer risk from the insured to the insurer, it is necessary to consider the elements of environmental law in Australia from which environmental risk might derive. For this purpose, environmental risk might be considered in terms of the type of liability - criminal, civil or commercial - to which it gives rise.

It is contrary to public policy to provide insurance for criminal liability. If such were available, the risk of criminal sanction could be transferred to the insurer for the cost of the premium. It is unlikely that an insurer would provide this sort of cover, although they might provide cover for the costs associated with defending a prosecution action.

Civil liability might arise from an action at common law for damages or through action by a regulatory authority to require remediation or clean up. In a regulatory sense, this type of action would be most likely to originate at the level of State government.

Commercial liability may result from any of a plethora of manifestations of environmental risk and could arise as a result of action or inaction at any of the three levels of government. New legislation, changes in legislation or delay, failure or refusal to deal with matters under existing legislation or approval processes could all give rise to environmental risk. This risk might be seen as operational

risk, transactional risk, sovereign risk or credit risk, depending on the perspective from which it is viewed.

5.3 Contaminated Site Liabilities and Clean up Costs

Perhaps the most prominent environmental source of corporate risk in Australia derives from the legislative regimes in place to address the problems caused by land contamination. This problem is often the legacy of previous land use and is usually associated with industrial processes and activities such as waste management.

Making provision for known contaminated site liabilities and disclosure of contingent environmental liabilities is considered good, but not common corporate practice in Australia. The issue of contaminated sites is usually addressed during mergers and acquisitions, and the application of proper risk management techniques and risk finance tools can greatly alleviate the hassle of addressing unwanted environmental contingent liabilities.

In any acquisition, environmental consultants are dispatched to examine the target company's operations. Potential contaminated sites are identified and samples analysed. Remediation specialists will provide an estimate of the cost of remediation and discounts will be requested from the vendor. Lawyers will write warranties and indemnities in an attempt to limit any further environmental exposure, as best as possible.

The duty to mitigate or clean up damages is derived from the 'polluter pays' principle, whereby the party causing environmental harm is obliged to take measures to remove or alleviate this harm. This obligation for clean up may also relate to the current site owner or tenants.

In Australia, as covered in Appendix 1, the State's dedicated environment protection regulatory authorities generally deal with issues relating to pollution and generally have authority

SECTION B: WHAT HAPPENS IN AUSTRALIA NOW?

to take action to make good any environmental harm that may have been caused. This appendix also includes examples of overseas pollution regulation.

A more detailed analysis of the structures and models of Australian Environmental Law is available in a paper of the same name prepared by Dr Murray Raff of the Sustainable Enterprise Research Unit, Victoria Law School, Victoria University, Melbourne.

6. INSURANCE FOR LIABILITY ARISING FROM ENVIRONMENTAL RISK

6.1 Environmental Insurance: Available Products, Internationally and Locally

Globally, the volume of environmental insurance premiums is over \$1 billion (as noted in a Willis report entitled 'Environmental Insurance Market Review 2002').

Environmental insurance products have now been available for approximately 22 years, with the first coverage being offered in 1979 by Lloyds of London. Environmental insurance products were initially developed to fill the gap in public liability policies (specifically exclusions within public liability policies) and have broadened in scope to address particular issues and needs, whether by industry or risk type.

Environmental insurance has changed drastically since its introduction in 1979. Once recognized only as a solution to regulatory compliance obligations or a "gap filler" for exclusions in standard lines of insurance, environmental insurance can now be a critical component of a corporation's risk management plan. Today, policy language is broader, pricing is lower, and underwriting reviews are simpler.

In the USA, the main environmental liability insurers are: American International Companies, XL Environmental (an XL Capital Company), and Zurich American Specialties. These companies write a broad array of environmental insurance products for a diverse mix of insureds. Other carriers offering a full range of environmental products on a smaller scale are Kemper Insurance Company and Chubb. There is capacity available in the marketplace with as much as US\$150 million per loss with a US\$150 million aggregate, and this capacity can be increased by using a combination of multiple carriers (primary and reinsurers).

Also in the United States are insurers that specialise in one or more monoline environmental insurance products, with the greatest number of insurers in the professional liability and contractors pollution product lines. Standard line insurers may also offer environmental enhancements to commercial general liability policies and some property forms. These enhancements may be limited by reporting conditions (time element), named perils, and limits of coverage. Even within the past few years, the offering of these enhancements has been reduced due to changes in underwriting appetite and reinsurance treaties.

Often the terms 'pollution legal liability' and 'environmental impairment liability' are used to describe policies specifically designed to cover environmental exposures. Each insurance company tends to have their own special product names but they can all be roughly classed as follows (refer to Appendix 3 for a selected listing of the nomenclature of pollution policies in the market):

- Site-specific coverage, where there is coverage for cleanup or damages to third parties from pollution conditions at or emanating from the site. The coverage is intended to protect the insured against unanticipated losses associated with "unknown" pollution conditions. As noted in the Willis 2002 report, 'Pollution liability insurance can cover risk exposures associated with land that is 'already contaminated' or is likely to be. Insurers distinguish between land which is impacted with contaminants but where expert opinion suggests there is no immediate requirement for remediation, and land where expert opinion suggests that immediate cleanup is required to ensure compliance. Pollution can be from current or past operations and can include coverage for pollution that migrates onto the property. Enhancements include coverage for business interruption costs from pollution condition, discovery triggers for lower-risk accounts,

SECTION C: INSURANCE IN AN ENVIRONMENTALLY SUSTAINABLE FUTURE

coverage for liability associated with disposing of wastes at a non-owned landfill, etc.

- Transportation coverage, where coverage is provided for a release from the materials or wastes being transported (whether by truck, rail, or ship);
- Creditor coverage, where lending institutions are covered for their exposure from lending on a property which is then found to be contaminated, resulting in third party damages or loan default;
- Closure coverage, where coverage is provided for closure and post-closure activities associated with operations such as landfills and mines;
- Cost over-run coverage for remediation projects, where coverage is provided when remediation costs are exceeded, whether through discovery of more contamination, or perhaps increased disposal costs for waste soil being sent to a landfill; and
- Service Providers: environmental exposures arising out of the performance of services (professional or operational) for a third party. For contractors, this coverage is designed to cover if the contractor causes or exacerbates pollution conditions at a work site. For environmental consultants - professional indemnity policies are offered with no environmental exclusions.

The information-gathering process for a company seeking to take out such a policy may be onerous, but as more companies appreciate and conform with triple bottom line and SRI reporting, information on environmental conditions is becoming more accessible and easier to obtain as companies identify environmental exposures and implement risk management controls.

The majority of environmental insurance products are used in the USA although it is estimated that up to £25 million in premium was written in the London market during 2000,

with this amount almost doubling during 2001, representing very rapid growth.

As noted in the Willis report, 'in Europe the majority of the premium income is currently split fairly evenly between AIG, ECS, Allianz (via its agent Certa) and Zurich. The Continental European market is characterised by the presence of national pollution pools and limited schemes such as the German model form (Umwelthaftpflichtmodell).'

Business is growing in Europe, especially 'in territories that have recently introduced new environmental legislation such as Sweden'.

As noted earlier, environmental impairment liability cover is not typically provided in general third party liability policies. To account for this, complete environmental impairment cover for both sudden and accidental in addition to gradual causes is offered through stand-alone environmental impairment liability policies. Countries such as France, Italy and The Netherlands would have environmental liability pools and in countries without pools, global insurers such as Winterthur and Royal and Sun Alliance have taken steps to introducing stand-alone environmental impairment liability policies.

(Refer to Appendix 3 for more detail of European EIL products and the different kinds of risks the products generally cover).

