

2007 Report

Insuring for Sustainability

Why and how the leaders are doing it

The inaugural report of the
Insurance Working Group of the
United Nations Environment Programme Finance Initiative



UNEP Finance Initiative
Innovative financing for sustainability

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May 2007



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Cover Photo: Forest, Kyoto, Japan. Bamboo grove.
Jun Ogawa / WWI / Still Pictures

About the Cover

Bamboo is a woody, evergreen plant that belongs to the grass family.

In its initial years, the bamboo devotes much of its time developing an extensive, net-like root system, which prevents soil erosion, purifies the soil, and creates effective watersheds.

Then it takes off. Bamboo is widely considered as the fastest growing plant – shooting up as much as a metre a day. Because of its remarkable speed of growth, bamboo can green denuded lands swiftly. Further, a bamboo grove can absorb more carbon dioxide and produce more oxygen than an equivalent stand of trees¹.

The bamboo is a ‘heavyweight’ – its tensile strength is comparable to steel², yet it is light and flexible. Bamboo is one of the strongest building materials, and is used in earthquake-resilient architecture due to its unique combination of physical properties. It is a practical alternative to wood, thus helping save forests³.

Since bamboo is harvested aboveground, its root system stays intact, so the plant itself survives and topsoil is retained. Harvesting can be done regularly given the bamboo’s rapid regeneration. Around the world, over two billion people depend on bamboo industries for trade and livelihood, with most being in developing countries⁴.

For centuries, the bamboo has served numerous purposes⁵ – from food, shelter, tools, medicine and fuel, to transport, furniture, handicrafts, and the arts. All of these continue to this day.

Bamboo is a renewable resource, just like solar, wind and hydro power. It is a symbol of growth, strength and versatility, a shining example of sustainability. Fittingly, many bamboo species share a common characteristic throughout the year – they remain green.

Written by Butch Bacani, UNEP Finance Initiative

-
- 1 A hectare of bamboo forest sequesters 62 tons of carbon dioxide per year, while a young wood forest sequesters 15 tons per year. Bamboo can generate up to 35% more oxygen than an equivalent stand of trees. *Environmental Bamboo Foundation*
 - 2 A typical bamboo has a tensile strength of 28,000 pounds psi versus 23,000 pounds psi for mild steel. Bamboo can withstand up to 52,000 of pounds of pressure psi, and its weight-to-strength ratio surpasses that of graphite. *Environmental Bamboo Foundation*
 - 3 A sixty-foot tree cut for the market takes 60 years to replace, while a sixty-foot bamboo takes 59 days. *International Network for Bamboo and Rattan*
 - 4 Over one billion people in the world live in bamboo houses. In Bangladesh, 73% of the population live in bamboo houses. The world trade in bamboo and rattan is currently estimated at USD 5 billion every year. *International Network for Bamboo and Rattan*
 - 5 The Environmental Bamboo Foundation has listed the numerous uses of bamboo from A to Z, literally.

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Abbreviations

AMWG	Asset Management Working Group
CCWG	Climate Change Working Group
CSR	Corporate Social Responsibility
ESG	Environmental, Social and Governance (Issues)
IWG	Insurance Working Group
UN MDGs	United Nations Millennium Development Goals
UN PRI	United Nations Principles for Responsible Investment
UNEP FI	United Nations Environment Programme Finance Initiative

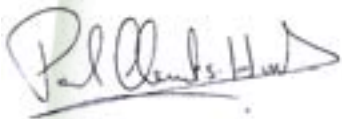
Foreword

The global insurance industry sits in a pivotal intersection that helps individuals, communities and businesses understand, manage and mitigate risk, and protect their assets. Thriving markets support vibrant communities and vice-versa, and supplying insurance products, services and expertise is a fundamental ingredient that underpins economic development and societal growth.

As our common environmental and wider sustainability challenges become clearer, whether it be climate change, resource depletion, environmental degradation or one of the myriad of other issues humankind faces, the insurance industry performs an increasingly vital role that helps us better understand the future, and face it with courage. A robust insurance industry provides the thorough risk analysis and early warning system that allow informed choices to be made, businesses to prosper, and sustainable livelihoods to be built and flourish.

The sixteen institutions that have joined the Insurance Working Group of the United Nations Environment Programme Finance Initiative should be commended for their leadership, notably the best practice case studies contained in this report, which clearly demonstrate that knowledge and sound risk management are essential building blocks to discovering new opportunities. This highlights the growing responsibility of the insurance industry to impart its expertise, enabling policymakers, the broad financial sector and civil society to gain a deeper understanding of the challenges we face together, to find solutions, and to unearth the opportunities of tomorrow.

In acting together, these leaders are bringing a timely message that underscores the crucial role the insurance industry can play in making sustainability a reality. UNEP looks forward to our continued collaboration under the UNEP FI public-private partnership, which releases the positive energy, innovative thinking, and forward-looking approach that this inaugural report embodies unequivocally.



Paul Clements-Hunt

Head

United Nations Environment Programme Finance Initiative

Message from the Chairs

The United Nations Environment Programme Finance Initiative (UNEP FI) has demonstrated how a public-private partnership can work. In 2006, after successfully promoting environmental and sustainability best practices on a range of key issues such as responsible investment and climate change, UNEP FI saw that the time was ripe to broaden its pioneering work in sustainable finance to other major issues – the Insurance Working Group (IWG) was conceived.

The IWG is a unique alliance of sixteen leading insurers, reinsurers and brokers from Australia, Bermuda, France, Germany, Greece, Japan, Norway, Spain, Sweden, Switzerland, the Netherlands, the United Kingdom, and the United States, who are committed to advancing the principle of sustainability in their operations as an integral part of their corporate responsibility. The IWG believes that embedding environmental, social and governance (ESG) issues in core processes, products and services is material in enhancing long-term company value. The IWG collectively defines this strategic approach as ‘sustainable insurance’ – a concept consistent with the ‘Triple Bottom Line,’ succinctly described as People, Planet and Profit.

However, we have observed that there is not enough understanding of the benefits in engaging in sustainability issues. Sustainability issues are often viewed by the insurance industry with a veil of ambiguity, leading to insufficient and, at times, flawed understanding of the risks. Accordingly, many opportunities remain untapped. Certainly, it is essential to have a clear mandate from the top in order to cascade sustainability across the entire organisation effectively. We also appreciate that many companies, particularly those in developing countries, lack the resources to address sustainability issues on their own.

Climate change is the greatest environmental risk confronting the insurance industry, but it is not the only one. The threats posed by climate change along with other sustainability issues ranging from insurance for the poor, protection of natural resources, emerging risks such as nanotechnology, to health and lifelong income, must be addressed proactively. Yet the risks associated with these issues have also ushered in promising opportunities.

The IWG recognises that the insurance industry, being a lever of economic development coupled with its intrinsic expertise in risk management, has a critical role to play in addressing global challenges today and in the future. In this vein, it is our belief that sustainable insurance is a vital tool in fulfilling the overarching goals of sustainable development. It is in this light that the IWG deems it most appropriate to introduce itself to its stakeholders – by underpinning the necessity to tackle global sustainability issues with rigour and innovation, and exemplifying how current and emerging risks can become vast opportunities for sustainable insurance.

We offer this inaugural report to our peers in the insurance industry to gain new insights, regulators and policymakers to heed, and the insuring public at large to be cognizant. This is a concrete manifestation of our commitment – and the need for the insurance industry – to adapt to a changing risk landscape unceasingly, and to find solutions to the most pressing sustainability issues collectively.



Catherine Boiteux-Pelletier
Group Head – Sustainable Development
AXA
Co-Chair, UNEP FI Insurance Working Group



Pauline Gregg
Senior Manager – Sustainable Business Practices
Insurance Australia Group (IAG)
Co-Chair, UNEP FI Insurance Working Group



The UNEP FI Insurance Working Group

Member Institution	Country
Achmea	Netherlands
Allianz SE	Germany
American International Group (AIG)	United States
AXA	France
Folksam	Sweden
HSBC Insurance Brokers Ltd.	United Kingdom
Insurance Australia Group (IAG)	Australia
Interamerican Hellenic Life Insurance Company	Greece
Lloyd's ^A	United Kingdom
MAPFRE	Spain
Munich Reinsurance Company	Germany
Norwich Union (Aviva)	United Kingdom
Storebrand	Norway
Swiss Reinsurance Company ^B	Switzerland
Tokio Marine & Nichido Fire Insurance Co., Ltd.	Japan
XL Insurance	Bermuda

A Lloyd's became a UNEP FI signatory and a member of the Insurance Working Group in May 2007.

B Swiss Reinsurance Company officially became a member of the Insurance Working Group effective 1st April 2007.

Executive Summary

The aims of this report are to raise awareness of the contribution that the insurance industry is already making to sustainability and to identify major challenges and opportunities that lie ahead. This is the inaugural report of the Insurance Working Group (IWG) of the United Nations Environment Programme Finance Initiative (UNEP FI). The IWG is a timely coming together of sixteen industry leaders who wish to drive sustainability.

Sustainability is defined here in broad terms – insurers making their business viable in the environmental, social and financial dimensions over the long-term. This is known as the ‘Triple Bottom Line’ – aiming to contribute positively for People, Planet and Profit.

Insurance and Economic Viability

The insurance industry is a strong lever for implementing sustainability due to its size, the extent of its reach into the community and the significant role it plays in the economy. In 2005, the worldwide premium volume exceeded USD 3.4 trillion, roughly split 60/40 between life and non-life business, making it the largest industry in the global economy. Global assets under management are far greater – in 2005, the figures stood at USD 16.6 trillion for insurance, USD 20.6 trillion for pension funds and USD 17.8 trillion for mutual funds.

Insurance is essential for a viable economy. Without it, businesses and individuals would be unable to take risks and protect their assets. The availability of insurance encourages individuals to acquire assets and invest for the future. Insurance allows the victims of accidental losses to recover financially and helps households manage their finances in the face of death and disability. Annuities reduce the likelihood that a retiree will run out of money. By providing these services, insurers reduce the pressure on public sector resources. Insurers and intermediaries provide risk management advice and through the pricing of risk, they can signal danger to other parties. Finally, with the premiums they receive for providing protection, insurers are also major contributors to the economy through their substantial investments.

Insurance and Broad-Based Sustainability

It is in insurers’ interests to reduce risks and improve sustainability. Firstly, it will improve the probability that the funds collected will be adequate to meet all the claims. Secondly, in a sustainable society, risks are more likely to be insurable and economic growth will be more stable, entailing that insurance markets will thrive. However, the private sector requires a sound regulatory framework that ensures reasonable standards of governance and supports innovation.

The insurance industry interacts with every part of the economy and has tremendous scope to encourage sustainable behaviour. Insurers disburse around USD 1 trillion each year in settling claims, opening the door to improving the sustainability of goods and services. In life insurance and savings, insurers strive to educate clients in planning for a financially secure future. Another clear signpost is the growing number of insurers and pension funds signing up to the UN Principles for Responsible Investment (UN PRI), a global framework that incorporates environmental, social and governance (ESG) issues to promote a longer-term view, increase returns on assets and lower the risk for beneficiaries, and to better align investment activities with the broader objectives of society.

Among IWG members, nine global sustainability issues are vital for this generation of insurers due to their urgency, the scale of their potential impacts and the integral role that the insurance industry can play in addressing them:

- | | | |
|---------------------------|-----------------------------------|-------------------------------|
| 1. Climate Change | 4. Health | 7. Natural Resources |
| 2. Microinsurance | 5. Emerging Manmade Risks | 8. Recycling |
| 3. Lifelong Income | 6. Environmental Liability | 9. Internal Efficiency |

There are leading examples of sustainable behaviour by insurers in all nine areas as illustrated by the case studies in the main text.

Risk Management

Insurers view *knowledge* as the key to understanding risks and managing them effectively. Risks are dealt with at the strategic level through research and analysis and by collaborating with stakeholders such as policymakers, business and NGOs. At the micro-level, site inspections are employed as a fundamental risk management tool. A typical risk evaluation covers a range of risks from property damage, loss of income and burglary to third party liability.

Another crucial activity is *loss prevention*. Businesses may avoid certain risks by configuring their enterprise prudently. By designing facilities and processes and installing loss response systems, the loss potential can be reduced further. Furthermore, insurers have been at the forefront of research and development in this area for decades with their own laboratories and test facilities.

Prime Opportunities for Sustainable Insurance

While insurers are already involved in sustainability issues, three areas cry out for greater attention:

- Providing microinsurance linked to microfinance
- Researching emerging risks and sharing such knowledge with stakeholders
- Developing insurance products and services for natural resources

Barriers to Sustainable Insurance

There are two types of obstacles to sustainable insurance – structural barriers that affect the whole financial sector and barriers to insurability. The main structural barriers are:

- **Misperception** – often, businesses have the preconception that ESG issues are irrelevant, while other parties view the profit motive of businesses as being incompatible with sustainability.
- **Institutional Rigidity** – regulatory frameworks prevent an effective response. Laws may inhibit insurers from issuing innovative products such as derivatives and foreign companies from entering developing countries.
- **Insufficient Capacity** – the private financial sector in developing countries is very weak.
- **Vulnerability** – the worst-affected people are the least able to cope.

In addition to the structural barriers described above, there are supply-side and demand-side barriers to insurability, such as the potential for catastrophic losses, poor data, lax risk regulations, high administrative expenses and lack of consumer awareness, as detailed in the report.

Key Strategies to Develop Sustainable Insurance Markets

The analysis in this report suggests strategies for insurers to implement a campaign of deeper and more proactive engagement in sustainable insurance.

- **Risk Knowledge** – research and analysis are essential. A thorough understanding of the risks involved and how to manage them effectively is critical and may require special projects and the acquisition of new skills.
- **Public-Private Partnerships** – this can be an appropriate model for insuring ESG risks, particularly in developing countries and for catastrophic loss potentials.
- **Information Technology** – this can be employed innovatively to measure risk very accurately. Markets can be segmented and individual risks properly weighted.
- **Partnering for Distribution** – consumers often view insurance as an unpleasant and occasional duty – even when it relates to savings. If insurers do not have local presence, it is often vital to partner with other organisations that can access clients and earn their trust.

- **Consumer Education** – many consumers are not financially sophisticated. A collaborative programme of consumer education can be effective, especially with public sector and NGO partners.

Next Steps

Sustainable insurance reduces risks for everyone, creates new markets and opportunities and is an integral part of corporate responsibility. However, in such a wide field, it is vital to focus on the most pressing sustainability issues and work together with stakeholders.

The IWG believes that a critical question is: *How can insurance assist developing countries grow more sustainably?* The UN Millennium Development Goals (MDGs) encapsulate the eight key sustainability challenges in developing countries. Microinsurance can support most of the MDGs by delivering products such as weather derivatives for farmers and health insurance for families. The solvency of such schemes could be underpinned by natural catastrophe pools, public-private partnerships and alternative risk transfer (ART) products such as catastrophe bonds. However, regulators and policymakers would need to play their parts in removing structural barriers. Microinsurance will be a major area of work for the IWG.

Secondly, a landmark IWG initiative will be to develop *Principles for Sustainable Insurance* for the global insurance industry in collaboration with leading players and other stakeholders. The IWG believes that a common framework of guidelines to embed ESG criteria in core processes, products and services is essential to advance the sustainable insurance agenda, along with the establishment of a global network of sustainable insurers.

We now invite you to delve deeper into the report which we believe will provide illumination as interest in sustainable insurance grows.

Part I: Introduction & Background

The aim of this report is to raise awareness on the contribution that the insurance industry can make – and is already making – to sustainability by providing examples of best practice and identifying major opportunities and challenges that lie ahead. It is aimed at senior insurance executives, regulators, policymakers and other key stakeholders such as NGOs and the media.

Sustainability is defined in this report in broad terms – insurers making their business viable in the environmental, social and financial dimensions over the long-term. Insurers can fulfil their financial obligations to shareholders, policyholders, beneficiaries, employees and suppliers and have a beneficial effect on the environment, create healthy communities and manage themselves properly as well. This is known as the ‘Triple Bottom Line’ – aiming to contribute positively for People, Planet and Profit.