In Australia, one can find most of the above coverages whether via local underwriting presence or through dealing with the USA or UK. The environmental insurance market is just beginning to develop in Australia. Local and international players in the Australian market include XL Environmental, Zurich, AIG (via American Home Assurance Company), Oamps, and Liberty. A fairly broad range of environmental insurance products is available from AIG, XL Environmental and Zurich, with Oamps having developed

SECTION C: INSURANCE IN AN ENVIRONMENTALLY SUSTAINABLE FUTURE

coverages specific to the oil and petroleum industry. Liberty currently is only offering coverage in the area of asbestos removal.

6.2 Casualty Insurance

In the USA, there is typically no pollution coverage on a standard general liability or public liability policy, due to specific pollution exclusions. In other parts of the world, including Australia, some pollution coverage is afforded under a general/public liability policy. It has been recently noted that there is a growing trend towards specifically excluding any coverage for Sudden and Accidental (S&A) pollution on a public/general liability policy if there is perceived to be an environmental risk.

Each general liability policy has its own particular wording and coverage grants. In some, it is relatively broad, while other policies have coverage being contingent on whether the pollution condition was 'sudden and accidental and unintended'. Some policies may have S&A coverage clauses that have strict requirements as to the duration of the pollution condition (i.e. it must commence and end within 24 hours) or must be at an identifiable point in time.

Additionally, they may have strict requirements on when the claim is reported, i.e. 72 hours (i.e. within 72 hours of the pollution condition occurring). S&A pollution may only cover new pollution conditions with no coverage for any historical, pre-existing pollution that typically falls into a non-sudden/gradual definition. Some companies may choose not to rely on S&A pollution coverage grant from a view of having dedicated limits for their casualty losses and dedicated limits for their environmental losses.

6.3 Other Insurance Products

Other sectors of the insurance industry may also offer products that address the issue of liability from environmental risk. For example, directors and officers (D&O) policies may provide coverage if the directors and officers of a company are sued as a result of an environmental incident or loss. They may be sued by shareholders who feel that the directors/officers did not adequately manage/address an area that consequently developed into a situation where the company's financial worth/stock value was impacted. The policy would typically exclude coverage for any liability from pollution but would provide coverage for up to \$A250,000 in legal expenses. Supplementary legal expense coverage is also a possibility, providing coverage for defence costs in excess of \$A250,000. There are also policies that can provide coverage for fines and penalties whether these are environmental or not.

Property policies may provide some coverage for environmental liabilities. A property policy may provide limited coverage for removal of debris from a covered event such as a fire, often with sub-limits on this type of coverage. For example, Industrial Special Risk (ISR) policies usually provide some first party coverage for onsite and offsite cleanup and disposal costs for debris from named perils such as a 'hostile' fire or flood. The 'debris' could occur in an instance when there is runoff, contaminated water from a fire. Marine policies also can be endorsed to provide removal of debris related to transported cargo, while motor policies may also cover the liability that arises out of the use of the vehicle including liability arising from the goods being transported. For example, a truck carrying fuel oil will have liability for discharge of the oil resulting from a road accident.

7. MOVING BEYOND TRANSFERRAL OF LIABILITY FOR ENVIRONMENTAL RISK TO ADDRESSING ENVIRONMENTAL RISK ITSELF

7.1 Opportunities for the Insurer and the Environment including Motor and Home Insurance

A range of insurance products provide coverage for liability associated with environmental risk. However, while insurance specifically designed to address risks arising from potential impacts on the environment is well developed, as evidenced in the preceding chapter, opportunities also exist for insurance to play an environmental role beyond risk transferral. In this sense, better commercial outcomes might provide rewards for customers generating better environmental outcomes not necessarily related directly to the specific insurance risk.

Insurers might begin to ask themselves “do more environmentally aware households present a lower insurance risk for home buildings and contents insurance?” Are there opportunities to better risk rate people who incorporate passive solar design principles into their houses, and thus reduce the risk of heaters causing fires? Are environmentally aware householders simply a more risk averse group? Rewarding customers who act in an environmentally responsible way has benefits for global warming and thus the future affordability of insurance.

An illustration of the insurance sector's response to the potential opportunities in this area is Tokio Marine & Fire's 'eco-expense' option on its commercial insurance policies (see Case Study on page 22). Such an option could also be applied to household insurance.

Another illustration might be where residential mortgage lenders provide incentives in the form of cheaper lending

rates for borrowers who live on public transport corridors. The logic of this is that such borrowers use their motor vehicles less or don't own a motor vehicle, thereby reducing recurrent household expenditure and making the household a better lending risk. The opportunity in such cases would be for mortgage insurance to be better priced not just on the basis of the reduced overall exposure due to the cheaper rate, but also to accommodate the perceived better risk profile of the household.

7.2 Illustrations of Innovative Motor Insurance Products

There is often a clear relationship between lower motor insurance risk and reduced environmental impact. By encouraging policyholders to reduce the number of kilometres they travel, benefits may be had for all parties:

- The risk of the policyholder may be able to be more accurately priced and thus be more profitable for the insurer;
- The policyholder could also benefit by receiving a discount on their insurance premium; and
- Greenhouse gas emissions are reduced, thus benefiting the natural environment, and limiting global warming. Reduced global warming also has benefits for the whole insurance industry in the long term.

Research done by the Victoria Transport Policy Institute in Victoria, Canada, describes distance-based insurance pricing strategies such as:

- 'Per mile premiums' whereby vehicle insurance is sold by the vehicle-distance rather than the vehicle-year. Other rating factors are incorporated into this price unit so higher risk drivers pay more per mile than lower risk vehicles. Vehicle registration fees may also be mileage based leading to even greater environmental benefits by encouraging lower vehicle use; and

SECTION C: INSURANCE IN AN ENVIRONMENTALLY SUSTAINABLE FUTURE

- 'GPS based pricing' uses GPS (Global Positioning System) technology to track vehicle travel, allowing insurance prices to reflect when and where a vehicle is driven in addition to existing rating factors.

Case Study 7.1

In Germany, RhineLand Insurance offer discounts on motor insurance (property and injury) for policyholders who drive low kilometres and/or catch public transport to work. The public transport discount, "Fahr und Spar" (ride and save) has been offered since 1996. It was originally a 25% discount but is now 10%, in addition to the more recent discount for low kilometres travelled. It is justified on the basis of two factors, firstly that people who catch public transport drive their vehicles less and therefore present a lower risk, and secondly, people who don't drive during peak hour are helping to reduce peak hour congestion and thus lower the accident risk for the whole population.

RhineLand has numerous other initiatives, such as an additional premium that goes to offset the carbon dioxide emissions of a customer's motor vehicle. This product has received considerable media attention. A more recent initiative is one where a proportion of premium goes into a green investment, rather than a donation. Profits from this investment can be used to fund the customer's insurance premium.

Case Study 7.2

In 1998, the Progressive Insurance company in Texas, USA introduced a pilot program of the GPS based pricing system called Autograph coverage. It had a \$15 per month equipment fee allowing participants to obtain other GPS services (panic button, roadside assistance, directional assistance, theft recovery, remote power door-lock etc) at a significant discount. Participants reduced their mileage more than 13% and saved more than 25% on average compared to conventional insurance pricing.

Case Study 7.3

In Japan, Yasuda Fire & Marine Insurance offers discounts on auto insurance for low pollution vehicles, including hybrid and electric cars as well as fuel-efficient and low emission vehicles. In 2000, almost 250,000 Yasuda customers benefited from this discount. Yasuda also offers a 0.5% interest rate discount on loans used to purchase low pollution vehicles. Such approaches can be justified on the basis of these customers minimising their contribution to global warming, which experts expect will increase insurance costs in the future.

Case Study 7.4

To promote the use of environmentally friendly technologies, Gerling offers reduced rates for motor vehicle liability and collision waiver insurance that apply to cars running on alternative energy sources (electricity, LPG, hydrogen, fuel cells, solar power.) The eco-rebate is between 10 and 15 percent, deducted from the regular premium. Clients signing a contract online will receive another eight percent reduction.

Statistical evidence indicates that most accidents occur during working hours - approximately 8am – 6pm Monday to Friday. People who do not drive their cars to work are unlikely to be driving during these hours. Thus the likelihood of these people having an accident within a given period of time is far less than someone who does drive during working hours.

Research conducted by NRMA Insurance, Australia, in the mid 1990s showed that afternoon peak hours were the worst time period for crashes, followed by the period from 9am to midday. Over 30% of collisions occur during weekday morning and afternoon peak periods. Only 24% of collisions occur on weekends. This suggests that people who do not drive to work potentially have far lower claim frequencies than those who do drive to work. Discounted premiums for those who do not drive to work is attractive to the customer, profitable for the insurer, as well as rewarding behaviour which is environmentally sustainable.

7.3 Opportunities for the Insurer and the Environment

Development of risk assessment techniques, insurance coverage or mitigation processes to deal with other

environmental issues such as salinity, other rural aspects or greenhouse gas emissions are still in their infancy.

However, there is potentially a very broad scope of environmental factors that could be used in pricing commercial insurance. As for home insurance, there is the question of whether a more environmentally aware household presents a lower insurance risk.

Commercial insurance risk might be considered in terms of environmental liability risk or in terms of all of the other areas of risk that could fall under a commercial insurance policy.

There is an obvious link between risk and a company's efforts to reduce its exposure to environmental liability. However, it is not apparent that there are any insurers that offer discounts to companies that make efforts to reduce environmental liability exposure. Currently, pricing is done on an industry basis - it does not differentiate between companies within the same industry. Just as householders who act to reduce theft risk by installing deadlocks and monitoring systems receive insurance discounts, there is a case that companies that minimise the likelihood of environmental liability claims, should receive a discount on their premiums.

The risk management practices of a company are currently taken into account during underwriting. Companies with poor risk management practices may be refused insurance. However, if the risk is taken on, pricing is generally not affected by a company's environmental risk management practices.

Examples can be found which have indirect benefits for a company. Insurance pricing may not be affected, however removing uncertainty of environmental liabilities may have positive ramifications for a company's share price.

SECTION C: INSURANCE IN AN ENVIRONMENTALLY SUSTAINABLE FUTURE

Case Study 7.5

A leading materials group took on major environmental liabilities after acquiring a company with long-tail exposures in the United States. Despite its balance sheet provisions and efficient management of the contaminated sites, the company continued to face scepticism from the investment community on its management of those liabilities. To safeguard its financial strength and balance sheet, the company obtained reinsurance protection that included \$400 million in conventional and finite risk reinsurance.

The program applied portfolio underwriting techniques that rewarded the company for its effective management of the exposures. On the day the coverage was announced, the company's stock rose 13%, despite a deep decline in the overall market. A leading equity analyst, in explaining an 'accumulate' recommendation, noted, "We expect this solution to finally put to bed any concerns investors still harbour on the environmental liabilities front." By entering into this solution, the company's management was able to focus on new business growth without the drag of past liabilities.

Case Study 7.6

Lansforsakringar Miljo, a Swedish insurer, sell a product called 'recycling insurance'. This provides a service for producers whose products require end of life recycling. It is primarily for complex products with long lifetimes, where there is uncertainty for the producer with regards to the timing and cost of recycling. Its advantage is that it provides a guarantee that there will be someone to pay for the costs of recycling when it is needed.

Case Study 7.7

Tokio Marine & Fire Insurance has developed an all-risk commercial insurance product with 'eco-expense' for small and medium sized enterprises. The eco-expense covers the additional cost of repairing or replacing damaged machinery with products considered by Tokio Marine to be more ecologically compatible than the conventional alternatives.

The Yasuda Fire & Marine Insurance Company, Limited Sustainability Report 2001 mentions a number of environmentally related products:

- ESCO Comprehensive Insurance for energy service companies based on risk analysis and management;
- Wind Power Generation Business insurance – backed by weather derivative hedge; and
- Medical Waste Emissions Liability Insurance.

Case Study 7.8

Allianz offers comprehensive risk analyses and assessments as well as fire protection consultancy to industry and other company clients. As part of their services, it offers the elucidation of company-specific risks, the assessment of surveillance and protection tools, organisational safety measures and a conception to reduce risk and prevent damage. By such prevention, fires can often be prevented and their consequences at least limited. The use of important raw materials for restoration of buildings and the replacement of equipment and electrical appliances is therefore not necessary.

The illustrations in this section provide an indication of the range of opportunities for the insurance sector to contribute to the further development of products with positive environmental outcomes. More examples can be found in Appendix 2.

8. CONCLUSION AND FURTHER RESEARCH

The importance of environmental issues to businesses both in Australia and internationally is increasing. The threat of enormous clean-up costs if an accidental event occurs plus factors such as tougher legislation, more rigorous enforcement and more detailed reporting requirements are impacting all companies - not only those dealing with potential contaminants and those that have owned or occupied land in the past.

Company's actions are also being influenced by increased scrutiny from financiers, shareholders and other stakeholders, resulting in a greater awareness of their liabilities, including monitoring and reporting of all potential environmental liabilities. In line with this, Environmental Health and Safety management systems are becoming more common and more businesses are linking their operations to environmental standards such as ISO 14001.

In Australia, legislation (usually on a state by state basis) often governs the use, storage and handling of particular substances with the aim of reducing environmental impact to air, soil and water. Some companies are becoming increasingly aware of their environmental responsibilities, with risks that they are exposed to from an environmental perspective either being avoided through good management or reduced in more and more sophisticated ways.

Environmental risk transfer via specific insurance policies is pursued in some instances. The growing popularity of specific products offered in overseas markets and the presence of these insurers operating in the Australian market is expected to lead to the increased popularity of environmental insurance in Australia.

Internationally, it is common for Environmental insurance policies to be introduced to cover gaps that may exist in insurance coverage for companies' on-going operations. These policies, most often known as environment impairment liability (EIL) policies are designed to:

- Meet the mandatory clean up costs for sudden and gradual pollution of the Insured's own site and third party sites;
- Provide compensation to third parties arising out of sudden and gradual pollution; and
- Cover a company's legal liabilities.

The rewarding of insured's for good environmental behaviour with discounted premiums may also occur going forward. Already, in the motor insurance market there are examples of innovative approaches to reducing environmental impact by offering competitively priced insurance products. Other drivers for the Insurance sector in playing a more active role in an environmentally sustainable future include: financial responsibility requirements; stricter legislation; decreasing tolerance for risk; and increasing emphasis for companies to maintain proactive management programs.

In publicising the findings of this project, it is hoped to raise the profile of those involved with insurance and the management of environmental risk in Australia and highlight the positive implications that the environment can have for the insurance sector.

8.1 Next Steps

It is expected that this research project can provide a starting point for modifying or designing insurance products that can play a stronger role in minimizing ecological impacts to our environment and reducing environmental exposures to the community.