The United Nations Environment Programme Finance Initiative (UNEP FI) is a strategic public-private partnership between UNEP and the global financial sector. UNEP FI promotes sustainability on a wide range of issues by demonstrating its materiality in enhancing company value, seeking to embed sustainability in the financial sector’s strategies and processes. Formally established in 2006, UNEP FI’s Insurance Working Group (IWG) is a timely coming together of sixteen industry leaders who wish to drive sustainability. The IWG will undertake and promote relevant research, education, and product development and methodologies on sustainability. An important part of its work programme is to identify specific examples of best practice in core processes, products and services.

This inaugural IWG report is structured in five parts:

Part I – introduces the insurance industry and establishes the business case for sustainable insurance

Part II – outlines the main sustainability issues and how insurers are gaining insights

Part III – illustrates how to make processes more sustainable

Part IV – examines how sustainability can be integrated into products and services

Part V – discusses the way forward

1. Insurance and Economic Sustainability

The insurance industry is a strong lever for implementing sustainability due to its size, the extent of its reach into the community via hundreds of millions of policies, and the role it plays in the economy. In 2005, the worldwide premium volume of the insurance industry exceeded USD 3.4 trillion¹, roughly split 60/40 between life and non-life business, making it the largest industry in the global economy. Global assets under management are far greater – in 2005, the figures stood at USD 16.6 trillion for insurance, USD 20.6 trillion for pension funds and USD 17.8 trillion for mutual funds (see Table 1).

¹ Source: Swiss Re, Sigma No.5/2006 (see Table 7)

Table 1: Sources of Global Assets under Management

USD billion (end-2005)

	Conventional Investment Management			
	Pension Funds	Insurance Assets	Mutual Funds	Total Conventional
US	12,119	5,465	8,905	26,489
Japan	3,419	2,264	470	6,153
UK	1,607	1,907	547	4,061
France	165	1,527	1,363	3,055
Germany	114	1,370	297	1,781
Netherlands	693	385	94	1,172
Switzerland	469	337	117	923
Other	1,967	3,371	5,978	11,316
Total	20,553	16,626	17,771	54,950

Source: IFSL estimates based on Watson Wyatt, Bridgewater, Merrill Lynch, ICI, Swiss Re and Hennessee Group Data.

The function of insurance is strongly related to sustainability. In the life and pensions branch, insurance covers serious risks to human well-being and provides post-retirement income far into the future for savers who have entrusted their funds. On the non-life side (also termed as property & casualty), insurers protect businesses and individuals against risks to assets, loss of income and third party liability, among others.

Insurance is essential for a viable economy. Without it, businesses and individuals would be unable to take risks and protect their assets. Insurance removes the fear of catastrophic losses from fire and natural hazards and allows businesses to budget without unexpected variations in expenses, thus helping allocate funds for growth and development. Insurance can also directly underpin innovation by accepting certain risks that could deter entrepreneurs. For individuals, the availability of insurance encourages them to acquire assets and invest for the future instead of simply consuming their income.

Non-life insurance allows victims of accidental losses to recover financially through the payment of their claims. When claims are settled, funds are transferred to local businesses such as repair shops and building contractors for the purchase of goods and services. Life insurance helps households manage their finances in the face of death and disability by minimising disruption to a wage earner's dependents. Annuities reduce the likelihood that a retiree will run out of money. By providing a measure of financial security to individuals, life insurance products help stabilise the economy. Finally, with the premiums they receive for providing protection, insurers are also major contributors to the economy through their substantial investments, enabling large scale projects and operations to take place.

In making all these services available, insurers reduce the pressure on public sector resources. Increasingly, insurers and intermediaries are providing risk management advice, and through the pricing of risk, they can signal danger to other parties. Inasmuch as the insurance industry interacts with every part of the economy, it has tremendous potential to encourage sustainable behaviour from its stakeholders (see Table 2).

Table 2: Insurance and the Economy

Influence on Stakeholders	Main Beneficial Effect
Clients in every sector, through underwriting	Business growth, by risk transfer
Suppliers, through claims process	Consumer wealth, by replacing losses
Corporate sector, as investors	Economic growth, by funding investments
Government, as risk advisors	Safety, by research

2. Insurability

As society has developed and as science and technology have progressed, risks have evolved but the main principles of insurability have remained constant – risks have to be quantifiable, occur randomly, and be many in number, so that variations in claims are smoothed out. From the policyholder's side, the premiums have to be affordable and the contract has to perform reliably. Since the premiums are pooled to create a fund, it is usually necessary to avoid cross-subsidies, otherwise, better risks will not insure. Although insurers have their own capital as a backstop against annual variations in claims, the bulk of claims that insurers disburse

simply redistribute the premiums from ‘the many’ that do not claim to ‘the few’ that are unfortunate and do claim. Similarly, pension providers require their capital in order to finance new sales. Generally, the pensions they pay are the accumulated funds of their beneficiaries.

It is clearly in insurers’ interests to reduce risks and improve sustainability – for two primary reasons. Firstly, from a defensive standpoint, it will improve the probability that the funds collected will be adequate to meet all the claims. Secondly, in a sustainable society, risks are more likely to be insurable and economic growth will be more stable, entailing that insurance markets will thrive. However, the private sector cannot act alone. It requires a sound regulatory framework that ensures reasonable standards of governance and supports innovation. Further, politicians need to govern in a way that physical, environmental and social risks such as climate change and crime do not spiral out of control and become uninsurable. For those risks that may be too large, uncertain or unviable commercially, the public sector may have to be the main risk carrier but, in general, the private sector is keen to play its part in helping society face risks. We shall return to these challenges in Part V.

Sustainability affects all the roles of an insurer as shown by the following simple framework:

Table 3: Connecting an Insurer’s Roles with Strategies for Sustainability

Role	Sustainability Strategy
Insurer	Sustainable Core Processes
Investor	Responsible Investing and Financing
Actor in Society	Community Involvement, Employee Relations
Consumer	Environmental Care

The *raison d’être* of the insurer is to manage and carry the risks of its clients. This involves various core processes, all of which can be designed in a sustainable manner:

Table 4: Core Insurance Processes and Sustainability

Core Process	Sustainability Issues
Risk Assessment	Fairness in data collection, development of risk models, pricing.
Risk Reduction	Advice about alternatives to insurance. Enforcement of risk-reducing measures.
Exposure Control	Management of the aggregate risk to avoid insolvency.
Strategic Planning	Social and environmental emerging risk-watch.
Product Design	Covering risks that are relevant from an ESG perspective.
Distribution	Partnering with networks for efficient access to at-risk customers.
Marketing	Consumer product education. Fair incentives to take out insurance. Opt-outs.
Claims Handling	Speedy and considerate indemnity. Fair dispute resolution.
Procurement	Partnering with sustainability-minded suppliers for positive ESG impact.
Administration	Accurate record-keeping. Accessibility for complaints.

Historically, environmental, social and governance (ESG) issues were not widely and explicitly integrated into investment analysis and decision-making by investors. The priority of many had been to invest assets for as high a return as possible, measured as the financial gain over the short-term. However, it is becoming clear that this approach is inconsistent with customers’ long-term interests and, nowadays, customers themselves are increasingly seeking to ensure that their assets are invested responsibly (i.e., profitably, without harming people or planet). Insurers are major investors and require large amounts of capital to run their operations. Investment income provides a buffer against variable claims experience in non-life and finances business acquisitions in life and savings. Insurers’ reputation is a significant factor in maintaining the value of the capital invested in them, hence, sustainability matters there too.

An insurance company is an important actor in society. It has a duty to be a good employer and to act responsibly in the communities where it operates as well as to broader society. Exploiting people leads to inferior work and ignoring social issues such as unemployment and crime will simply make more risks less insurable, either because of the direct cost or through people having less disposable income to purchase insurance.

As providers of financial services, insurers have a relatively light 'footprint' on consumption of resources compared to other industries. But it is not negligible – a large insurer can use as much electricity as a small town. The most visible sign is an insurer's offices but business travel also has a major impact on resources and the environment.

3. Knowledge is the Key

Insurers view knowledge as the key to understanding risks and managing them effectively. Many rely on historical experience, follow the market and seek advice from their reinsurers who have a more extensive database. However, these strategies are limited since they do not offer competitive advantage and are unable to address situations where risks are changing rapidly or evolving from scratch.

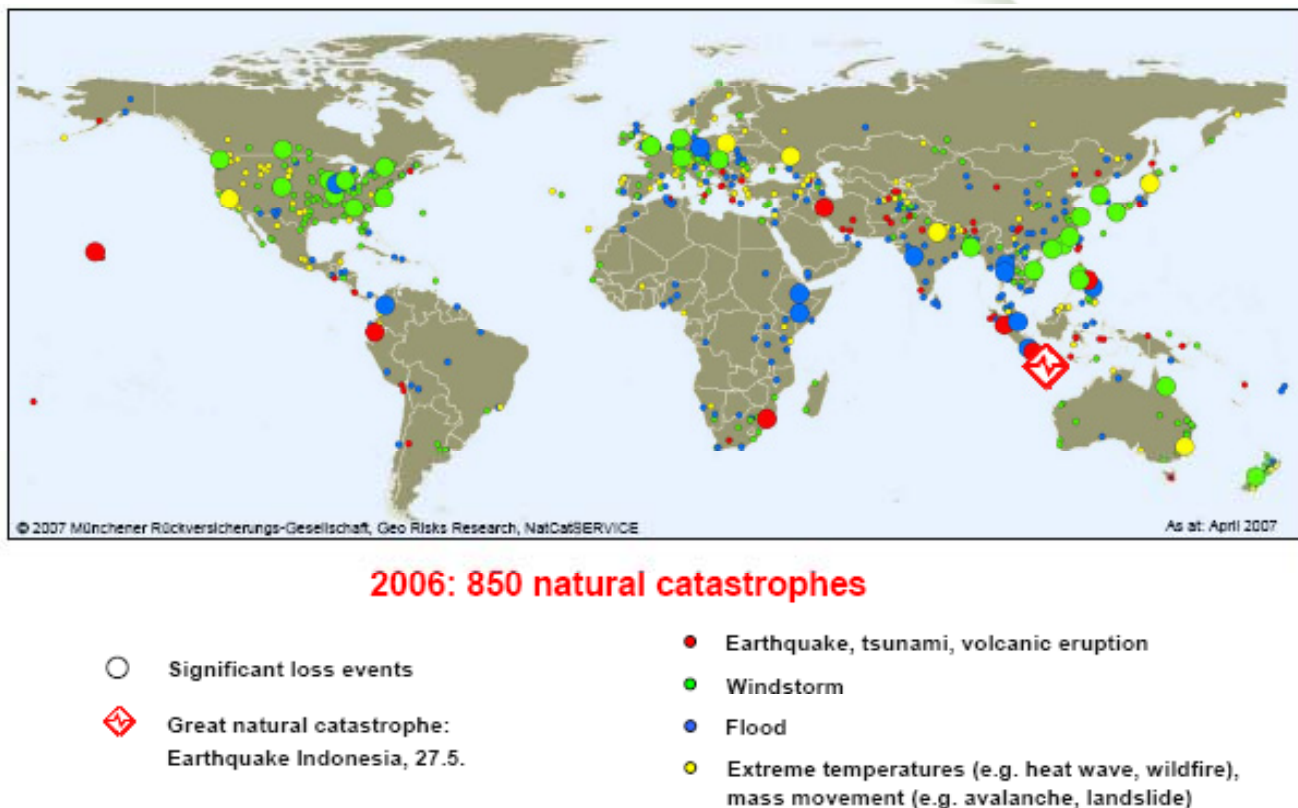
Allianz established the Allianz Centre for Technology (AZT) to provide knowledge on risk, safety, technology and sustainable development. For over seventy-five years, its staff of engineers, physicists, chemists and technicians have supplied expertise to the Allianz global insurance network and its clients on issues such as loss prevention, claims cause analysis and damage restoration. The Centre has in-depth expertise in a range of industries including energy, chemicals and engineering, and is developing a sustainable development strategy for the Allianz Group, with special focus on energy, climate protection and renewable energy. With a budget of USD 10 million (2006), AZT is a key part of Allianz's 'early warning system' on emerging risks like nanotechnology and undertakes some six hundred research contracts every year.

Munich Re has been a leader in the study of natural catastrophes since the 1970s. Its Geo Risks Research personnel provide expert advice to underwriters and clients and disseminate a host of technical publications. Munich Re publishes a renowned annual review of disasters and catastrophic events and furnishes public information aids such as the World Map of Natural Disasters (see Figure 1). In 2005, it set up the Munich Re Foundation to mark the belief that knowledge is one of the keys to advance sustainability. Based at Hohenkammer, Germany and with a capital of USD 70 million, the Foundation aims to be a catalyst for positive response on these matters.

The Munich Re Foundation has a four-prong strategy on knowledge:

- Creation by promoting innovation and research
- Sharing through new networks of experts
- Dissemination through presentations and public documents
- Implementation through physical delivery of hardware such as fog nets (water collection devices) and water purification kits to people lacking water

In partnership with the International Labour Organization, the Munich Re Foundation has produced a 678-page compendium on microinsurance which offers practical advice based on numerous case studies. Its other areas of work will cover climate change, water scarcity, disaster prevention, mega-cities, population trends and poverty alleviation.

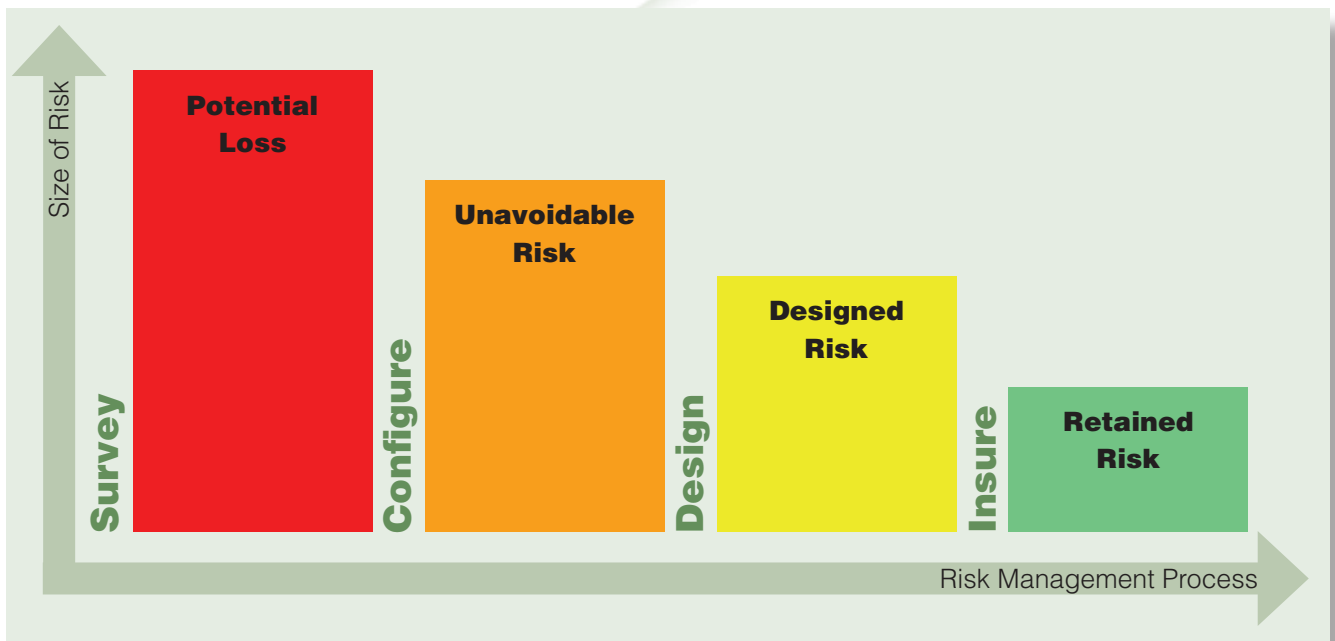
Figure 1: World Map of Natural Disasters 2006

Swiss Re, the largest reinsurer in the world based on premium volume, established the Swiss Re Centre for Global Dialogue at Rueschlikon, Switzerland in 2000 to foster discussion on developments and prospects in the world economy, business, science and technology and to identify what effects these will have on the emergence of new risks. Industry experts, business managers, scientists, policymakers and NGOs attend the international and regional conferences held at the Centre. The goal of these events is to improve understanding, build stakeholder communities around topics and consider potential business solutions. In a span of fifteen months, the range of issues encompassed energy policy, climate change, natural hazards, women's roles, treatment of minorities, young entrepreneurship, artificial intelligence, privacy versus security in information policy, nanotechnology, biotechnology, industrial safety and corporate social responsibility.

Insurance brokers are also active in the area of knowledge and natural hazards. A case in point is the Benfield Hazard Research Centre at the University College London. Among other services, it has created new storm forecasting tools for hurricanes, typhoons and European storms which alert humanitarian organisations such as the United Nations World Food Programme. Another example is the Willis Research Network, the largest collaboration between the insurance industry and academia, comprising seven leading university research groups focusing on weather and environmental modelling. The first major project will be to use the immensely powerful *Earth Simulator*, a supercomputer situated at Yokohama, Japan to help insurers understand the frequency and severity of natural catastrophes in the face of climate change. Future work will look into earthquakes and urban flooding.

4. Loss Prevention

For insurers and brokers, acquiring knowledge is not just a research activity – they gather detailed information about business risks of all sizes through on-site risk surveys by trained staff with professional qualifications. A typical risk evaluation covers a range of issues as businesses seek cover for a variety of risks, from property damage arising from fire, explosion and natural hazards, to loss of income following such events, burglary and third party liability as a result of product malfunctions. A standard property loss prevention survey includes a thorough assessment of the location, construction, occupancy and fire and security protections. Site plans are marked to show the locations of hazardous goods and processes and high-valued or sensitive equipment and stocks. Details of relevant testing and emergency procedures are recorded. With such information, underwriters can quantify the probable maximum loss that could occur and manage risks more effectively. While it is important to realise that transferring risk through insurance is a key component of loss prevention, it is not the whole story (see Figure 2).

Figure 2: Insurance in the Risk Management Process

At the outset, it may be possible to avoid certain risks by *configuring* the business prudently (e.g., judicious site selection). Then by *designing* the facilities and processes and installing loss response systems, the loss potential can be reduced further. At this stage, a significant portion of the remaining risk can be *transferred (insured)* or *retained*.

Avoiding Meltdown

FM Global of the US is a commercial and industrial property insurer, and risk management is one of its core strengths. The company is renowned for its loss prevention research and engineering, premised on the belief that majority of losses are preventable.

The production plant in a plastic product manufacturing facility was well-protected against fire by automatic sprinklers. However, aluminium dies used in the thermo-forming machines were stored in racks in an unprotected area of the plant. Twenty-five of these were critical as they accounted for 67% of the plant's output.

During a visit by an engineer of Affiliated FM (part of the FM Global Group), it was determined that a fire in or near this storage area would expose the dies to high temperatures and render them unusable. Although computer-aided design drawings of the dies were available, staff estimated it would take at least four months to replace some of the dies. Further, most of the critical dies would take longer due to the need for high-quality machining by pre-qualified vendors to achieve product consistency, and the delays involved could not be determined with certainty.

This problem was brought to the attention of management. It was agreed that the situation presented a severe risk to their business as customers could not wait for production to restart after an extended downtime. Consequently, action was immediately taken to minimise the exposure. The dies were relocated to an area protected by automatic sprinklers and safely away from combustible material. In addition, a review of the location of die storage was undertaken across the company to ensure that similar exposures did not exist at other sites. Finally, a formalised corporate contingency plan was instituted which included the offsite storage of spare dies for critical product lines.

Learning Point: Many serious risks can be avoided or minimised by a structured review of loss exposures and by good contingency planning.

Part II: The Sustainability Issues

Sustainability should be an integral part of everything that we do. Among IWG members, the consensus is that nine global sustainability issues are vital for this generation of insurers due to their urgency, the scale of their potential impacts and the integral role that the insurance industry can play in dealing with them:

- | | | |
|---------------------------|-----------------------------------|-------------------------------|
| 1. Climate Change | 4. Health | 7. Natural Resources |
| 2. Microinsurance | 5. Emerging Manmade Risks | 8. Recycling |
| 3. Lifelong Income | 6. Environmental Liability | 9. Internal Efficiency |

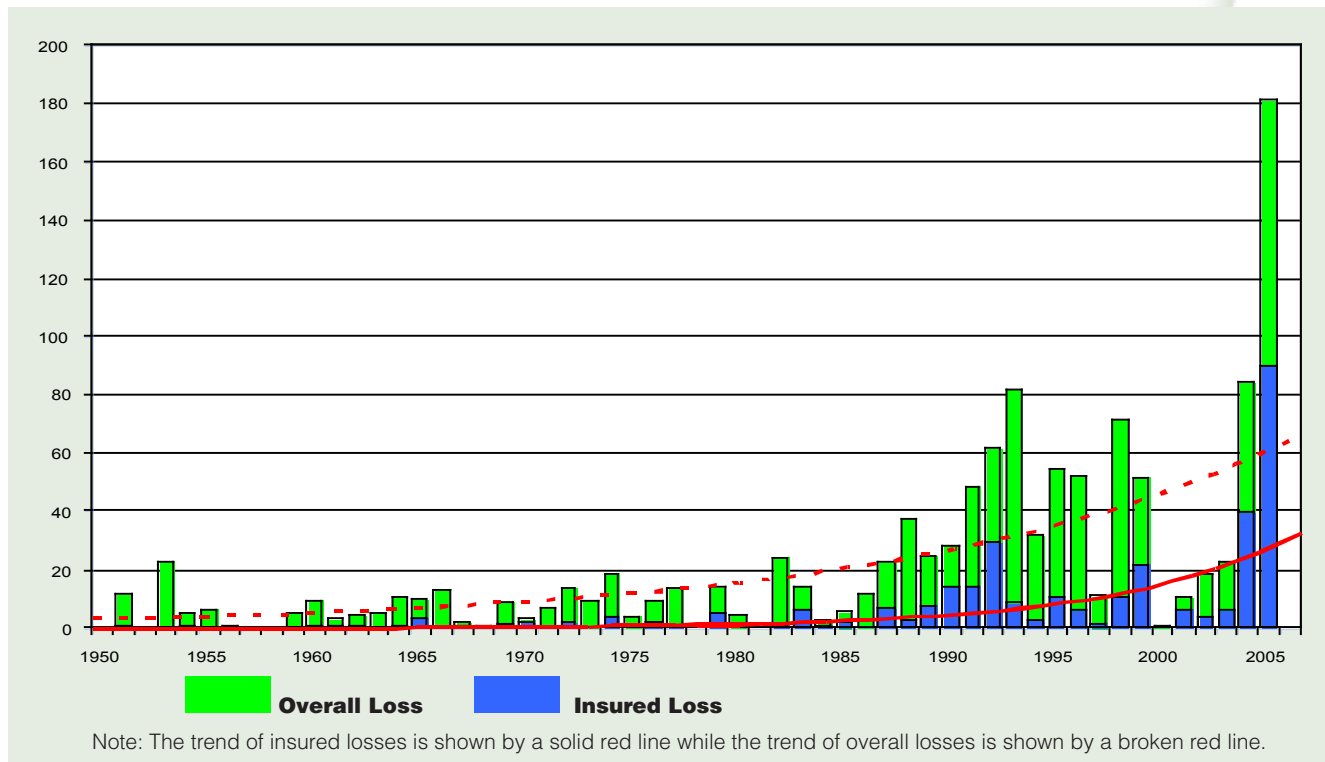
Naturally, there is interaction among these issues and this will emerge as we now look at some specific case studies of best practice that address these.

1. Climate Change

This is the most serious environmental risk facing society. Figure 3 shows that economic losses from extreme weather events are scaling new records. The Stern Review² calls it the greatest failure of the market economy because today’s producers of greenhouse gas emissions do not pay anything towards the disproportionate future damage that others will suffer. UNEP FI formed a Climate Change Working Group (CCWG) in 2002. On adaptation, the CCWG’s most important messages for insurers are – the pace of change in extreme events is already fast and the scale of losses could reach USD 1 trillion in a single year by 2040. On mitigation, the CCWG demands strong emissions targets soon to alert investors to the desperate priority of clean energy and calls on insurers to cover clean energy technologies and projects. The case studies throughout this report illustrate that IWG members are engaged on climate change in a number of ways – through knowledge creation and risk analysis, product development, resilient claims-handling techniques, social projects and responsible investment.

Figure 3: Great Weather Disasters 1950-2006³

USD billion (2006 values)



Source: © 2007 Münchener Rückversicherungs-Gesellschaft, Geo Risks Research, NatCatSERVICE

2 Stern Review: The Economics of Climate Change, HM Treasury, 2006
 3 Based on the definition criteria, there was no Great Weather Disaster in 2006.

Effective Direction on Climate Change

American International Group (AIG) has established an Office of Environment and Climate Change within the Corporate Affairs Department to be a focal point on implementation of its policy on climate change. The policy emphasises development of products and services to help customers reduce greenhouse gas (GHG) emissions and to support the carbon market. For example, AIG's Global Marine and Energy recently announced an Alternative Energy Practice to service global insurance and risk management needs of US-based clients engaged in renewable energy operations. In the group's consulting activities, its affiliate HSB Solomon Associates aids the refining, petrochemical and other energy companies globally to identify energy efficiency improvements that translate directly into carbon reductions. Other important areas of work include investments (see main text), risk intermediation for carbon markets, and a product, under development by Risk Finance, to insure delivery of project-based carbon credits. The question of whether climate change has exacerbated recent hurricane patterns is a very 'hot' topic. AIG and Lloyd's of London, in association with the Insurance Information Institute and the Harvard Medical School Centre for Health and the Global Environment, are organising a Catastrophe Modelling Forum which aims to deliver new insights on hurricane risk in the context of global warming. The group is in the process of conducting a GHG emission inventory and working with consultants on measures to mitigate environmental impacts of its operations globally.

Allianz has formed a cross-company climate change working group that has formulated a plan of action in each of the company's main branches – insurance, banking and asset management. The initial list was drawn up after commissioning reports from industry experts in 2005. To give the work a broader basis, Allianz has partnered with WWF, the global conservation organisation, to ensure that its programme embodies stakeholder concerns.

Learning Point: To deal with a major risk, insurers must recognise it at a strategic level and partner with external experts and other stakeholders to understand the risk and develop effective responses.

A major concern on climate change is that most of the economic losses from disasters are uninsured, leaving the victims to refinance themselves or rely upon donor aid. This is especially acute in developing countries where insurance penetration is very low. Insurance-related mechanisms might be able to incentivise risk reduction and spread losses so that the annual burden becomes acceptable.

The Munich Climate Insurance Initiative (MCII) was initiated by Munich Re in 2005 to see if insurance solutions can play a role in adaptation to climate change in developing countries, as suggested by the Kyoto Protocol. The MCII provides a forum for experts from insurance companies, climate science, economics, NGOs and independent organisations to formulate new proposals for climate change insurance, assess and compare existing solutions, and promote insurance and risk reduction measures for climate-related events. Currently, the Kyoto process needs new impetus and the MCII may help do this by generating momentum on adaptation. Among the product developments being considered are microinsurance, natural catastrophe pools and schemes and alternative risk transfer (ART) products such as weather derivatives and catastrophe bonds. One problem is that ART tools are often not permissible as insurance products due to the fact that they originated as banking or commodity risk products.

On the mitigation side, purchasing future carbon credits to be generated by clean energy projects poses many risks. Will the technology work? Could 'ordinary' risks like fire or flood stop the work? Will the project run out of money? Will the host government seize the assets? In the event of non-delivery, can replacement credits be bought as cheaply? Companies such as AIG, Munich Re and Swiss Re are developing combined risk cover for carbon credit delivery to build confidence for financiers to support the Kyoto Flexible Mechanisms, Clean Development Mechanism (CDM) and Joint Implementation (JI).

Finally – a word of caution. In an initiative called *Climatesure*, AXA UK, Norwich Union and other insurers undertook to provide 'green' motor and travel insurance policies via a public website in 2006. Despite 85% of the UK public believing that climate change will significantly impact them in the future if no action is taken now and 55% claiming to prefer 'green' purchases – very few have used the facility yet.

2. Microinsurance

Microinsurance is a method of distributing insurance to reach the poor which has evolved from the concept and practice of microfinance. It is a solution, not for environmental risk, but for social and economic vulnerability. Even in OECD⁴ member countries, exclusion from financial services is a serious problem. In the UK, although 80% of households have property insurance, this falls below 50% for the poorest decile. The microinsurance product range is usually very simple. The sums insured are small at around USD 50 to 250, often linked with a micro-loan. A new publication by the Munich Re Foundation and the International Labour Organization entitled, 'Protecting the Poor: A Microinsurance Compendium,' provides much practical advice. One innovation that has been identified by the CCWG is the use of simple weather derivatives to extend microinsurance into crop insurance for poor farmers.

Microinsurance: A Macro Sustainable Business

American International Group (AIG) views microinsurance as a serious business opportunity and has a dedicated team developing microinsurance as a line of business. Global and local partnerships with microfinance institutions (MFIs) are essential to develop appropriate products and then deliver these to clients. The company provides training on insurance for these partners on underwriting, distribution and sales. A key issue for MFIs is client education – financial literacy and understanding of risk management are critical. MFIs themselves need to realise that collecting premiums and paying claims are important.

In partnership with FINCA, a leading MFI, AIG started a project in Uganda over ten years ago to offer a low-cost credit life insurance policy coupled with a micro-loan. The insurance pays a benefit equal to the outstanding loan balance in the event of the borrower's death, which not only mitigates the financial stress on a grieving family but also limits the lending institution's risk, thereby allowing more loans to be made. The lives insured are now 1.6 million, and the product range and coverage has expanded over the years to include family members as well as a basic personal property insurance called 'Disaster Cash' which pays a lump sum to the insured in the event of natural disasters such as storm, flood, tsunami, and earthquake. Another project, through a joint venture in India, has developed several products in partnership with the National Bank for Agriculture and Rural Development, rural banks, NGOs, self-help groups, cooperatives and government departments.

In 2007, AIG launched a microinsurance programme in Latin America to provide accident & health insurance for 200,000 micro-loan recipients. Some of the key issues MFIs need to be concerned with in incorporating insurance into their programmes are client education and having mechanisms for collecting premiums and paying claims. Thus, financial literacy and education of risk management techniques are key to the development of microinsurance.

Learning Points: Distribution is key to establishing a market position in developing countries. Partnering with organisations, which have sustainability as a goal, is a proven route. Client and agent education is a critical first step to embedding insurance in personal risk management.