Similarly, the project aims to provide a discussion point for additional research and dialogue for the role of insurance with respect to the environment. This could include:

- Further input from a range of companies by size and industry. What are the pressure points for companies when deciding whether to take out insurance for environmental risks and exposures? Do the pressure points tend to be industry-specific (ie. mining, landfills) or is the company management style a more important factor?;
- Ways of encouraging companies to include environmental risk management techniques as a business imperative in their corporate planning;
- Looking at whether assistance from a tax perspective may allow companies to more fully investigate insurance products which minimize/control/address environmental risk;
- Looking at whether any changes to environmental legislation could assist in the further development of insurance products with an environmental element;
- Further exploration of the range of other insurance products where environmental risk can become an issue;
- Looking at ways insurance companies (and workers compensation schemes) can encourage environmentally responsible behaviour; and
- Looking at ways to increase the information collected on the environmental practices and output of companies and then proceed to assess that information.

SECTION D: BIBLIOGRAPHY AND APPENDICES

9. BIBLIOGRAPHY

A Capital Idea, Realising Value from Environmental and Social Performance, August 2001 (Deni Greene Consulting Services/Standards Australia and Ethical Investment Services)

Australian Environmental Law, An overview of Structures and Models for the UNEP Australasian Insurance Project, Dr Murray Raff, April 2002

Autograph Insurance coverage, Progressive Insurance Company, Texas, USA:
<http://www.progressive.com>

Best's Key Rating & Statistical Guide, A.M. Best,
<http://www.ambest.com/sales/>

Environmental Liabilities Past Present and Future - and Insurance Solutions, R. Davies, AIG Europe

European risk assessment policy,
http://www.clarinet.at/library/Ferguson_Paper_Policies.PDF

Insuring Environmental impairment liability, Swiss Re, 1999

Joint Pollution Working Group, Recommendations for the underwriting of Pollution risks, UK, September 1998

Regulatory Impact Statement, Proposed Environment Protection (Scheduled Premises and Exemptions) Regulations, May 1996, EPA Victoria

1999-2000, Statement on the Environment Survey of Implementation, UNEP Insurance Industry Initiative.

Time to Act: Environmental Management in Financial Institutions, VFU – Association for Environmental Management in Banks, Savings Banks and Insurance Companies, Germany

Tokyo Marine & Fire (2001), Accessed via
<http://www.tokiomarine.co.jp/english/pdf/environment/>
on 13/5/2002

United Nations Environment Program Insurance Industry Initiative (1999) Fourth International Conference of the UNEP Insurance Industry Initiative - Natural Capital a Risk Sharing Practical Experiences from the Insurance and Investment Industries, UNEP Geneva.

Willis Risk Management, Environmental Insurance Market Review 2002

Yasuda Fire & Marine (2001), Sustainability Report 2001. Accessed via
<http://www.yasuda.co.jp/english/pdf/environment/> on 13/5/2002

Related Websites:

Environment Agency UK:
<http://www.environment-agency.gov.uk/>

European environmental policy:
http://www.clarinet.at/library/Ferguson_Paper_Policies.pdf

Netherlands Ministry for the Environment:
<http://www.vrom.nl/international/>

NSW EPA: <http://www.epa.nsw.gov.au>

South Australian EPA:
<http://www.environment.sa.gov.au/epa/>

Swedish environmental code:
<http://www.internat.environ.se/index.php3?main=/documents/legal/code/codedoc/code.htm>

Swedish environmental code pdf format:
http://www.miljo.regeringen.se/english/pdf/env-code_resume.pdf

Swedish environmental site:
<http://www.lib.kth.se/~lg/sweden.htm>

Victorian EPA: <http://www.epa.vic.gov.au>

10. ACKNOWLEDGMENTS

This document was put together with the assistance of people from a range of organisations. In addition to the reviews, comments and input from members of the UNEP FI Australasian Advisory Committee on Insurance, the following people and organisations are thanked for their contributions to this report.

Name	Organisation	Name	Organisation
Tony Bainbridge	Swiss Re	Steve Munchenberg	Business Council of Australia
Karen Cutter	Trowbridge-Deloitte	Murray Raff	Victoria University
Colin Gomm	BP	Kristina Ringwood	Rio Tinto
Jessica Hardy	EPA Victoria	Joanne Saleeba	Telstra
Neil Jaycock	EPA Victoria	Claudio Senese	Maunsell
James Keneally	Marsh	Kate Vinot	Visy
Colin Knox	Rio Tinto		Australian Insurance Law Association
Robert Lorenzon	Australian Industry Group		Richard Oliver Underwriting Managers
Gabrielle McCorkell	EPA Victoria		

SECTION D: BIBLIOGRAPHY AND APPENDICES

11. APPENDIX 1: CLEAN-UP REGULATIONS – SOME EXAMPLES

11.1 Introduction

The duty to mitigate or clean up damages is derived from the 'polluter pays' principle, whereby the party causing environmental harm is obliged to take measures to remove or alleviate this harm.

The obligations imposed on polluters to engage in contamination clean up has lead to an increased demand for comprehensive insurance. The general lack of experience in pollution underwriting has lead to a cautious approach from insurance companies in dealing with such claims for cover.

One of the reasons for such reservation is that many clean up obligations include provision for clean up of neighbouring properties affected by contamination. The insurer is thus required to decide whether both first and third party clean up is covered by the same environmental impairment liability policy.

This situation is particularly pertinent in the case of groundwater contamination, which in many cases is difficult to source, but in most jurisdictions the obligation of the contaminated property owner.

The following tables give an indication of how clean up issues are treated in various jurisdictions in both Australia and overseas.

Jurisdiction	Context	Source	Powers
Australia	The Australian Constitution does not confer direct Federal legislative power over the environment. Environmental regulation is for the most part State and Territory based. Dedicated environment protection authorities (EPAs) exist in some States. At the local level, local government authorities (councils) provide environmental services and regulation for activities / premises considered too small to be dealt with at State level.	Australian Constitution	Limited environmental powers can be derived from the Constitution. Heads of power used in the past by the Federal Government include s51(i) trade and commerce, s51(xx) foreign corporations power and s51(xxix) external affairs.

SECTION D: BIBLIOGRAPHY AND APPENDICES

Jurisdiction	Context	Source	Powers
Victoria	<p>The Environment Protection Authority Victoria (EPA) is the key pollution control agency in Victoria. EPA co-ordinates activities relating to the discharge of waste to air, water and land, as well as issues relating to noise, contaminated sites, and municipal as well as industrial waste. Discharges are controlled through a licence and works approval system.</p>	<p><i>Environment Protection Act 1970</i>. State environment protection policies and industrial waste management policies.</p>	<p>EPA Victoria has the power to issue clean-up notices to persons believed to have caused environmental harm. The Authority may also issue a clean-up authorisation under which persons authorised by the Authority may take action to make good environmental damage. The Authority may recover the reasonable costs and expenses incurred as a debt from the person who fails to comply with the clean-up notice requirements.</p>
NSW	<p>Management of contaminated land is shared by the EPA, the Department of Urban Affairs & Planning and local councils.</p> <p>Under the Act contamination of land means the presence in, on or under the land of a substance at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment</p>	<p>Remediation of contaminated land is governed by the <i>Contaminated Land Management Act 1987</i>.</p>	<p>A person who becomes aware that land has been contaminated and is possibly posing a significant risk of harm must, as soon as practicable after becoming aware, notify the EPA that the land is contaminated. Following investigation, NSW EPA can seek costs associated with any subsequent clean-up of the contaminated site.</p>

SECTION D: BIBLIOGRAPHY AND APPENDICES

Jurisdiction	Context	Source	Powers
South Australia	<p>South Australian EPA</p> <p>The <i>Environment Protection Act 1993</i> does not impinge on civil remedies at Common Law. Under the Act, applications may be made to the Environment, Resources and Development Court for:</p> <ol style="list-style-type: none"> 1) an order requiring a person to make good any resulting environmental damage and, if appropriate, to take specified action to prevent or mitigate further environmental harm; 2) an order against a person for payment of compensation for any injury, loss or damage, or for reasonable costs and expenses incurred; and 3) if appropriate an order for exemplary damages. 	<p><i>Environment Protection Act 1993.</i></p>	<p>South Australian EPA has the power to issue clean-up notices where a site is found to be contaminated, and can order the person who caused the contamination, or the occupier or owner clean up the contamination. Should any of these people fail to take action within the time specified, EPA can clean up the site and require payment for costs.</p>
United Kingdom	<p>Environment Agency UK</p> <p>Within the meaning of the Act, land is 'contaminated land' where it appears to the regulatory authority, by reason of substances in, or under the land, that:</p> <ol style="list-style-type: none"> a) significant harm is being caused or there is a significant possibility of such harm being caused; or b) pollution of controlled waters is being, or is likely to be, caused. 	<p><i>The Environment Protection Act (Liability for Cleaning Up Contaminated Land)</i> became effective in Spring 1999.</p>	<p>The Act, in parallel with the existing provisions of the Environment Protection Act obliges a polluter to clean up contamination for which they are responsible. Should the polluter be unable to clean up, the obligation passes to the current owner. This obligation is created when significant impairment of soil or water is either current or imminent, rather than relying on fault. Some argue that the EP Act can operate retrospectively, obliging clean up of contamination that occurred before the Act came into effect.</p>

SECTION D: BIBLIOGRAPHY AND APPENDICES

Jurisdiction	Context	Source	Powers
Netherlands	Culpability is based on the extent to which the soil was polluted as well as the damage or impairment to the multifunctionality of the soil.	The Soil Protection Law introduced clean up requirements in 1994 applicable to pollution occurring after 1987	Current legislation requires that the polluter should pay for the cost of cleanup. If this is not possible then the owner of the contaminated site is responsible. In cases of "innocent" owners, the clean-up is paid for by the authorities using public money
Sweden	A contaminated site is defined as 'any land, water, building or installation that is contaminated to the extent that it can pose a risk for human health or for the environment'. After-treatment is defined as measures that are necessary to prevent or combat subsequent damage or detriment to human health or the environment. (Ch 10 s 4)	The Swedish Environmental Code was adopted in 1998 and entered into force 1 January 1999.	Chapter 2 (s8) of the Code states that people who cause damage or detriment to the environment shall be responsible for remedying the damage or detriment until it ceases. Chapter 10 (s2) states that people who undertake action that is a contributory cause of pollution shall be liable for after-treatment of the polluted area. If the operator is unable to carry out or pay for treatment, liability falls to the person who acquired the property and was aware or should have been aware of the pollution. Chapter 33 contains provisions relating to environmental damage insurance and environmental clean-up insurance.

SECTION D: BIBLIOGRAPHY AND APPENDICES

12. APPENDIX 2: INTERNATIONAL ENVIRONMENT INSURANCE PRODUCTS

Below are details of various environmental insurance products found mostly via web search. This appendix expands on the case studies found in Chapters 4 and 7 of this report. Please note that the majority of this information is from the web and therefore needs to be viewed in its local context. Some of the products noted below may only be available in the country of origin.

12.1 AIG (a selection of products), USA

Environmental and General Liability Exposures Policy (EAGLE). This is a US only available product that is designed to provide a combined form of general liability and pollution coverage. The general liability coverage is written on a claims-made or occurrence basis. AIG Environmental offers coverage for liability arising out of premises, operations, products and completed operations. AIG are also able to include products pollution coverage not generally available in the marketplace.

Pollution Legal Liability (PLL) helps provide protection against losses from pollution conditions at scheduled locations that cause third-party property damage, bodily injury or cleanup costs. Legal defense costs are included in the limit of liability. By endorsement, coverage for cleanup can be provided at a non-owned disposal site, coverage for losses from claims for bodily injury, property damage or cleanup costs caused by pollution from transported cargo and coverage for claims from transporting the product or waste by third-party vendors. Worldwide transportation coverage may also be available.

Cleanup Cost Cap (CCC) is designed to address the risk and uncertainty associated with beginning or continuing an environmental remediation project. The AIG Environmental

Cleanup Cost Cap Program covers cost overruns when environmental remediation projects exceed the projected costs. Cleanup Cost Cap becomes a tool in an investment strategy or a part of ongoing balance sheet management by ensuring that unexpected costs don't make investing in contaminated property an unknown financial proposition.

For more products and information see:

<http://home.aigonline.com/AIGEnvironmental/>

12.2 Aviva, UK

In the UK, Norwich Union Insurance is set to introduce 'Pay As You Drive' (tm) insurance - individual premiums based on how often, when and where people use their cars. This is as a result of Norwich Union Insurance reaching an agreement, with US insurer Progressive, to use telematics technology in the UK and mainland Europe in the calculation of insurance premiums.

'Pay As You Drive' (TM) will use telematics technology to measure vehicle usage and transmit data directly to Norwich Union Insurance using similar technology to that used by mobile phones. This 'black box' in the car will record data such as time of travel, journey time, location and miles travelled. This data will then be used to calculate a tailored - and therefore fairer - premium for individual customers. With premiums based on car usage, drivers will benefit by reducing mileage, which would in turn reduce energy consumption and pollution emissions. The technology will also allow the insurer to offer complementary in-car services, such as emergency assistance and real-time route planning.

For more products and information see:

<http://www.aviva.com>

12.3 CHUBB Environmental, USA

Chubb Environmental offers a Remediation Cost Cap Policy to enable companies to quantify the costs associated with environmental remediation projects and protect against losses that can result from cleanup cost overruns and cost overruns emanating from a variety of sources including regulatory changes and the discovery of new pre-existing contaminants.

Environmental Site Liability Policy (ESL) provides flexible protection for the environmental liabilities associated with fixed locations. The claims-made policy provides first party remediation and third-party bodily injury and property damage coverage for new and/or pre-existing pollution conditions for clients in M&A transactions. Future pollution incidents may also be covered.

For more information see:
<http://www.chubbfsi.com>

12.4 Gerling-Konzern, Germany

Gerling offers two coverage concepts - Clean-up Policy (CuP) and Eco Soil Protection Policy - offering comprehensive protection against damages caused by recent and past toxic contamination. Insurance against new contamination and financial framework for cleaning up past contamination assist in restoring the economic and ecological cycles of the property.

A consulting contract with Gerling Consulting and an insurance contract with Gerling Allgemeine Versicherungs-AG, is the basis of Gerling's Eco Clean-Up Policy, with experienced geologists from the Gerling Consulting Group estimating the clean-up costs in a special audit.

Consequently, the time and cost needed for investigation is considerably reduced. Any unexpected costs incurred are paid by Gerling, as well as additional costs for renewing contaminated soil discovered during the clean-up process.

The company believes customers comply with ecological and economic standards because they want to, not because they have to.

Gerling offers reduced rates for motor vehicle liability and collision waiver insurance, to promote the use of environmentally friendly technologies. These apply to cars running on alternative energy sources (electricity, LPG, hydrogen, fuel cells, solar power.) The eco-rebate is between 10 and 15 percent, deducted from the regular premium. Clients signing a contract online will receive another eight percent reduction.

For more information see:

<http://www.gerling.com> and go to about Gerling / press and reports / environmental involvement / knowledge management and consulting.

12.5 Kemper Environmental, USA

The **Clean up Cost Containment Insurance Policy** provides coverage for cleanup cost overruns incurred during a remedial action at a project site. Coverage is applicable to site owners or site purchasers who may perform a remedial action under a government or agency decree, or on a voluntary basis. Target business classes include: site owners/developers; potentially responsible parties (PRPs); contractors and consultants; and brownfields redevelopment projects.