Similarly, other IWG members are actively involved in microinsurance in developing countries. Achmea, through Eureko, a leading Dutch cooperative insurance group, has been involved in microinsurance in various ways for a significant number of years now. The group facilitates knowledge-sharing and provides technical assistance and advice for microinsurance projects in Asia, Africa and Latin America, such as setting up mutual insurance companies, mutual benefit plans, partner-agent models and loan-protection plans. Through Eureko Re, the group provides reinsurance protection for start-up microinsurance companies and participates

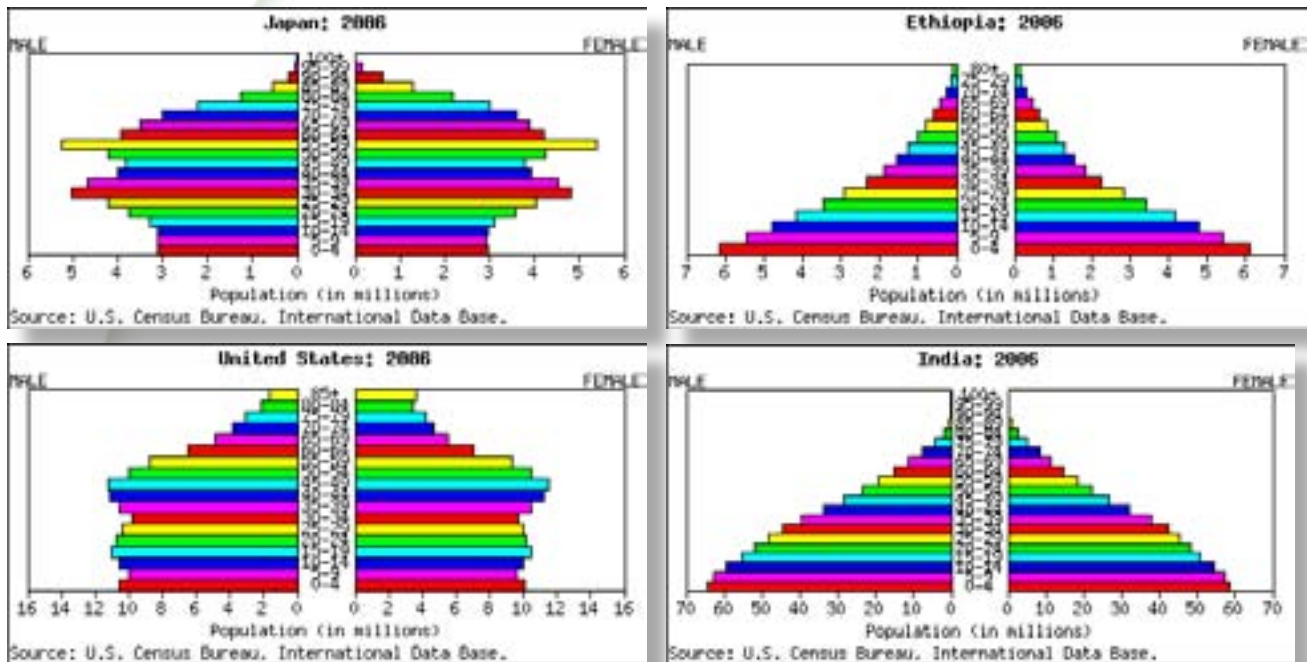
⁴ The Organisation for Economic Co-operation and Development (OECD) groups thirty member countries sharing a commitment to democratic government and the market economy. Its work covers economic and social issues from macroeconomics, to trade, education, development and science and innovation.

in long-standing cooperative projects that establish healthcare systems in post-conflict and post-trauma areas. Volunteerism is advocated – the group encourages employees to work as volunteers in organisations such as the Micro Insurance Association Netherlands (MIAN) and HealthNet TPO. One triumph was because Achmea had arranged reinsurance for the microinsurance networks that it supported, those that were affected by the Indian Ocean tsunami of December 2004 were all swiftly re-established and the local people suffered minimal financial hardship.

3. Lifelong Income

The question of how to provide for an aging population is becoming urgent in many developed countries (see Figure 4). This is an issue of social and economic sustainability. The Geneva Association⁵ has identified this as an important work stream and insurers have already developed new products such as equity release for elderly homeowners.

Figure 4: Population Pyramids of Japan and the US (Developed Countries) Compared with Ethiopia and India (Less Developed Countries)



The annual AXA Retirement Scope® survey helps people understand retirement issues better and enable them to benefit from real-life experiences around the world. It highlights the benefits of living the retirement years as a rich, active period and suggests ways to achieve it. Survey results have triggered public debate from Belgium to Singapore and New Zealand. It also helps AXA identify ways for its clients to finance their pensions more effectively.

The survey has revealed global patterns and regional differences. In 2005, participants consistently viewed the 'onset' of old age as between seventy-two and seventy-five years and all preferred to remain in their own homes, not in institutions. The French would prefer to stop working between fifty-five and fifty-eight, while the Japanese would continue working until they reach sixty-five. Germans associate retirement with poor health. People from Mediterranean countries are pessimistic over their future financial possibilities. Generally, there is consensus on the important role to be played by the state, although certain cultures such as the Anglo-Saxon world, Hong Kong and Singapore see retirement as, above all, an individual responsibility.

In 2006, participants included 11,590 working individuals and retirees from sixteen countries. Working individuals expressed their attitudes towards retirement while retirees described retirement realities, producing highly contrasting views. The social and cultural context of retirement differs from country to country, even if populations are aging in all of them (by 2050, one-third of the population in the industrialised world is estimated to be aged sixty and over). However, from a financial point of view, all participants understood the need to assume individual responsibility for their retirement years.

⁵ The International Association for the Study of Insurance Economics, more commonly known as 'The Geneva Association', is formed by about eighty Chief Executive Officers from major insurance companies across the globe. Its main goal is to research the growing importance of worldwide insurance activities in all sectors of the economy.

Building Trust is Worth Every Penny it Costs

A retirement income dilemma has developed in the US. Retirees are living longer but they can no longer rely on the government or employers for covering the 'cost' of retirement. Individual savings are insufficient to fill the gap, and 77 million 'baby boomers' are entering retirement.

Variable annuities (VA) are an efficient financial product solution. It is an investment portfolio that allows investors to defer taxes while providing guaranteed payment upon death and the option to guarantee a stream of income similar to a salary. Some may be invested in funds like stocks or bonds whose values fluctuate over time, hence, the term 'variable'. Unfortunately, there are cases where the reputation of variable annuities has been tarnished by the irresponsible sales tactics of fringe operators. The public is now reluctant to purchase them, although they are technically efficient to address retirement issues.

In this context, AXA decided to champion variable annuities as an industry educator to build trust through honesty and knowledge-sharing. The Variable Annuities Knowledge Centre website is a key element. It provides 'visitors' with unbiased, fact-based information about variable annuities and its suitability for long-term investment needs, including the types available, the benefits and risks, a 'VA suitability calculator' and tips on dealing with financial professionals. To ensure that the information is accurate and unbiased, the Centre's content is overseen by an independent advisory board of experts. No investment advice is offered on the website. Instead, the website urges visitors to seek external financial advice. There was a strong response to the Centre – 38,000 unique visitors, 252,000 page views and an average visitor session of thirteen minutes from the July 2005 launch to April 2006.

Learning Point: Trust is a critical part of the insurance deal and a long-term strategy in building markets, even if there is no immediate payoff.

4. Health

There are many developing threats to human health such as obesity, stress, aging, substance abuse, allergies and industrial illnesses like repetitive strain. In some societies, they are reaching epidemic proportions – a real sustainability issue. Often, insurers' clients are involved as sufferers or as potential agents of the harm. A major concern is that problems like growth hormones, antibiotics and diseases from other species could arise from the food-chain. The best known ones are Bovine Spongiform Encephalopathy ('mad cow' disease), which can trigger Creutzfeld-Jakob disease, and avian flu. Additionally, it is possible that certain medical and cosmetic processes could create health risks – from implants such as pacemakers, silicone shapers, replacement knee and hip joints that become toxic, to non-human living tissue that allows new viruses like HIV to emerge.

As in other issues, many IWG members actively provide products and services to satisfy this growing demand. The product range differs depending on local corporate capabilities and, of course, the public sector health services. In the US, Allianz has set up the *Life Track Network* to improve organ-transplant matching. Usually, the products include emergency hotlines, advice help lines, access to specialised medical equipment and practitioners on favourable terms and personal care for invalids and elderly clients (e.g., shopping, nutrition and cleaning services). Through the expertise it has developed on chronic conditions like diabetes and kidney failure, Allianz's French subsidiary, AGF, can cover individuals who have trouble finding insurance because of their high-risk status. AGF's medical department revises the aggravated risk rates prevailing in the market by updating mortality studies and integrating changes in medical knowledge. Based largely on its partnerships with patient associations (five major agreements currently), this approach enables AGF to offer products tailored to each case with more equitable rates.

AXA Assistance has built up in-depth expertise since 1959 on how to provide assistance for vulnerable people, including the elderly, sick, disabled and people who are in dangerous situations requiring urgent repatriation services. Emergency medical assistance is the core service supported by motor and travel assistance. The company provides its clients with quick, convenient help following an incident. It is present in more than thirty countries and has a network of over seven thousand medical and administrative correspondents and thirty thousand clinics and doctors around the world.

Backing 'Back to Work'

Improved environmental health and safety (EHS) at work reduce companies' costs and are clearly beneficial for employees. The Norwegian government has introduced a voluntary scheme for employers – an 'Inclusive Workplace Agreement' with the National Insurance Administration. The objectives are to reduce sick leave by 20% by 2009, avoid early retirement and secure employment for people with disabilities. The agreement is based on greater interaction during sick leave and more attention to the employee's functional capacity. Storebrand is offering an EHS contract to firms that have signed an 'Inclusive Workplace Agreement'. The EHS contract consists of EHS support from Storebrand's own occupational health specialists. The companies are likewise offered private health insurance which will ensure treatment by the best qualified hospitals and specialists all over Europe and with a premium discount of 20% from normal rates.

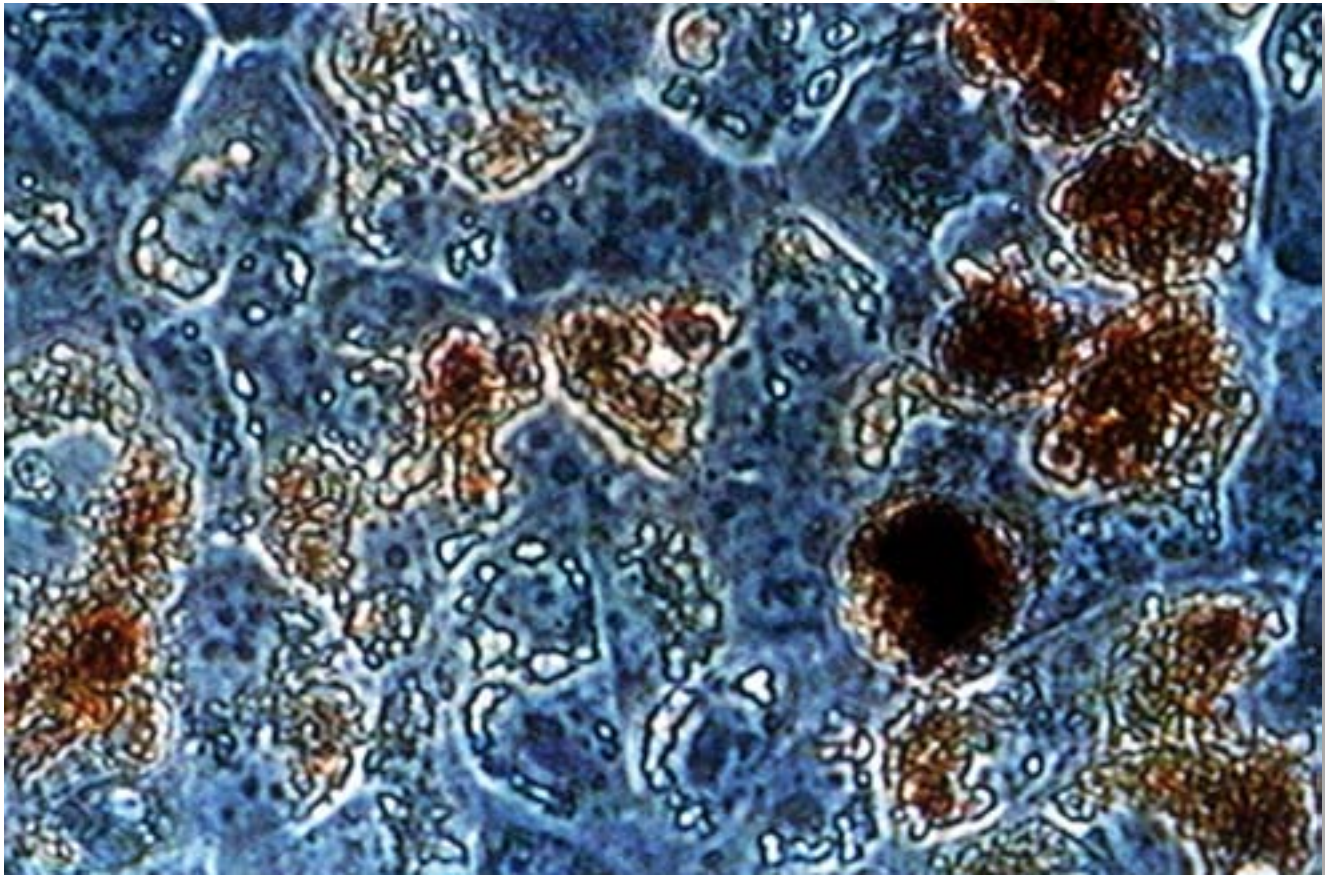
The EHS support from Storebrand is free of charge and includes assistance on following up employees on sick leave, ergonomics, stress management, workplace health promotion and well-being, job safety analysis, near-miss and accident reporting, medical services health and safety training programmes, lifestyle guidance and a human resource policy adjusted to different phases of life. The employees benefit from quicker access to medical treatment. For the employer, the product reduces the cost of absence due to illness, contributes to value creation, and reduces insurance premiums as well.

Learning Point: Public sector initiatives can open new market segments for existing skills.

5. Emerging Manmade Risks

The risks to the environment inherent in new technologies are difficult to quantify. There are many areas to explore – nanotechnology, genetically-modified organisms, self-regulating mechanisms (robots), nuclear materials, persistent organic pollutants and electromagnetic fields such as mobile communication equipment, transmitter and booster stations and power lines. For instance, nanotechnology concerns processes where the output has dimensions on the scale of a billionth of a metre in size. At this dimension, materials take on new physical and chemical properties with potentially breakthrough implications on performance and cost. For the energy industry, at the mundane level, there are anti-fouling paints for wave and tidal power and more efficient reflectors and insulators. New coatings for photovoltaic cells could be revolutionary. New catalysts could transform the impacts of fossil fuels on the climate. However – there are risks. Recent research reveals that in the case of nanoparticles, these could enter the body which may cause immune reactions and even penetrate the brain and central nervous system. Moreover, nanomaterials could possibly trigger unexpected reactions from conventional materials.

Figure 5: DEU, Germany, Vichow-Clinic, Berlin: Perhaps a new treatment for cancer. Layered magnetic nano-particles surround cancer cells.



Henning Christoph / Still Pictures

The EU-funded INTEREST (Insurance, Technological Risk and Emerging Science and Technology) project explored this area in 2003. It concluded that from the insurance perspective, early involvement is important before 'lock-in' occurs. Traditional actuarial approaches cannot be applied since no data exists. In such a situation, there are three ways for the insurance industry to engage with technological innovation:

- Participation in foresight/horizon-scanning activities
- Engaging earlier in the R&D process
- Providing experience and insight to stimulate public policy debates

The role of insurance in any particular circumstance is largely dictated by the legal framework. The state may directly mandate or prohibit insurance or establish liability frameworks which indirectly determine the role of insurance. Actuarial evidence is not strictly necessary for a risk to be insurable. Quantification of risks is needed but this could be based on a theoretical analysis of risk exposure and probabilities if the insurer acquires the requisite technological knowledge. Insurers could illustrate with techniques such as lifecycle analysis, what the critical features are and how 'commercial' a technology really is when all the risks are assessed. The very exclusion of major hazards like nuclear radiation and cross-species transplants from insurance cover sends a strong signal to other parties.

An initiative by several insurance and reinsurance companies in this area is the Chief Risk Officers' (CRO) Emerging Risk Initiative (ERI) which includes certain IWG members. The group is developing methodologies for collecting, prioritising and displaying emerging risks that are relevant to the CRO community. The emerging risks watch list prioritises emerging risks and is updated on a bi-annual basis. It highlights risks which the ERI has identified and analysed to present the probability of a significant loss for insurers within the next fifteen years. A risk rating model combines qualitative and quantitative methods to rank emerging risks according to their severity arising from their impact on life, non-life and financial markets.

One Step Ahead: Pharmaceutical Risks

Pharmaceutical risks have complex medical, legal and psychological dimensions. There is a substantial exposure to consumer injury claims, legal defence costs, loss of revenue, loss of shareholder value and loss of reputation – especially when a company has launched its products in the US market.

In 2002, Allianz launched *PharmChem Solutions* – a partnership approach where the insurer went beyond the traditional field of just providing insurance. It involves pooling information about products and clinical results from global sources and setting up a monitoring system throughout the product lifecycle.

Building trust for such a paradigm shift takes time because it requires transparency. However, it is the best framework for sustained profitability on both sides and permits a whole range of risk financing options. Pharmaceutical companies deal with the risks in many different departments; hence, they do not always manage to combine different views and results to model financial outcomes. A good example is the risk management programme for *Warfarin*, a powerful drug to suppress blood clots. Accurate dosing is crucial. Educational software, patient monitoring and a patient registry all helped to increase safe use of the drug and facilitated successful sales growth.