Closure and/or Post Closure Insurance Policy and Construction Consulting - Engineering and Design Professional Liability Policy (CDPL) provides coverage for damages as a result of claims arising from acts, errors, or omissions in professional services performed by or on behalf of the insured. This policy applies to architects and engineers, construction managers, and contractors. Target business classes include: architects and engineers (including multidiscipline, geotechnical, process,

SECTION D: BIBLIOGRAPHY AND APPENDICES

petrochemical, pulp & paper, mining, mechanical, electrical, structural, HVAC, power, software, and offshore engineers); construction managers; general contractors; environmental consultants; environmental, product and nondestructive testing laboratories; environmental quality & management consultants (ISO 9000 and 14000); and land surveyors.

Contractors Pollution Legal Liability Insurance -

Environmental Liability Insurance (ELIP) is intended to benefit business owners who are susceptible to economic loss caused by pollution that actually or allegedly originated from the property(ies) they own or operate. The policy can also be underwritten to insure other parties possessing insurable interests in the protected business. Target business classes include: medium to heavy industrial; solid or non-hazardous waste transfer; recycling; landfilling and reuse (i.e., cogeneration); hazardous waste treatment; and storage and disposal facilities.

Professional Liability and Occurrence Contractors Pollution Liability (POFP) combines claims-made professional liability coverage with contractors pollution legal liability coverage. The policy applies to design/build contractors, architects and engineers with other field exposures, environmental laboratories and consultants, remediation contractors, and general contractors. Target business classes include: environmental consultants/contractors; radioactive waste contractors; unexploded ordnance contractors; geophysical surveyors; hazardous waste remediation contractors; architects & engineers; nondestructive testing laboratories; contractors (including general contractors, heavy highway, commercial building constructors, steel, concrete, power, pipeline, mechanical, HVAC, electrical, deep foundation, and excavation contractors); construction managers; and drillers.

A number of other products offered by Kemper include: Environmental Response, Compensation and Liability

Insurance - GL Plus: Commercial General Liability with Contractors Pollution and Professional Liability; GL Plus: Occurrence Commercial General Liability with Contractors Pollution and Claims-Made Professional Liability; GL Pollution: Commercial General Liability with Contractors Pollution Policy; and Professional Liability and Contractors Pollution Liability.

For more information see:

<http://www.kemperenvironmental.com>

12.6 Swiss RE, Switzerland

Swiss Re New Markets has formed an Environmental Solutions Team that develops innovative insurance solutions.

In its 1998 Environment Report, Swiss Re offers two specific environment liability insurance products. The waste disposal site concept combines traditional insurance elements and is geared to securing cover in the longer term. A manufacturing facility concept is geared to securing cover for several years and includes a premium bonus system as incentive to the facility operator to avoid loss.

Swiss Re also provides a reinsurance product for realising a 'disposal policy' that was conceived by a Swedish insurer. Against payment of a premium, the insurer assumes the cost of collection and disposal of known long-lived product (eg: cars and whitegoods) for producers, importers and dealers who are legally obliged to reclaim them from the consumer. This policy requires statutory provisions to be in force, developed recycling methods and known recycling costs.

For large building materials firms, Swiss Re developed a product relieving the consequences of long-term latent risks assumed through acquisition under US law. The costs incurred in rehabilitating contaminated land and environmental liability risks are transferred to the insurers.

The insurers pay for remediation work only when it exceeds a defined retention. The original polluter is obliged to continue the soil remediation measures on their own business premises.

For further information see:
<http://www.swissre.com>

12.7 XL Insurance, USA

Pollution & Remediation Legal Liability (PARLL) provides coverage for loss, remediation expense and legal defense expense under one policy for sudden and gradual pollution conditions at or from covered locations. The product includes enhancements specific to the chemical industry. Minimum premium is \$US10,000.

Commercial General Liability for Chemical Risks (Claims Made or Occurrence) provides liability coverage including pollution conditions that arise from an insured's premises, operations, products or completed operations. It is afforded for claims that arise from chemicals manufactured, sold or distributed by the insured. Target industries include: all chemical (except agricultural); personal care products; pharmaceutical; and cosmetics. Minimum premium is \$US50,000.

Consultants Environmental Liability (CEL) provides professional and pollution liability coverage for acts, errors and omissions arising from professional services plus contractor's pollution legal liability coverage for pollution conditions arising from contracting services rendered by or on behalf of the insured. Its target market includes: U.S. and Canadian architectural and engineering firms, including design/build firms. Minimum premium is \$US2,500.

Professional & Pollution Liability - Architects, Consultants & Engineers (PPLACE) provides professional and pollution professional liability coverage for acts, errors and omissions arising from professional services plus contractor's pollution

legal liability coverage (occurrence) for pollution conditions arising from contracting services rendered by or on behalf of the insured. Its target market is U.S. and Canadian architectural and engineering firms, including design/build firms. Minimum premium is \$US2,500.

General Contractors Pollution Liability (GCPL) provides coverage for liability due to pollution conditions that arise from operations performed by or on behalf of the insured. Available on occurrence or claims made basis. The target market is all contractors, excluding residential home-builders. Minimum premium is \$US15,000.

Professional & Pollution Liability - General Contractors (PPL-GC) provides coverage for acts, errors and omissions arising from professional services performed on behalf of the insured. Pollution can be written claims-made or occurrence, while professional is claims-made only. The product's target market is all contractors except residential home-builders. Minimum premium is \$US15,000.

Project Specific Professional & Pollution Liability (PSPPL) provides coverage for acts, errors and omissions arising from professional services performed for the project, as well as pollution conditions arising from contracting services rendered for the project. Pollution can be written claims-made or occurrence, while professional is claims-made only. Coverage for acts, errors or omissions arising from the contracting and/or design teams, arising from professional services performed for the project can also be provided. Minimum Premium is \$US100,000.

Consultants Environmental Liability (CEL) provides coverage for acts, errors and omissions, as well as pollution conditions arising from both contracting services and professional services rendered by the insured. Minimum Premium is \$US10,000 unless written with other lines, in which case it is \$US7,500.

SECTION D: BIBLIOGRAPHY AND APPENDICES

Real Estate Lender's Policy (RELPL) provides first and third party pollution coverage and mortgage impairment coverage for Banks/Lenders. Minimum premium is \$US20,000.

Transporters Auto Pollution & Remediation Legal Liability (TAPL) provides coverage for bodily injury, property damage and cleanup costs caused by pollution conditions arising from cargo transported by a covered auto and arising out of the upset, overturn, collision, loading and unloading of materials. Minimum pricing is \$US5,000.

For more information see:

<http://www.xlenvironmental.com>

12.8 Yasuda Fire and Marine Insurance Company Ltd, Japan

Environmental Impairment Liability Insurance has been offered since 1992 and offers protection against liability and clean up costs associated with environmental impairment that is not already covered by general insurance.

Discounts on premiums for low-pollution vehicles have been available since 1998. Yasuda offers a 3% discount on cars insurance premiums for low-pollution (electric, hybrid, methanol and natural gas-fueled) vehicles. This policy was extended in 1999 to include fuel-efficient and low-emission vehicles if Japanese acquisition tax reductions applied. Since the scheme was introduced in 1999, the number of low-pollution vehicles insured has risen from 76,637 to 245,329, an increase of over 300%.

Eco Auto Loans (1999) are offered at a preferential rate of 0.5% lower than the ordinary rate for customers purchasing low-pollution vehicles.