In December 2004, Allianz *PharmChem Solutions* followed up by piloting clinical trials insurance. It covers the risk when a drug company finishes pre-clinical testing and starts testing on humans. Coverage is mandatory in some countries, with clear potential elsewhere. For this product, Allianz can draw on the expertise it has gained on pharmaceutical risks.

Learning Point: The best risk management is the early assessment of risk and risk control. Risk transfer comes afterwards.

6. Environmental Liability

At a certain stage in a country's *economic development*, there is recognition that in order to achieve *sustainable development*, society requires more robust legal liability frameworks for environmental damages. This is a serious issue which has been notoriously problematic in the US (e.g., Superfund) and now also across Europe.

The pressure to develop brownfield sites and to dispose of industrial waste responsibly makes this a continuing challenge. The best example is asbestos – many years after it was banned from use, it is still claiming new victims among family members of workers, tradesmen and demolition workers. Another case is MTBE (methyl tertiary butyl ether), a gasoline additive which has leaked out from underground storage tanks and polluted water sources in many places. UNEP itself is the sponsor of the *Basel Convention on the Transboundary Movement of Hazardous and Other Wastes and their Disposal* and there are clear links to other UNEP FI work streams such as water, biodiversity & ecosystems, and property.

Figure 6: How Environmental Liability Can Arise

A recent report by the Association for Sustainable & Responsible Investment in Asia (ASrIA)⁶ highlights the growing importance of this issue in the 'tiger' economies, particularly as a result of product liability. Most Asian governments are lagging on the implementation of public policies concerning toxic or potentially dangerous chemicals. The press has publicised problems linked to pre-packaged food, household products, consumer electronics and children's plastic toys. Low-cost or no-cost accessories, commonly distributed with consumer products across the globe, have become a focus of concern. These promotional items are typically manufactured at the distant end of developing country supply chains and have sparked controversies due to the use of banned chemicals. Internet bulletin boards in China have become a fast-paced source of consumer views on products. Even rumours can create a high-speed viral response that can dismantle a company's reputation in days.

6 ASrIA is a not-for-profit membership association dedicated to promoting corporate responsibility and sustainable investment practice in the Asia Pacific region. ASrIA's members include investment institutions managing over USD 4 trillion in assets.

As many as 70% of quoted companies in Asia, with the exception of Japan, are potentially exposed to toxic chemicals risk ranging from product liability to credit risks. Clearly, the risks are bigger with smaller firms. Global companies which rely on Asian supply chains will need to invest in training and technical support if they want to be assured of responsible procurement with vendors. Insurers of these firms could easily become embroiled with associated financial and reputation risk exposure.

Examples of legal frameworks for environmental liability are Superfund in the US, the Environmental Liability Directive in the EU and the Prevention and Integral Management of Wastes in Mexico. The insurance industry has been responding to the rise of these liabilities through the development of new products such as Environmental Impairment Liability (EIL) insurance. These products were introduced following the introduction of Superfund, when US insurers began excluding pollution cover under general liability policies. This specialist EIL insurance class continued to develop in the early 1990s covering damages from sudden as well as gradual pollution and has since become available in Europe and globally. More recently, EIL insurers have started to explore emerging issues such as damages to natural resources and loss of biodiversity.

The future direction of EIL insurance could see businesses and investors using policies in a more proactive manner – for example, as an asset attached to a site – thereby providing ongoing comfort for real or perceived contamination risks. Another change might be a move from a bespoke multi-year basis to more commoditised products like general liability and property insurance, an approach that is already being applied in the EU and elsewhere. At the same time, it is possible that the requirement under the EU Environmental Liability Directive may develop financial security mechanisms (i.e., funds to be called on in the event that the operator is not able to fulfil its environmental obligations) and also lead to the use of complementary or substitute banking products such as surety bonds and risk securitisation.

A specific example of an insurance product developed in the Netherlands is integrated Environmental Damage Insurance – covering the cost of remediation of environmental damage at the premises of the policyholder and damage at the premises of third parties (but *not* on the basis of liability law). This was developed by the Dutch insurance industry in 1998 where Achmea played a major role. In this approach, environmental liability is deliberately circumvented by giving any affected third party a contractual right to compensation under the polluter's policy. The benefit is a swift resolution of the problem; however, cover is limited to clean-up costs only. The product is targeted at SMEs and the agricultural sector and has a take-up of about 40%. Typically, coverage is in the region of USD 7 million, with a maximum coverage of USD 33 million being available. In practice, the claims experience has been good with very few cases of gradual pollution and most claims relating to asbestos pollution after fire.

Environmental Insurance is a Useful Business Tool

HSBC Insurance Brokers find Environmental Impairment Liability (EIL) insurance vital for many financial deals with a potential *historical pollution* issue. For example, a large US industrial company seeking to grow by acquisition in Europe required an EIL policy to cover legacy contamination issues, without which the acquisition would not have happened. In another case, a developer seeking to regenerate former industrial land in the UK for social housing could not secure funding without EIL insurance to cover the risk of remediation costs escalating beyond original estimates. Cover can extend up to ten years on such historical EIL policies.

EIL insurance can also be a valuable element in managing *operational risks* in high-hazard industries such as oil refining and chemical manufacturing for which environmental laws are becoming stricter. However, such cover is only available to companies with environmental risk assessment and management programmes. Cover can even extend to clean-up and restoration of ecological damage (e.g., EU Environmental Liability Directive).

Historical pollution can be underwritten to varying degrees of thoroughness depending on the *prima facie* evidence – from historical records, to boreholes and soil sampling. Operational EIL is simpler since it can be based upon the risk surveys and site information that would be used for normal risk management and insurance requirements. In the UK, the types of companies that purchase EIL insurance are mainly mid-sized rather than large, typically seeking cover from about USD 2 to 30 million. The cost lies in the range of 1% to 6% rate on line (i.e., the ratio of premium to the insured amount).

Learning Point: Insurance can be the catalyst for many financial transactions – and act as the trigger for good risk management at the same time.

7. Natural Resources

UNEP FI has established working groups on natural resources, namely in the areas of water and biodiversity & ecosystems. These are developing work streams. As with the CCWG, the IWG will liaise with these teams to give input and benefit from their research.

Water is one of our most critical resources, yet it is increasingly becoming scarce. Demand is soaring while the quality continues to deteriorate. According to the UN, approximately 60% of the world's people will be living in 'water-stressed' countries by 2025. The increasing competition for water is already contributing to tensions among competing users around the globe.

In the insurance industry, Swiss Re has been an early worker in this field. Its activities in this area include:

- Raising awareness and promoting discussion among major water stakeholders
- Fostering the development of best practices
- Integrating specific risk selection, mitigation and prevention measures into its risk transfer solutions, related services and its own facility management
- Supporting projects and initiatives on sustainable water usage (e.g., in Brazil and Haiti, efforts to expand the drinking water supply; in North America, a clean water programme focusing on river pollution)

Generally, insurers cannot cover loss of biodiversity directly because species have no intrinsic monetary value. However, in the light of modern advances in scientific and financial analysis and quantification, widely accepted techniques for quantifying biodiversity damages and for apportioning liability are emerging. Further, regulatory support for biodiversity is growing. A case in point is the EU Environmental Liability Directive mandating that polluters must restore the natural state that existed before the incident. This has led to the inclusion of biodiversity damages cover in some EIL insurance policies in the US and Europe. Insurers have also been

supporting biodiversity indirectly as the following case study illustrates. The product and indirect response from the insurance industry suggest that this is likely to be an area of increasing importance.

Multiple Wins with Mangroves

Between 1999 and 2003, Tokio Marine & Nichido (TMN) replanted 3,000 hectares of mangrove forests in Indonesia, Myanmar, Thailand, the Philippines and Vietnam in order to go 'carbon neutral' by offsetting its own carbon dioxide emissions. These are countries with strong business and trade links to Japan and TMN. Another objective was to reverse the loss of natural habitat – up to 80% of mangroves have been lost in some countries due to prawn farming, infrastructure and fuel wood use. A further dramatic benefit materialised in December 2004 when the villages behind the mangroves were sheltered from the Indian Ocean tsunami's ten-metre high waves.

The project has generated huge social benefits. Appropriate seedlings are produced by NGOs and then groups of about thirty volunteers, including TMN employees, plant them carefully onsite together with local residents. The local people, working with volunteers who have come all the way from Japan, have realised why protecting the mangroves is so important to the global environment. In Japan, TMN staff act as voluntary teachers in schools to explain environmental mechanisms and the fight against global warming. After attending one of these classes, a child wrote that she now saw mangroves as 'Heroes of the Earth'. Many more employees now take pride in their company. A second project phase in Fiji and Japan will re-establish a further 2,000 hectares of mangroves by 2008.

Learning Point: Acting sustainably can result in many desired and unforeseen benefits.

Figure 7: Mangroves, Papua New Guinea



R. Dirscherl / Still Pictures

Forests are a key element in the whole issue of natural resources and sustainability. They are a prime location of biodiversity, play a crucial role in the volume and quality of water resources, and are a major source of raw materials. While commercial plantations are more economically-focused, they can still support sustainability if they are thoughtfully managed. Among the outputs of the Rio Earth Summit in 1992 were the *Forest Principles*, which provide the starting point for practical measures such as sustainable forest management (SFM) certificates, which guarantee that a forest and its products are responsibly managed. New functions are occurring all the time – the use of forests as storage for carbon has great potential. ForestRe, a specialist insurance intermediary, reckons that valuing environmental services performed by forests might add 10% to the worth of the timber. Forests could form part of a broad portfolio of responsible investments. Additionally, with their long maturation, forests would be a suitable asset to match with pension funds' commitments to long-term income streams.

Potential investors who wish to support the environmental benefits of forests would want to reduce the risks to their new assets as much as possible. The forests would need to be SFM-certified, but they are also vulnerable to major natural hazards such as storms, drought, pests and fire, as well as illegal felling. Ideally, investors would insure these risks through multi-year contracts. However, the insurance market is reluctant to cover such risks at present due to the potential for catastrophic losses, and the difficulties in assessing and monitoring risks and settling claims. This situation appears to be an opportunity for major innovation. Products like weather derivatives and catastrophe bonds could provide investors with risk transfer solutions. Risks could be further spread by constructing portfolios from a wide geographical range and variety of forest types. Finally, risk management could be dramatically enhanced by the use of satellite technology. Earth observation instruments could monitor the status of the assets and enable rapid response to any dangers. The initial research and development of such techniques would be costly but once these are established and seen to be cost-effective, normal market forces would ensure they continued. Therefore, funding pilot projects could be a suitable approach for the public sector to encourage the insurance industry to enter, either as underwriters or as investors.

8. Recycling

Each year, it is reckoned that non-life insurers disburse around USD 1 trillion to pay for damaged assets.

Figure 8: Thailand. In a refugee camp in the northeast, a child plays with a cart made of a suitcase.



If the assets have been 'written off', the insurer automatically becomes the new owner of the scrap. This means that the insurer has a large influence on the sustainability of the disposal of materials. Several IWG members have introduced sustainable recovery measures for vehicle damage. The Swedish mutual insurer, Folksam, is a good example.

Turning Scrap into Gold

Folksam believes that waste is a sin, financially and environmentally, and sees the remediation process as an opportunity to practise sustainability. It aims to raise the performance of its repair-chain partners to high standards. A contractor must complete a detailed environmental checklist – seventy-three issues for motor repair shops and fifty-eight for scrapyards. One-third of its 1,400 approved repair shops are now fully compliant (1% in 1998), and 88% of its forty-three authorised scrapyards (13% in 1998). This enables Folksam to assure its customers that repairs will be done in an environmentally responsible way. In the five years leading to 2005, the company saved USD 40 million on car repairs by reusing original parts and repairing plastic parts and windscreens. These processes use fewer resources and the savings achieved benefit customers in the form of lower premiums.

In addition, Folksam has partnered with the Keep Sweden Tidy Foundation to clear away 450,000 abandoned cars that are poisoning the environment and creating an eyesore. The public is requested to report wrecks, which are towed away free and scrapped responsibly – 85% of a wreck can be recycled. To date, 125,000 wrecks have been processed, yielding 1.25 tonnes of mercury, 900 tonnes of lead, 81,000 tonnes of other metals, and large quantities of oil, petrol and battery acid. Just five grammes of mercury can pollute a square kilometre of lake.

Learning Point: Acting sustainably does not cost money – it saves it and gains reputation.

9. Internal Efficiency

UNEP FI has a working group on sustainability management & reporting. In collaboration with the Global Reporting Initiative (GRI)⁷, the working group develops guidelines for financial institutions on how to report their economic, environmental and social performance. Every member of IWG, and an increasing number of insurance companies, has corporate policies to reduce their own environmental footprint. It is important to set a good example when requiring clients and suppliers to manage their risks in a sustainable way.

Indeed, certain insurers have taken the lead and have made it clear that by reducing their own carbon footprint, they are also helping abate climate change. Storebrand, Swiss Re and Folksam highlight cases of best practice.

⁷ The Global Reporting Initiative (GRI) is a multi-stakeholder network of experts worldwide that develops, improves and builds capacity around the use of a Sustainability Reporting Framework, the core of which are the Sustainability Reporting Guidelines. The GRI's vision is that reporting on economic, environmental and social performance by all organisations is as routine and comparable as financial reporting. To date, nearly one thousand organisations in over sixty countries have declared their use of the GRI Reporting Framework.

Figure 8: Bolivia. Mother and child at a greenhouse.



'Green Housekeeping' Pays

Storebrand continuously strives to reduce the environmental impact of its business activities. By reducing energy consumption and paper use, recycling of waste and electronic equipment, the company reduces its environmental footprint and saves money at the same time. Environmental targets apply to investment premises and those occupied by the company itself. The head office at Oslo, Norway is heated solely by district heating and regenerated heat, avoiding direct carbon dioxide emissions. The cooling systems use seawater to reduce energy consumption. The targets for 2006 were energy consumption reductions of 7% at head office and 5% in managed properties. These targets were exceeded (14% for head office, 9% for managed properties) and the aim for 2008 is to reduce energy consumption by a further 5% in both categories.

All waste is source-separated and the goal is to increase the proportion recycled. Waste that cannot be recycled is partly utilised by district heating plants and partly land-filled. The target for recycled waste at head office is 60% and 50% in managed properties. For electronic equipment, the goal is 100% reuse and recycling. Storebrand has an agreement with FairRecycling to process all the company's used electronic equipment. FairRecycling exports and installs used computers at schools in developing countries like Eritrea, Gambia, Tanzania and the Dominican Republic. Moreover, FairRecycling is the only actor in Norway that guarantees that the equipment is disposed of without leakage of chemicals.

Swiss Re is committed to making its own contribution to reducing greenhouse gas emissions and is enlisting its employees in the campaign. In 2003, the company announced that it would make its own operations carbon neutral by 2013. This will be done by reducing its own carbon intensity by 15% per employee, with the remaining emissions to be offset by investments in the World Bank Community Development Carbon Fund which supports projects to improve the environment and livelihoods of local communities, primarily in developing countries. At its Zurich headquarters, electricity supply will switch to renewable energy sources beginning with a 30% fraction in 2005 and increasing to 100% by 2007. One-sixth of the corporate premises in Zurich have already been upgraded to this standard. The company requires MINERGIE®¹ standard compliance for all new buildings and renovations where economically and technically feasible. In 2006, the premises in London, Munich, Paris, Rome and Sydney already received 100% of their electricity supply from renewable energy sources. Business travel represents a large source of emissions as well and Swiss Re supports its employees by using alternatives to air travel such as video, web-based and telephone conferences.

In 2007, Swiss Re went a step further with its 'CO_{you2} reduce and gain' programme to support employees' investments in measures that contribute to reducing emissions, especially in relation to mobility, heating and electrical energy, including hybrid cars, use of public transport and the installation of solar panels and heat pumps. Until 2011, staff will receive back 50% of the amount invested in these measures, up to a maximum rebate of CHF 5,000 per employee. The company also offers special mortgage rates to its workers who buy or renovate housing that uses carbon neutral energy sources and is MINERGIE®-compliant.

For the last seven years, Folksam has been reducing its emissions. By changing its travel policy (train instead of air for most domestic travels), increasing efficiency in claims operations (resulting in less kilometres driven for inspections), and shifting to guaranteed water or wind-powered electricity, the company has reduced its emissions by 650 tons per year. The remaining emissions of 4,700 tons are offset through reforestation projects in Uganda and Mexico. In November 2006, Folksam became a carbon neutral company.

Learning Points: Leading by example is one of the most powerful ways to make others follow. Enlisting staff is very effective in creating a culture of sustainability.

1 The Swiss MINERGIE® standard is a quality label for buildings which meet demanding criteria on user comfort and energy efficiency.

Part III: The Insurance Process Perspective

In this section, we look at how sustainability is integrated into the core insurance processes of asset management and claims handling, of which clients are often unaware. As the volume of funds applied in these areas is vast, insurers can have a material effect on the sustainability of the assets in which they invest and the goods and services that they procure or authorise on behalf of policyholders.

1. Responsible Investment

Sound investment of funds under management is crucial in every type of insurance. For life and pensions, it is the *raison d'être* – the policyholder expects to receive a good return at some future date on the premiums or savings entrusted to the insurer now. In non-life insurance, it is critical for several reasons. Firstly, the insurance market is extremely competitive that the balance between premiums received and claims incurred could be negative. This gap has to be compensated with investment income. Secondly, claims are erratic and a robust investment yield can offset a surge of claims. Finally, the insurer has to generate a satisfactory return on shareholders' capital.

Responsible investment is the core work of the UN Principles for Responsible Investment (UN PRI) and the UNEP FI Asset Management Working Group (AMWG). Insurers are involved in such initiatives including the Carbon Disclosure Project (CDP) and the Enhanced Analytics Initiative (EAI). Most IWG members are CDP signatories and participate in other climate change initiatives. Because it is so important to insurers, we shall discuss sustainability in investment in this introductory report.

Traditionally, environmental, social and governance (ESG) issues were widely ignored by institutional investors as it was deemed that they could narrow the choice of investments. Also, most believed that the rate of return and the security of assets were not positively correlated with high scoring on ESG issues and that even the converse was true (e.g., high returns on tobacco, armaments and oil companies). Certain investors disagreed on ethical and business grounds and instigated socially responsible investment (SRI), where ESG issues play a key part in investment analysis and decision-making.

There are many ways to apply SRI principles. The main methods are:

- Negative screening – exclusion of companies or sectors on ESG grounds
- Positive screening – best-in-class, within each permitted sector
- Engagement – constructive dialogue to persuade companies to adopt ESG factors in management processes

Engagement is becoming the favoured method of institutional investors since it allows the broadest range of investments. Further, it can be argued that divesting by a handful of investors is unlikely to alter a company's ESG decisions whereas engagement, whether in informal or formal meetings (e.g., Annual General Meeting) with the investee company, is more powerful.

Doing the Right Thing is a Wise Choice for Investors

Responsible investments are Storebrand's primary contribution to sustainable development. The company's experience dates back to 1995, and in 2005, the insurer introduced the following stringent criteria to all its funds and pension assets:

'We will refrain from investing in companies that are accomplice to violations of human rights and labour rights, corruption or severe environmental degradation. Moreover, we will avoid investing in the production of landmines, cluster munitions, nuclear weapons and tobacco products, and companies ranking among the 10 percent worst corporate responsibility performers in high risk industries such as oil and gas, pharmaceuticals, chemicals, mining, shipping, paper and forest products, textiles and electric utilities.'

This meant divesting in eighty companies as of 31 December 2006. It is important to note, however, that engagement is the main focus of Storebrand's responsible investment efforts. Divestment is not a goal in itself, rather a last resort if the company fails to take responsibility.

In practice, integrating ESG issues does not weaken fund performance. The fact that eighty companies are excluded from all of the company's funds and pension assets makes practically no difference in terms of financial risk and index tracking error.

Even stricter responsible investment criteria apply to Storebrand's Best in Class Funds. In high-risk industries, these funds only invest in 'best-in-class' companies. Through these funds, investors are able to reinforce positive contributions, rather than simply avoiding unacceptable business practices. And in addition to financial returns, the companies invested in perform better on ESG issues and therefore have lower emissions, more efficient energy consumption, promote better health and safety practices, among other important issues.

Learning Point: Responsible investments do not prejudice clients' interests and can add greater stability to the portfolio.

Recent academic and industry research⁸ strongly suggests that integration of ESG issues into investment analysis and decision-making and ownership practices can potentially increase long-term financial performance and reduce certain types of portfolio risks. On the other hand, ignoring them has led to some spectacular falls in corporate valuations such as Enron and Worldcom.

In April 2006, then UN Secretary-General Kofi Annan launched the UN PRI at the New York Stock Exchange. The UN PRI, an initiative of UNEP FI and the UN Global Compact, is a global framework for mainstream institutional investors to collaboratively address ESG issues. The Principles are based on the premise that ESG issues are material to investment performance, and that appropriate consideration of these issues is part of delivering superior risk-adjusted returns and is consistent with institutional investors' fiduciary duties⁹. The Principles suggest a policy of engagement with companies rather than screening, focusing on active ownership and the integration of ESG issues into mainstream investment practices across all asset classes. The aim is to promote a longer-term view, increase returns on assets and lower the risk for beneficiaries, and to better align investment activities with the broader objectives of society. The UN PRI promotes the sharing of best practices and collaboration on ESG issues via a global network of responsible investors. A year since it was launched, over 180 institutional investors have signed up to the UN PRI – representing more than USD 8 trillion in combined assets under management.

8 See UNEP FI Asset Management Working Group (AMWG) reports – 'The Materiality of Social, Environmental and Corporate Governance Issues to Equity Pricing' and 'Show Me The Money: Linking Environmental, Social and Governance Issues to Company Value'

9 See UNEP FI AMWG report – 'A Legal Framework for the Integration of Environmental, Social and Governance Issues into Institutional Investment'

Figure 10: Launch of the UN Principles for Responsible Investment



27th April 2006, New York Stock Exchange

Table 5 lists the six Principles and tabulates possible actions to implement them.

Table 5: UN Principles for Responsible Investment

Principle	Actions				
	Internal	External	Collaboration	Investee Company	R&D/Training
1. Integrate ESG issues into analysis and decision-making	Make a statement Assess capabilities	Ask suppliers to use it Assess fund managers	Advocate training		Support new tools Encourage academia
2. Incorporate ESG issues into ownership policies and practices	Develop policy Get capabilities Monitor	If outsourced, monitor	Develop policy, standards Joint engagement	Engage Vote at AGMs File resolutions	
3. Seek disclosure on ESG issues by investees			Support initiatives	Seek specific reports Expand formal accounts Encourage CSR	

Principle	Actions				
	Internal	External	Collaboration	Investee Company	R&D/Training
4. Promote the PRI in the investment industry		Include PRI in RFPs, mandates, performance reports Use ESG as a factor in awarding contracts Encourage peers	Support sympathetic regulation		Support new tools to benchmark
5. Work together to implement PRI more effectively	Learn from others		Share resources Address emerging issues Common initiatives		
6. Report on actions and progress	Disclose practices Disclose supplier standards Report performance	Inform beneficiaries Inform stakeholders			Measure the effect of PRI

AIG's Global Investment Group sees climate change as a risk and an opportunity for asset managers. The Group, together with AIG's Global Marine and Energy Division, is establishing a USD 300 million lending facility supported by a government export credit loan guarantee to support energy efficiency and performance upgrades to refineries, petrochemical plants, pipelines and power generation plants, as well as renewable and alternative energy projects. Its Global Real Estate Division continues to be a leader in the work of the US Green Building Council and in striving for all new building developments to meet Leadership in Energy and Environmental Design (LEED) standards.

2. Motor Injury Claims Handling

In 2000, an estimated 1.2 million people worldwide died as a result of road traffic injuries. In addition, about 7.8 million were seriously injured. In 2005, in the US alone, there were approximately six million motor vehicle accidents that caused 43,443 deaths while about 2.7 million people sustained injuries. This is clearly a huge problem which is worsening as developing nations acquire more vehicles. Insurers have pressed strongly for improvements in vehicle and road safety (e.g., seatbelts, airbags, and more secure seats). The cost and crashworthiness of vehicles and drivers' safety habits affect the price of motor insurance.

What is less known are the importance of psychological factors. It is now widely accepted that even apparently minor accidents can have a significant psychological impact on victims, contributing to greater physical deterioration, disability and slower recovery. Rehabilitation programmes and other interventions are more likely to succeed if they take a proper account of psychological and social factors in addition to the physical injury. A 2004 study for the Association of British Insurers revealed that:

- In about 20% to 30% of cases, the victim suffers disability and distress significantly greater than might be expected from physical factors alone.
- In about 5% of cases, the physical and social outcomes are adversely affected to an extent that cannot be explained by initial or remaining injury. This 'Apparently Disproportionate Outcome' (ADO) can have a sizeable effect on the cost of treatment, complexity of case handling and level of compensation. ADO is as likely to be felt in minor injuries as in major ones.
- ADO cases can be avoided.

Bodily Injury Claims: Being There, All the Way

AXA Seguros (Spain) has set up a multi-disciplinary programme for seriously injured road accident victims to help them rehabilitate as fast as possible and reduce the total cost of the process for society. In 2006, the company had fifty-one severely injured cases out of a total of 10,083 accident victims.

The first contact is through the company's twenty-seven damage inspectors. One visits the victim soon after the incident to outline the various resources that are available. At the same time, the regional medical expert informs the company of the victim's needs and offers him/her assistance. A legal advisor is also on hand for the victims and their family.

The second step of the process is rehabilitation with medical, economic, professional and domestic assistance. Progress is monitored daily, anticipating what will be needed next to avoid delays. Financially, this means cash advances and cost management. Medically, the advisor looks for complications and suggests care by the best specialists and clinics. For the family, counselling is available as well as information about financial compensation and legal procedures.

Finally, the compensation process is rapid and fair. The medical injury is evaluated on a 'prejudice barometer' allowing for the person's functional, aesthetic and professional damage, including complications later on and impaired career development. This enables the case manager and the inspector to make a fair economic proposition adapted to the needs of the victim and the victim's family. The company provides for the victim's needs over the ensuing three months. Further, all medical costs, present and future, are taken over by the company insofar as they contribute to the victim's rehabilitation.

Learning Point: Providing accident victims and their families with fast, comprehensive support minimises the social and financial burden to everyone involved – the company's interests do not conflict with the victim's.

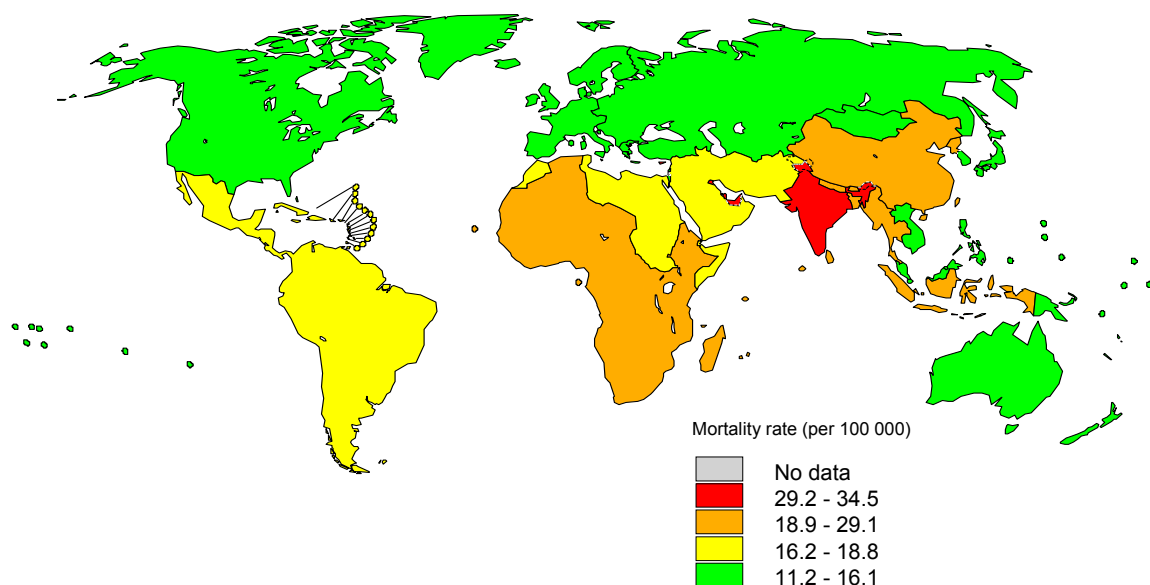
Part IV: The Insurance Product Perspective

In this section, we now look at how sustainability is integrated into mainstream product areas such as insurance for motor vehicles, houses, businesses, life, pensions and health. Clients purchase insurance products relating to specific assets and activities (e.g., motor, household, product liability, contractors’ all risks, healthcare, pensions and travel). These products may interact with a range of sustainability issues. For instance, motor can interact with climate change (impacts and mitigation), waste disposal, resource depletion and health. From the client’s viewpoint, it is informative to consider sustainability from the purchase angle. Therefore, obvious non-life products to tackle would be motor insurance followed by household insurance since these are volume products in the public eye. Money management is another key consumer area. For business clients, enterprise risk management at sectoral level is important. From the insurer’s viewpoint, it would be useful to alter the purchaser’s perspective from one of pure price to the broader considerations. Supermarkets are already doing this with ‘Fair Trade’ fruit and certain insurers have introduced ‘climate-friendly’ products.

1. Motor Insurance

Road transport is a huge part of the modern economy. There are several ways in which motor insurers can improve sustainability – by encouraging driving behaviour that is climate-friendly, promoting road safety, ensuring that accident victims are rehabilitated and helping make motor insurance affordable. There are about one billion vehicles on the road worldwide and the sector generates 17% of manmade greenhouse gases. As we have seen earlier, driving is a risky activity, with about nine million people killed and seriously injured globally each year (see Figure 11). For this reason, it is generally mandatory for drivers to have third party liability insurance. New vehicles are expensive and are usually insured against damage. On the other hand, older vehicles are commonly not covered.

Figure 11: Global Road Traffic Injury Mortality



Road traffic injury mortality rates (per 100 000 population) in WHO regions, 2002									
Americas			South-East Asia		Europe		Eastern Mediterranean		Western Pacific
LMIC	HIC	LMIC	LMIC	HIC	LMIC	HIC	LMIC	HIC	LMIC
27.4	14.8	16.6	18.6	11.1	17.2	31.1	26.4	11.9	18.5

HIC, High-income countries; LMIC, Low- and middle-income countries.

Risk varies considerably among drivers, vehicles and location. If the premium is very high, it may be unaffordable, thus, the driver will probably decide not to purchase cover. For example, young males are more risky but have lower earnings. In the US, this led to the creation of 'assigned risk' plans, also known as the shared or residual market, to provide affordable cover by denying insurers the freedom to price such risks. However, advances in information technology have enabled niche underwriters to identify marginal differences in residual risks and provide non-standard premium tariffs, so the shared market is now declining.

Some insurance markets have established collective centres to advise and develop best practice on vehicle repairs and occupant safety. Insurers felt that it was too important to be left to the automobile industry alone. In the UK, it is called the Motor Insurance Repair Research Centre (or Thatcham), which was founded in 1969. A coalition of thirty-four insurers funds the work. The mandate is to contain the cost of crash repairs without compromising quality and safety. The insurers also wanted a source of practical repair times because vehicle manufacturers' data related to warranty repairs, not accidental damage. Currently, the work is focused on six topics:

- Repair technologies
- Vehicle security
- Vehicle safety
- Insurance premium group rating
- Crash testing
- Repair times and methods

In the US, the parallel organisation is the Insurance Institute for Highway Safety, also founded in 1969. It is best known for its vehicle crashworthiness testing programme. The US insurance industry has fought to get manufacturers make airbags standard equipment in vehicles and is a major supporter of anti-drunk driving and seatbelt usage campaigns.

Technology Puts You in the Driver's Seat

Norwich Union conducted a pilot study to investigate usage-based motor insurance. The system used telematics (a 'black box' telematic device in the customer's vehicle), to record and transmit data on how far, when and where the vehicle travelled. The insurer calculated premiums for each journey depending on the time of the day, type of road and mileage, as itemised on a monthly insurance bill.