For more information see:

Yasuda Fire and Marine Insurance Company Ltd, Sustainability Report 2001.

12.9 Zurich Insurance Company, Switzerland

Third-party liability for bodily injury, property damage and clean-up costs as a result of environmental impairment which emanates from an insured's covered location is covered by the Zurich Environmental Impairment Liability policy.

The best policy offering coverage for releases from scheduled storage tank systems for corrective action on-site and off-site and also third party bodily injury and property damage is the Zurich storage tank pollution liability policy. The coverage can be used to meet U.S. Environmental Protection Agency financial responsibility requirements.

The needs of the real estate investor in transaction and portfolio management are addressed by the Zurich real estate environment liability policy. This policy can be used as a tool to expedite real estate financing or mergers and acquisitions. Protection for historical contamination, as well as new pollution events, is included. Coverage is provided for first-party on-site clean-up costs, third-party bodily injury and property damage, including defence.

For more information see:

http://www.zurich.com/about_zurich/environmental_products.html

13. APPENDIX 3: GLOSSARY OF TERMS INCLUDING DETAIL OF ENVIRONMENTAL IMPAIRMENT (EI) COVERS IN EUROPE

This appendix explores the most common environmentally related products offered by financial institutions in Europe – environmental impairment liability covers – and the different kinds of risks that the products generally cover.

In order to unequivocally define the extent of cover the difference, between 'sudden and accidental' and 'gradual' needs to be clearly defined. The table below helps clarify what refers to the cause (triggering event) or the effect (insured damage) of the incident.

Table 1: Difference between sudden and gradual incidence

Cause of incident	Effect on persons or property	Example
Sudden	Sudden	Explosion in a chemical plant. Cloud of toxic gas spreads through a residential area: neighbours suffer smoke poisoning and must be evacuated.
Sudden	Gradual	Explosion causes cracks in waste water pipe. Toxic waste water gradually penetrates into the drinking water.
Gradual	Sudden	Gas line corrodes and gas escapes causing an explosion in a residential area. Neighbours are injured.
Gradual	Gradual	Waste water pipe gradually leaks as gaskets deteriorate with age. Waste

Source: Insuring Environmental Impairment Liability, Swiss Re, 1999

SECTION D: BIBLIOGRAPHY AND APPENDICES

13.1 A Comparison of Stand-alone Environmental Impairment (EI) Covers

The market for EI covers in Europe can be broadly divided by country and then categorised into the following: those with a standardised market wide offering, countries with environmental impairment liability pools and countries where such products are offered by individual insurance companies.

In the table below it can be seen that in France an environmental insurance pool exists whilst in Sweden and the UK it is the role of private sector insurers.

In the Netherlands in 1998, a new type of environmental damage insurance was introduced, covering costs resulting from cleaning up water and soil pollution (on own and third party sites) in addition to property damage to third parties. A casual link between damage and its cause is enough to trigger the policy. There is no need for civil liability to be established.

Table 2: Extent of cover

Country	Extent of Cover				Policy Set-up
	Sudden/Accidental	Gradual	Normal Operation Risk	Development Risk from normal operations	
France	Yes or full coverage	No	No ¹	No ¹	Assurpol ² : separate environmental impairment liability
United Kingdom	Full coverage		No	Yes	Separate Environmental impairment liability policy
Sweden	Full coverage		Yes	Yes	Separate Environmental impairment liability policy

1. Result: Normal operations are not insured; thus the development risk associated with normal operations is also not insured.

2. Covered by environmental insurance pool

Source: Insuring Environmental Impairment Liability, Swiss Re, 1999

13.2 Normal Operation Risk

Normal operation losses occur during normal, undisrupted and officially authorised operations of a plant. Insurance companies may exclude the normal operation risk from their environment impairment covers or at least restrict their covers to business activity in compliance with legislation. This prevents the insurance company from potentially facing hard to calculate claims where the basis for liability or regulations on substance emissions may have been retroactively changed.

13.3 Development Risk

Development risk is a special case of normal operation risk. For example, a comparatively innocuous substance can have substantially different effects when mixed with others or an operation may cause severe environmental damage that may only be revealed over time. Causes for existing impairment may not be suspected or impairment may be unforeseeable given current technology.

Hidden impairment such as this would constitute the development risk of normal operational activity.

13.4 Cost Limitations

Repayment of costs may be available for measures taken to limit or contain damage caused by a covered loss event that has already occurred. In some countries, depending on applicable contract law, these must be accepted by the insurer above the sum insured.

Prevention costs are payments for measures to prevent an insured, imminently impending loss event that has not yet occurred. These would generally only be covered by insurance if definitively included in the policy. Many countries environment protection laws require the polluter to carry any prevention costs.

The tables below give an indication of cost limitations in various countries and also an outline of the limitation of cover in time including the discovery period of the claim.

Table 3: Cost Limitations

Country	Sum Insured	Costs to minimise damage, injury or loss	Investigation, legal and other costs
France	Annual aggregate limit	Covered, sub-limit (20% of the sum insured)	Covered within the sum insured
United Kingdom	Annual aggregate limit or three year aggregate with one reinstatement	Covered within the sum insured	Covered within the sum insured
Sweden	Annual aggregate limit	No	Covered within the sum insured

Source: Insuring Environmental Impairment Liability, Swiss Re, 1999

SECTION D: BIBLIOGRAPHY AND APPENDICES

Table 4: Limitation of cover in Time

Country	Environmental Impairment during the policy period (cause)	Loss event occurs during the policy period (effect)*	Discovery/ Manifestation of (imminent) loss during the policy period*	Claims made and or circumstances reported during the policy period	Retro-active cover	Discovery period
France	Yes	–	Yes	–	Subject to agreement ¹	Yes, 5 years ^{2,3}
United Kingdom	Yes	–	–	Yes	Subject to agreement, 3 years (maximum)	Subject to agreement, 12 months
Sweden				Yes ⁴	Yes	Yes, 6 months

Source: Insuring Environmental Impairment Liability, Swiss Re, 1999

* Multiple 'yes' answers in any one line are cumulative; where there is more than one 'yes' for a given country, all of the respective prerequisites must be fulfilled in order to trigger the cover.

1: Environmental impairment prior to inception of the policy, without the knowledge of the insured.

2: Only in the event of termination of business activities.

3: Loss occurrence within 5 years after expiry of the policy. Impairment of the environment within the policy period.

4: Claim made against the insured.

13.5 Exclusions

In different countries the nature of exclusions will determine the extent of environmental impairment liability cover. The table below sets out four exclusions and their relevance in various countries.

Other exclusions commonly found in environmental impairment liability covers include:

- Unavoidable or accepted environmental impairment;
- Conscious non-conformance with laws and regulations or orders directed at the policyholder by the public authorities and serving the purpose of environment protection;

- Claims for damages caused by change of location and flow pattern of groundwater;
- Costs for the correction of a hazardous condition;
- Renovation and refitting costs and expenditures for leaks, functional defects or causes of damage; and
- Damages due to Acts of God where elemental forces of nature are concerned.

Table 5: Exclusions

Country	Genetic Impairment	Electromagnetic Fields	Product-related environmental damage	Claims resulting from spillage or dripping ¹
France	Yes	Yes	Yes	–
United Kingdom	Yes	Yes	–	–
Sweden	–	–	–	–

Source: Insuring Environmental Impairment Liability, Swiss Re, 1999

1: Several events similar in effect such as spillage or dripping of harmful substances into the soil. This is a partial exclusion of the normal operation risk.