The pilot study with 1,500 drivers showed that young drivers, a very high-risk group, had 20% fewer accidents when charged a premium of USD 1.4 per kilometre for using their vehicles between 11 p.m. and 6 a.m.

As a result, two *Pay as You Drive™* (PAYD) products were launched in 2006. One is for young drivers, who account for 45% of road fatalities between 11 p.m. and 6 a.m. The cost of the 'black box' is USD 100 but could lead to savings on insurance of up to 30% per annum. The second product is for 'safe drivers' aged between twenty-four and seventy, who drive less than eight thousand miles a year on fast roads and at 'safer' times. It is suited to those who do not need to use their vehicles during the morning rush hour in urban areas. Motorway driving is up to ten times safer than driving on low speed urban roads.

A parallel product for commercial vehicles, *Fleetwise Care*, provides integrated insurance and risk management. Sold through specialist brokers, it features fixed-rate premiums over two years, management reports combining telematics and claims data to provide clients with information on safety issues and advice on risk management and fleet efficiency.

Learning Point: Information technology management can open new underwriting possibilities and reinforce safer behaviour.

Some analysts believe that high launch costs, privacy violations, patent fees, 'back office' data integration and difficulties in measuring the costs versus benefits will inhibit the early widespread launch of PAYD schemes. However, with increasing government focus on road safety, the ability to verify insurance claims using tamper-proof vehicle data and the potential cost savings for insurers, commercial vehicle operators and consumers are expected to drive the eventual introduction of commercial PAYD.

Tokio Marine & Nichido offers 1.5% discounts on motor insurance for low pollution, low fuel consumption and low emission vehicles to promote the spread of climate-friendly vehicles through insurance (see Table 6). In 2005, there were approximately 5.43 million vehicles entitled to the discounts, representing around 40% of all vehicles insured.

Table 6: Tokio Marine & Nichido's Classification of Climate-Friendly Vehicles

Condition of Application	Corresponding Vehicles
Low Pollution Vehicles	Hybrid vehicles, methanol-fueled vehicles, compressed natural gas vehicles. Vehicles entitled to relief from Vehicle Acquisition Tax because of the kind of fuel they use.
High Mileage Vehicles	Vehicles meeting target mileage standards and those that are entitled to relief from the Vehicle Acquisition Tax.
Low Emission Vehicles	Vehicles complying with the new exhaust regulations since 2001 or are entitled for being low emission vehicles.

2. Household Insurance

Like motor insurance, household insurance is another mass market product. However, there are big differences between housing markets and in insurance practice globally, hence, it is not easy to generalise. For example, home ownership varies enormously among countries and between town and country. Also, the breadth of cover varies greatly, from the UK at one end, where almost any risk is covered for structure and contents in one policy, to other countries that follow a more traditional route by building up cover from a basic fire policy. With the changing social scene, insurers have to cope with new situations on household policies – working at home, informal relationships among residents and second homes abroad.

One risk which has caused great concern in the US is mold contamination. From the insurance perspective, damage from mold, like rust, rot and mildew, is specifically excluded in standard household and commercial property policies. Mold contamination is covered under these policies only if it is the result of an insured peril. For example, the costs of cleaning up mold caused by water from a burst pipe are covered under the policy as water damage from a burst pipe is an insured peril. However, in the US, flood is not a commercially insured peril (although it can be insured with a government agency), hence, any mold that results would not be covered. Nevertheless, the longstanding exclusion of mold is being attacked in the courts. To avoid confusion, many insurers are now redrafting their products, either to conclusively exclude mold (and even water damage) or to offer cover at a higher rate. Ironically, medical opinion holds that there is very little risk to human health from mold.

Another area which might impinge on insurers is indoor pollution. There are so many volatile compounds and toxic substances in household products, furnishings, fragrances and home offices that it seems likely that illnesses could be attributed to domestic exposure. This has already happened with lead-based paint in the US.

The UK is almost unique in providing flood insurance as standard cover for homes and businesses. Each year, floods cost the UK an estimated USD 1.6 billion, the equivalent of USD 8,000 per high-risk household. Moreover, the risk of flooding is predicted to increase tenfold over the next century due to climate change. The Association of British Insurers advises that there are approximately two million homes at risk from coastal or inland flooding – roughly 10% of all UK homes – of which 200,000 are high-risk, with a greater than one-in-seventy-year chance of flooding. With the predicted increase in flood risk, these numbers can only rise.

The impact of flooding is twofold. On a physical level, the impact can be devastating. Some properties are gutted by water, completely destroying fittings such as kitchens made of chipboard, with carpets and soft furnishings being ruined by contaminated water. The fabric of the buildings takes months to dry out. The emotional impact is even more devastating. The loss of possessions and property and the inability to return home for some time causes great stress and disruption, not to mention worry about the

impact on property values and the risk of future flooding. Insurers can help customers minimise the impact flooding can have on their lives and their homes. A large part of this is providing information on how households can protect themselves.

Lowest Cost in Lowestoft: Thinking Ahead Cuts Flood Damage

In 2005, Norwich Union teamed up with the local government to show what can be done to minimise the effect of flooding on a house. The property in Lowestoft (UK) had been flooded repeatedly at short notice. The residents were constantly anxious, not knowing whether a flood would happen while the family was sleeping.

The project spent around USD 60,000 on measures to make the property more flood resilient by preventing water from getting in and by reducing the damage that occurs if water does get in. Perishable floor coverings, doors, kitchen units and wall surfaces were replaced with water-resistant materials like ceramic tiles. A pump was installed to drain flood water, costly items such as boilers, wall sockets and service meters were positioned higher, flood boards were provided to install around doors for flash floods and one-way valves on drainage pipes prevent sewage from 'backing up' during a flood.

In October 2006, the house was tested by a real flash flood. Neighbours had to vacate their homes but the flood-resilient measures allowed the project resident to simply mop the floor and carry on as normal. The project showed that even a few of the measures will add enormous resilience as a full refit costs between USD 60,000 and 80,000. Without resilient measures in place, it could cost up to USD 120,000 to repair the damage caused by a flood. And many of the measures, such as erecting flood boards, can be done by homeowners themselves when needed.

In the longer term, the benefits could be substantial – a more valuable asset for the property owner, better terms for and availability of flood insurance and less damage and disruption, not to mention less personal and family trauma.

Learning Point: Insurers can work with other stakeholders to reduce risk, and improve the quality of life.

3. Personal Finance

As consumers have become wealthier, they have been faced with numerous personal financial decisions with very little preparation. They purchase real estate and cars, take on credit card commitments and encounter many family decisions such as education, divorce and inheritance.

The Financial Planning Society (FPS) in the UK found out how its members spent time with clients:

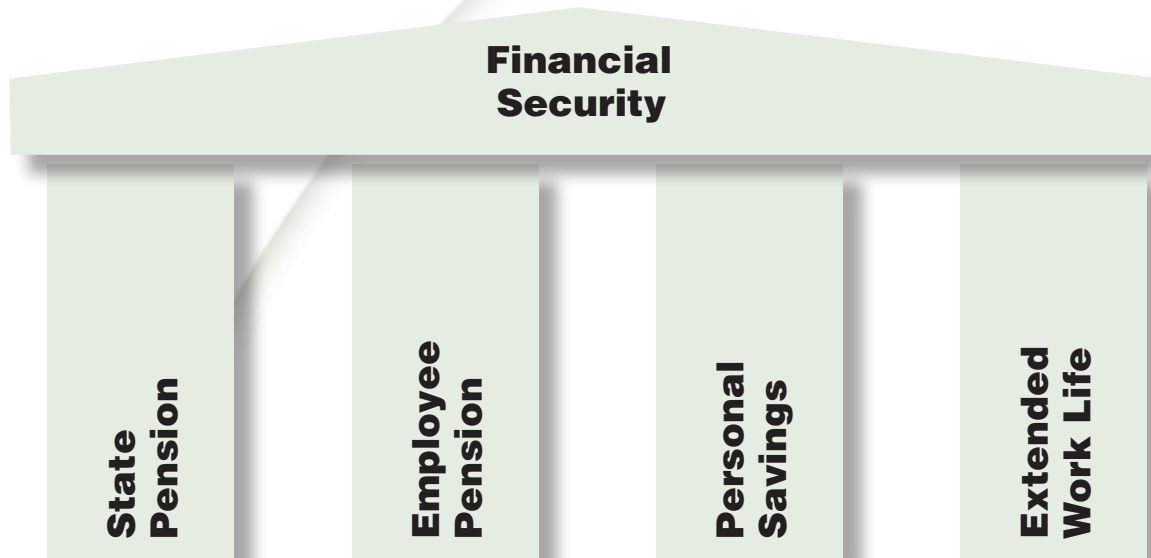
- Establishing why the customer is seeking advice: 10%
- Gathering information from the customer: 30%
- Establishing the customer's aspirations and goals: 20%
- Identifying options and product types: 20%
- Discussing specific products and implementation of solutions: 20%

FPS deals with a wide range of insurance and related products such as mortgages, inheritance tax planning, investment portfolio management, pensions and long-term care finance. Many consumers now feel they are not saving enough for retirement, particularly as their longevity prospects extend.

In 1987, the Geneva Association launched its 'Four Pillars' Research Programme to identify possible solutions to the problem of financing increased life expectancy. This challenge means that people, rather than being relegated to a role of inactive consumers, could work later in life, remain socially integrated and continue to make a valid economic contribution. The concept of the Four Pillars owes its origin to the fact that in most countries, the funding of pensions is based on three pillars:

- First Pillar – the compulsory, pay-as-you-go, state pension
- Second Pillar – the supplementary occupational pension (often funded-based)
- Third Pillar – individual savings (personal pension, assets and life insurance)

Figure 12: The Four Pillars of Late Life Income



The Geneva Association advocates the adaptation of the first pillar, a strengthening of the second pillar and further development of third pillar resources. However, it has drawn attention to the need for a fourth pillar – the future need for a flexible extension of work life, mainly on a part-time basis, in order to supplement income from the three existing pillars. The reorganisation of end-of-career and the new age management strategy (in which *gradual retirement* is destined to play a key role) involved in establishing this fourth pillar also correspond to many of the changes in contemporary service economies (e.g., quality of work and the lifecycle).

The Sunny Side of the Street

An original initiative aimed at educating consumers about the importance of financial advice is under way in the UK. From 2005 to 2006, AXA UK conducted an experiment called, 'AXA Avenue', based on two groups of families on either side of an avenue in Brighton. For one year, families from the first group enjoyed personalised financial advice, while families from the second were in charge of their own finances. Regular comparisons were made, looking to prove that a household receiving help from an adviser is better equipped to take decisions than one that does not receive any advice. A stress specialist was also on hand to monitor the effects of concerns over financial issues on participant health, while a dedicated site was set up presenting the project, progress made and its findings.

The importance of this project has been recognised in the financial press. However, this campaign's influence goes way beyond the communications sector since financial education also represents a major concern for the British government and media. The findings from this experiment reveal that the investment decisions taken by households that received personalised financial advice were better than the other group's. This trend can be seen both in terms of a reduction in debt and an increase in returns on investment. Extrapolating this reduction in debt (over the first quarter) to the rest of the UK population would mean a reduction in household borrowing by around USD 60 billion over three months. These results contradict the widely held view among British people that debt has simply become an unavoidable reality. The current global individual debt in the UK stands at USD 2.5 trillion and rises by USD 2 million – every four minutes.

Learning Point: Insurers can help consumers manage their finances wisely and avoid unnecessary debt and associated stress by providing expert independent advice.

4. Health Insurance

In Part II, we saw that insurers are keen to help their business clients improve their performance on environmental health and safety (EHS) issues since it also creates better risks. This can be best done if it can be focused at trade or industry level because the advice can be pitched at a level that even unsophisticated clients can quickly gauge its relevance. However, this usually entails that only a few insurers can do it cost-effectively as the cost of developing the risk management materials has to be spread over the portfolio of risks on the book.

Safety First

As part of its focus in reducing risk in the community, Insurance Australia Group (IAG) has developed *Risk Radar*TM, a self-assessment risk management tool for businesses. The company started with a major element of its supply chain – the car panel repair industry, known as the ‘smash repair industry’ in Australia.

The Australian smash repair industry has extensive workplace health and safety obligations and environmental health and safety (EHS) issues. Each year, it generates approximately 75,000 tonnes of waste, including hazardous materials. The industry also suffers 630 workplace injuries per year with an average cost of USD 80,000 each time. Feedback from smash repairers highlighted environmental issues and difficulties dealing with workplace safety regulations as major concerns.

The *Risk Radar for Smash Repairers* is a CD-ROM-driven training package for repairers to assess their own performance against key safety and environmental criteria. It includes a series of ‘cleaner production fact sheets’ developed in collaboration with government environmental agencies. If a workshop rates below ‘best practice’ in any area, the *Risk Radar* recommends an action plan, including documentation and changes to workplace practice. Smash repairers who use *Risk Radar* obtain a 10% premium discount and once EHS improvements materialise, they may get a further reduction.

IAG has adapted *Risk Radar* for its own EHS management and is extending it into other industries. The first is *Risk Radar for Farms/Agribusiness*, which will be freely available to policyholders (around 60,000 farmers or 50% of the industry). Farmers have one of the highest rates of injury and death at work.

Learning Point: By focusing on risk management at trade-specific level, insurers can have a strong impact on sustainability in the supply chain and consolidate their own market positions.

5. Business Property Insurance

There is a broad range of businesses and their ability to manage risk is usually in direct proportion to their size. Insurers adapt their products and services accordingly.

Small to Medium Enterprises (SMEs)

In the UK, SMEs (those with less than 250 employees) account for nearly 60% of all employees and 51% of turnover. The vast majority of businesses are categorised as small (below fifty employees) and they constitute a form of mass market, with property insurance provided under special package policies highly similar to domestic properties but with additional cover such as business interruption and product liability.

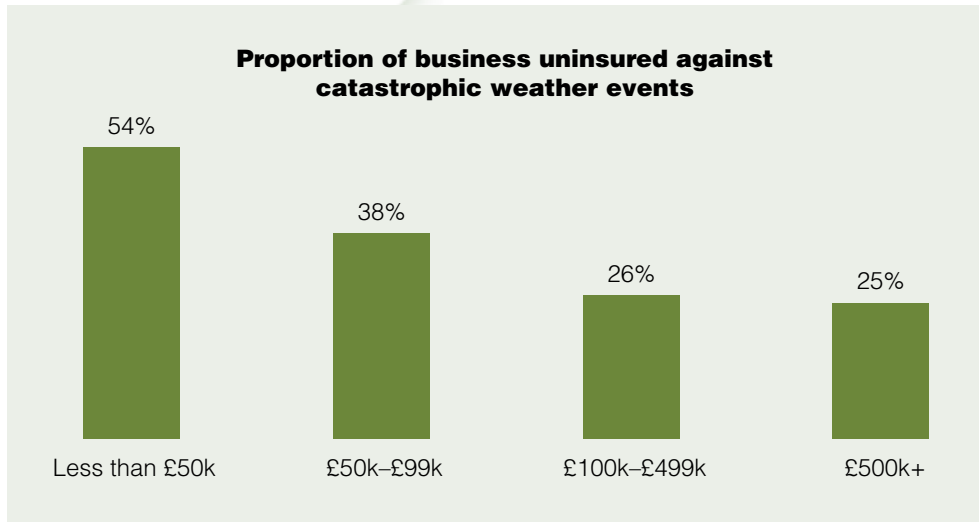
AXA UK monitors this sector through opinion surveys which reveal that:

- SMEs are generally not risk-smart
- SMEs value the support of their insurers highly

For example, according to a 2006 survey, 90% of SMEs are underinsured, with only one-third having business interruption cover. Further, while 85% of SMEs think climate change is a serious global problem, only 26% see it as a real threat to their own business. This behaviour is notably strong for small businesses with a turnover of under £50,000 per year (see Figure 13).

Figure 14 shows that in practical terms, insurers were rated highest among a range of agencies that small businesses expected to receive assistance from after an extreme weather event.