Source: Insuring Environmental Impairment Liability, Swiss Re, 1999

14. APPENDIX 4: UNEP FI VOLUNTARY STATEMENT OF COMMITMENT.

14.1 Statement of Environmental Commitment by the Insurance Industry

Preamble

The insurance industry recognizes that economic development needs to be compatible with human welfare and a healthy environment. To ignore this is to risk increasing social, environmental and financial costs. Our Industry plays an important role in managing and reducing environmental risk, in conjunction with governments, individuals and organizations. We are committed to work together to address key issues such as pollution reduction, the efficient use of resources, and climate change. We endeavour to identify realistic, sustainable solutions.

1. General Principles of Sustainable Development

- We regard sustainable development, defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs, as a fundamental aspect of sound business management.
- We believe that sustainable development is best achieved by allowing markets to work within an appropriate framework of cost efficient regulations and economic instruments. Government has a leadership role in establishing and enforcing long term priorities and values.
- We regard a strong, proactive insurance industry as an important contributor to sustainable development, through its interaction with other economic sectors and consumers.

- We believe that the existing skills and techniques of our industry in understanding uncertainty, identifying and quantifying risk, and responding to risk, are core strengths in managing environmental problems.
- We recognize the precautionary principle, in that it is not possible to quantify some concerns sufficiently, nor indeed to reconcile all impacts in purely financial terms. Research is needed to reduce uncertainty but cannot eliminate it entirely.

2. Environmental Management

- We will reinforce the attention given to environmental risks in our core activities. These activities include risk management, loss prevention, product design, claims handling and asset management.
- We are committed to manage internal operations and physical assets under our control in a manner that reflects environmental considerations.
- We will periodically review our management practices, to integrate relevant developments of environmental management in our planning, marketing, employee communications and training as well as our other core activities.
- We encourage research in these and related issues. Responses to environmental issues can vary in effectiveness and cost. We encourage research that identifies creative and effective solutions.
- We support insurance products and services that promote sound environmental practice through measures such as loss prevention and contract terms and conditions. While satisfying requirements for security and profitability, we will seek to include environmental considerations in our asset management.

- We will conduct regular internal environmental reviews, and will seek to create measurable environmental goals and standards.
- We shall comply with all applicable local, national and international environmental regulations. Beyond compliance, we will strive to develop and adopt best practices in environmental management. We will support our clients, partners and suppliers to do likewise.

3. Public Awareness and Communications

- Bearing in mind commercial confidence, we are committed to share relevant information with our stakeholders, including clients, intermediaries, shareholders, employees and regulators. By doing so we will improve society's response to environmental challenges.
- Through dialogue with public authorities and other bodies we aim to contribute to the creation of a more effective framework for sustainable development.
- We will work with the United Nations Environment Programme to further the principles and goals of this Statement, and look for UNEP's active support.

- We will encourage other insurance institutions to support this Statement. We are committed to share with them our experiences and knowledge in order to extend best practices.
- We will actively communicate our environmental activities to the public, review the success of this Statement periodically, and we expect all signatories to make real progress.

14.2 UNEP FI in Australasia

The United Nations Environment Programme Finance Initiatives (UNEP FI) is a unique global partnership between UNEP, the Financial Institutions Initiative (FII) and the Insurance Industry Initiative (III). UNEP FI has 295 member institutions worldwide.

UNEP is headquartered in Nairobi, Kenya. UNEP has six divisions through which it carries out its activities, including the Division of Technology Industry and Economics (DTIE) based in Paris, France. The Economics and Trade Branch (ETB), based in Geneva Switzerland, is a branch of DTIE. The Finance Initiatives is a unit of the ETB.

In Australasia, EPA Victoria co-ordinates and manages the activities of UNEP FI on behalf of UNEP. This follows a Memorandum of Understanding that EPA Victoria signed with UNEP FI in November 2000.

SECTION D: BIBLIOGRAPHY AND APPENDICES

14.3 UNEP FI Australasian Advisory Committee on Insurance

Mr Terry A'Hearn
Manager - Strategic Co-Ordination
EPA Victoria
40 City Rd
SOUTHBANK VIC 3006
61 3 9695 2568
terry.ahearn@epa.vic.gov.au

Ms Helen Bloustein
Senior Adviser - Finance Sector
EPA Victoria
40 City Rd
SOUTHBANK VIC 3006
61 3 9695 2687
helen.bloustein@epa.vic.gov.au

Ms Elayne Grace
Consultant
Tillinghast-Towers Perrin
Lvl 17, MLC Centre
19 – 29 Martin Plce
SYDNEY NSW 2000
61 2 9229 5503
gracee@tillinghast.com

Mr Justin Macinante
The Environment Reporting and Rating Agency
GPO Box 167
SYDNEY NSW 2001
61 2 9967 2649
jdm@zip.com.au

Ms Cami Mok
Environmental Risks Manager - Australia
AIG
220 George St.
SYDNEY NSW 2000
61 2 92401840
cami.mok@aig.com

Mr David Pinch
Assistant Director - Financial Sector Projects Team
Environment Australia
GPO Box 787
CANBERRA ACT 2601
61 2 6274 1459
david.pinch@ea.gov.au

Mr Bruce Thomas
Head of Reinsurance and Risk
Swiss RE
363 George St
SYDNEY NSW 2000
61 2 8295 9500
bruce.thomas@swissre.com

Mr Victor Walter
General Manager, Finance & Administration
QBE
Lvl 10, 82 Pitt St
SYDNEY NSW 2000
61 2 9375 4209
vwalter@qbe.com

SECTION D: BIBLIOGRAPHY AND APPENDICES

Mr Stephen Westwood
Immediate past
General Manager
Gerling
PO Box R300
SYDNEY NSW 1225
61 2 9960 6669
swestwoo@bigpond.net.au

Mr Tony Coleman
Chief General Manager Group Risk
Insurance Australia Group
388 George St
SYDNEY NSW 2000
61 2 9292 1538
tony.coleman@nrma.com.au

Mr Philip Woods
National Research Manager – Motor Insurance Research &
Development
Insurance Australia Group
388 George St
SYDNEY NSW 2000
61 2 92921530
philip.woods@nrma.com.au

For more information contact:

UNEP Finance Initiatives Australasian Liaison Office
40 City Rd
SOUTHBANK VICTORIA
AUSTRALIA 3006
Tel: 61 3 9695 2687
Web site: <http://www.epa.vic.gov.au/programs/unep/>
or
E: unep.fi@epa.vic.gov.au



UNEP Finance Initiatives
Innovative financing for sustainability



EPA
VICTORIA

UNEP FINANCE INITIATIVES AUSTRALASIAN LIAISON OFFICE

40 City Road Southbank Victoria Australia 3006
GPO Box 4395QQ Melbourne Victoria Australia 3001
Telephone 61 3 9695 2538 Facsimile 61 3 9695 2578

www.epa.vic.gov.au



APPENDIX 1: CLEAN-UP REGULATIONS – SOME EXAMPLES

Jurisdiction	Context	Source	Powers
NSW	The Environment Protection Authority of NSW (NSWEPA) is the principal environment regulator in NSW, working in conjunction with local government. The NSWEPA regulates those activities with a greater potential to cause environmental harm through a range of mechanism, including a licensing system. The NSWEPA and other regulatory authorities (mainly councils in their respective areas) also regulate activities more generally through a range of notices, directions and orders.	<i>Protection of the Environment Operations Act 1997</i> (POEO Act) <i>Contaminated Land Management Act 1997</i> (CLM Act)	Clean up orders can be issued in relation to pollution incidents under the POEO Act. Under the CLM Act, where contaminated land poses a significant risk of harm, remediation orders may issue or parties can voluntarily agree to remediate. Owners and polluters of land who become aware that contamination poses a significant risk of harm are under a duty to notify the EPA.