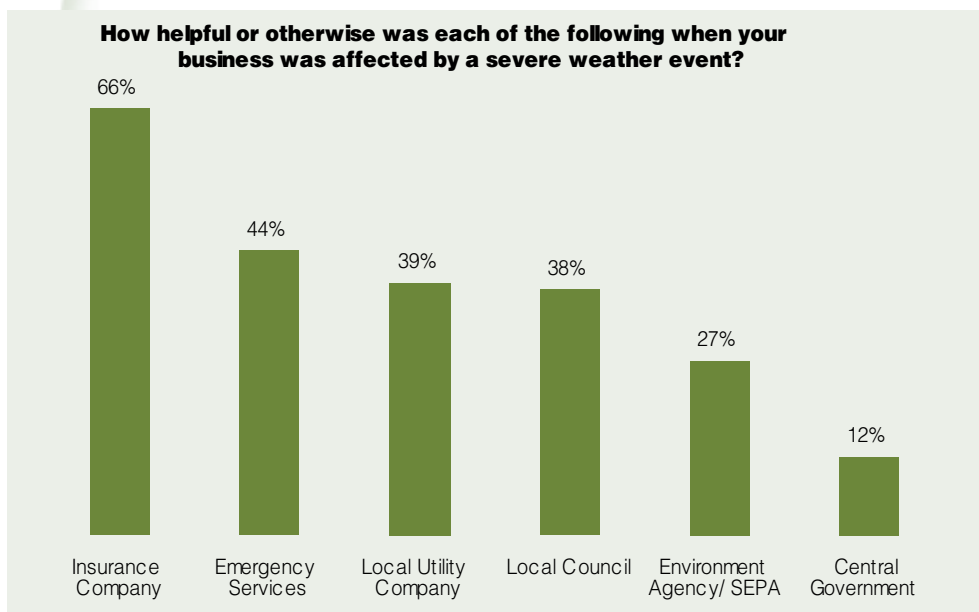
Figure 13: Proportion of Small Businesses Not Insured Against Catastrophic Weather Loss



90% of SMEs are underinsured, with only one-third having business interruption cover. Further, while 85% of SMEs think climate change is a serious global problem, only 26% see it as a real threat to their own business.

By size of turnover / Source: AXA UK

Figure 14: Support for Small Businesses After Extreme Weather



Insurers were rated highest among a range of agencies that small businesses expected to receive assistance from after an extreme weather event.

Source: AXA UK Small Business Survey, 2006

Highly Protected Risks (HPR)

At the other end of the scale, large businesses have customised insurance programmes. An approach known as *highly protected risk* is often adopted for exposures that are very hazardous such as chemicals or, on a critical path, a major distribution centre. At HPR sites, all the principal fire risk areas are fitted with some form of active fire suppression, buildings and structures are fully compartmented against the spread of fire and management of fire safety is a top priority. The core emphasis is on prevention instead of recovery after an event. One of the largest insurers in this segment is FM Global, which has its own research campus facilities with four main laboratories – fire technology, natural hazards, electrical hazards and hydraulics. Insurers in this field pride themselves on their highly-skilled engineer field force (FM Global has about 1,500 engineers) and their flexibility and expertise in delivering unique insurance deals for clients. Policies are usually written on a global format, with an ‘umbrella’ that provides a standard form of cover throughout the client’s operations via ‘difference in cover/difference in limits’ clauses to deal with gaps in local coverage. Another frequent feature is the use of client-owned ‘captive’ insurance companies, which essentially retain most of the risks in-house.

Part V: Looking Ahead – Key Opportunities and Challenges

In this final section, we review the opportunities and challenges that have been identified for insurance to support sustainability, discuss the barriers that could prevent progress, consider strategies to develop new markets for sustainable insurance and flag the future work programme of the IWG.

1. Opportunities for Sustainable Insurance





In Part II, we considered nine global sustainability issues:

- | | | |
|---------------------------|-----------------------------------|-------------------------------|
| 1. Climate Change | 4. Health | 7. Natural Resources |
| 2. Microinsurance | 5. Emerging Manmade Risks | 8. Recycling |
| 3. Lifelong Income | 6. Environmental Liability | 9. Internal Efficiency |

Among IWG members, the consensus is that these issues are vital for this generation of insurers due to their urgency, the scale of their potential impacts and the integral role that the insurance industry can play in addressing them. These are listed horizontally in Table 7. The vertical axis shows the main insurance products¹⁰. Clearly, one should *not* expect to find entries in every cell since some products do not apply to some types of risk. Every issue has certain insurance products available. However, the colour-coding shows that many opportunities for sustainable insurance have yet to be tapped or maximised.

Table 7: Insurers' Engagement with Sustainability

Insurance Product	Sustainability Issue								
	Climate Change	Micro-insurance	Lifelong Income	Health	Emerging Manmade Risks	Environmental Liability	Natural Resources	Recycling	Internal Efficiency
Household	Well-engaged, many products	Potential market, few products	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Motor	Well-engaged, many products	Not applicable	Not applicable	Well-engaged, many products	Not applicable	Not applicable	Not applicable	Well-engaged, many products	Not applicable
Health	Well-engaged, many products	Potential market, few products	Not applicable	Well-engaged, many products	Potential market, few products	Not applicable	Not applicable	Not applicable	Not applicable
Life / Savings	Well-engaged, many products	Potential market, few products	Well-engaged, many products	Well-engaged, many products	Potential market, few products	Not applicable	Potential market, few products	Potential market, few products	Not applicable
Liability	Well-engaged, many products	Not applicable	Not applicable	Not applicable	Well-engaged, many products	Well-engaged, many products	Not applicable	Well-engaged, many products	Not applicable
Other Industrial	Well-engaged, many products	Not applicable	Not applicable	Not applicable	Well-engaged, many products	Not applicable	Potential market, few products	Well-engaged, many products	Not applicable
CSR	Well-engaged, many products	Well-engaged, many products	Well-engaged, many products	Not applicable	Well-engaged, many products	Not applicable	Well-engaged, many products	Not applicable	Well-engaged, many products

 Well-engaged, many products	 Some products available
 Potential market, few products	 Not applicable

On the social axis, developing countries are currently underserved by insurance (see Table 8). This will be a major area of engagement in the near future if the UN Millennium Development Goals (MDGs)¹¹ are to be achieved by 2015.

¹⁰ Crime is also a major sustainability issue for society, and insurers provide a range of products for this risk.

¹¹ The eight Millennium Development Goals (MDGs) which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education – all by the target date of 2015 – form a blueprint agreed by all the world's countries and leading development institutions at the United Nations Millennium Summit in September 2000.

Table 8: Premium Volume by Region and Organisation in 2005

Total Business	Premium Volume in 2005 (in USD million)	Share of World Market in 2005 (in %)	Premiums in 2005 in % of GDP	Premiums in 2005 per capita (in USD)
America	1,280,234	37.37	7.95	1,452.8
North America	1,221,635	35.66	8.97	3,735.1
Latin America and Caribbean	58,599	1.71	2.35	105.7
Europe	1,287,920	37.60	7.78	1,513.8
Western Europe	1,241,107	36.23	8.44	2,482.8
Central and Eastern Europe	46,812	1.37	2.66	141.8
Asia	759,779	22.18	6.83	197.9
Japan	476,481	13.91	10.54	3,746.7
South and East Asia	266,968	7.79	4.87	77.9
Middle East and Central Asia	16,330	0.48	1.45	55.1
Africa	40,025	1.17	4.80	44.2
Oceania	57,756	1.69	6.38	1,789.3
World	3,425,714	100.00	7.52	518.5
Industrialised Countries	2,998,694	87.53	8.96	3,286.8
Emerging Markets	427,020	12.47	3.58	76.5
OECD	3,110,856	90.81	8.68	2,606.5

Source: Swiss Re, Sigma No. 5/2006

At present, natural resources are still outside the realm of financial services – the examples in this report were drawn primarily from CSR initiatives instead of being product-driven. UNEP FI already has work streams for certain issues such as water and biodiversity & ecosystems.

In addition to the nine global sustainability issues identified, one that has been considered by the IWG, although not explicitly in this report, is geo-hazards (e.g., earthquakes, tsunamis, volcanic eruptions). This is principally because assessing and insuring geo-hazards require many of the same skills as climatic hazards. Once again, the catastrophic aspect reduces their insurability.

2. What Attracts the Private Sector to Markets?

The most important attractions are the prospects of a positive profit margin and market size. Image and CSR alone do not justify sizeable commitments of resources. Assessing the profit margin requires good knowledge of the basic costs. For ESG risks, there is a high degree of uncertainty, thus, the probable maximum loss is not easily quantifiable. Creating synergy by marketing products that support sustainability with others could improve margins. Further, if the regulatory regime permits flexibility in product design, this would allow the provider to incorporate experience quickly and improve profitability. Insurers will look carefully at the long-term viability of the market before entering. Is the public sector willing and able to perform its role? What is the likely size of the market and what restrictions are there on foreign entrants?

3. Structural Barriers to Sustainable Finance

There are general reasons why the financial sector does not readily engage in sustainability and specific reasons for insurance market failure. We will consider the general barriers first:

▼ Misperception

Often, businesses have the preconception that ESG issues are irrelevant, while other parties view the profit motive of businesses as being incompatible with sustainability. A determined campaign of outreach is required inside and outside the industry to dispel these prejudices.

▼ Institutional Rigidity

Regulatory frameworks and organisational structures prevent an effective response. Laws may inhibit insurers from issuing innovative products such as derivatives directly to clients and restrict foreign companies from entering developing countries. From an organisational perspective, projects and activities may require support from busy business units that have no commitment to a common objective.

▼ Insufficient Capacity

The private financial sector in developing countries is very weak and unable to play a robust role because it lacks the skills to develop strategies as well as the resources and capital to implement them.

▼ Vulnerability

The worst-affected people are the least able to cope. Vulnerability in developing countries is a recurring theme because it arises from many factors. The UN Millennium Development Goals (MDGs) represent the eight key challenges in developing countries. Insurance can play a vital role in helping achieve each one of them (see Table 9). In some cases, the approach is indirect through CSR (as with the case of Storebrand donating used computers to schools in developing countries). In others, it could be direct, such as simple weather derivatives for rainfall deficit.¹²

Table 9: The UN Millennium Development Goals and a Sustainable Insurance Industry

UN Millennium Development Goal	Sustainability Role of Insurance Industry
1. Eradicate extreme poverty and hunger	Microinsurance, agricultural insurance derivatives
2. Achieve universal primary education	Corporate social responsibility
3. Promote gender equality and empower women	Employment policy
4. Reduce child mortality	Health insurance / education
5. Improve maternal health	Health insurance / education
6. Combat HIV/AIDS, malaria and other diseases	Health insurance / education
7. Ensure environmental sustainability	Risk management advice and insurance
8. Develop a global partnership for development	Replication via international insurers and regional task forces such as those of UNEP FI

Source: Andlug Consulting

4. Barriers to Insurability

From a technical standpoint, there are strong barriers to a private insurance market. The main reasons that adversely affect the insurability of risks can be classified as supply-side and demand-side barriers.

Supply-Side Barriers

▼ High Volatility

Capital is the fundamental element for any insurance operation as it ensures its ability to accept risks and pay claims. Capital is primarily sourced from private investors who expect to receive a substantial and predictable return. Since insurance companies' financial performance may be adversely affected by large claims, they use reinsurance to stabilise their earnings. The problem of erratic large claims plagues many sustainability issues such as extreme weather. Participation of the public sector in providing additional reinsurance capacity to the market is likely to reduce the price fluctuations of the reinsurance market and create longer-term price stability on the reinsurance side. Moreover, solvency regulations that are too stringent (e.g., where very large amounts of idle capital are required) is another major deterrent for private insurers.

¹² See UNEP FI Climate Change Working Group CEO Briefing launched at the UN Climate Change Conference (COP12) in November 2006 – 'Adaptation and Vulnerability to Climate Change: The Role of the Finance Sector'

▼ **Inferior Data Quality**

Poor data on hazards and exposures means that uncertainty is much greater and the private insurance market will be less capable to participate in risk-bearing. Geographical, economic and climate data tend to be poorer for developing countries and access to such information is often prohibitively costly.

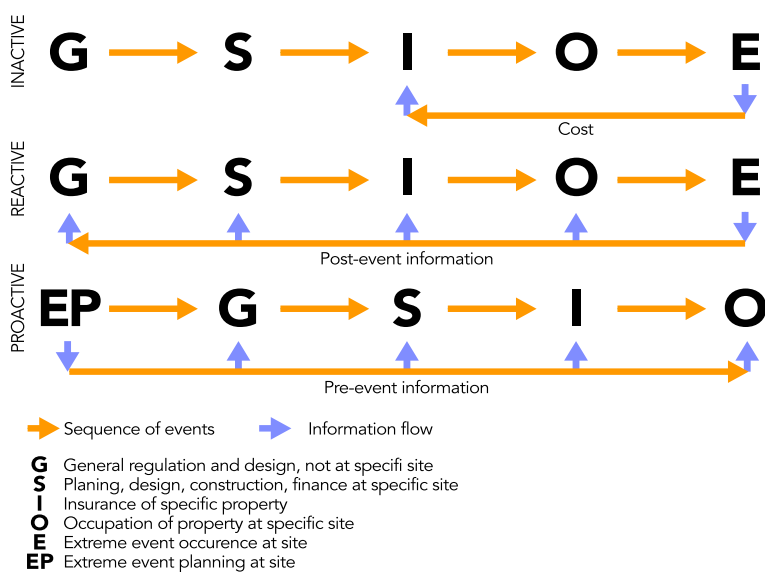
▼ **Lack of Freedom in Underwriting**

A balance is needed between regulatory control of the market (to protect consumers) and flexibility in managing insurance operations in response to a changing risk landscape. To compete, companies need scope to design innovative products and select clients according to the perceived risk. Geographical information systems are increasingly being used to underwrite site-specific risks. Overly rigid insurance regulations will deter private insurers or result in suboptimal insurance solutions.

▼ **Insufficient Involvement in Risk Prevention**

In highly regulated markets, where insurers are limited in their ability to introduce risk-related discrimination among different risk classes, the availability of insurance may reduce consumers' risk awareness. Therefore, it is important that public control of the risk management framework (land development, safety regime, etc.) is maintained and that regulators set a reasonable standard of care for policyholders to avoid such 'moral hazard'. The private sector can be a partner in this task. For instance, the UK insurance industry actively engages with policymakers on flood defence strategy and funding (see Figure 15). In the US, private insurers help fund the technical training of publicly-paid building inspectors. One way to overcome anti-selection is to make insurance compulsory for certain transactions and assets or to bundle it with other financial products such as mortgages.

Figure 15: An Integrated Property Damage System



Conventionally, insurance is provided once property developments have taken place in the *inactive mode*.

If damage becomes more frequent, insurers begin to share information about their losses to raise awareness and justify their actions (e.g., exclusions) – the *reactive mode*.

Climate change requires a third stage, into *proactive mode*, where insurers become partners in the process of infrastructure planning. This is the position that the UK insurance industry has reached, spearheaded by the Association of British Insurers.

Source: Chartered Insurance Institute, 2001

▼ **High Administrative Expenses**

This is a major problem for policyholders with only few assets because conventional insurance products have relatively high overheads. Simplified products and not-for-profit distribution can help solve this (e.g., microinsurance).

Demand-Side Barriers

There are various demand-side barriers as well. While some of them can be overcome by the private sector through time, others may need public sector intervention.

▼ **Low Risk Awareness**

Consumers usually have low risk awareness, particularly in the case of low frequency, high severity events. The private insurance market can play a useful role in awareness-raising since it has a profit motive to increase market penetration. In the case of catastrophe insurance, the introduction of compulsory catastrophe insurance by governments may be an important element in overcoming this problem.

▼ **Unaffordable Pricing**

When premiums are prohibitive, consumers will not insure. This may be a signal from the private insurance market that the risk is very high (unsustainable), there is great uncertainty, the scale of operations is too small, or more risk management by at-risk parties is needed.

▼ **Alternative Support Systems**

Frequently, victims of misfortune rely upon family and friends to cope with hardship, especially in developing countries. As social ties loosen, insurance becomes more prominent. There may be a public disaster relief system to cater for victims (e.g., emergency subsistence, soft loans). Unless carefully designed, it can undermine the viability of private insurance by reducing the demand for risk transfer.

▼ **Inefficient Insurance Processes**

The insurance process must be expedient – payment of claims must be achieved within acceptable timeframes or else consumers will not purchase the product. Here, private insurers will aim to attract customers by being more efficient than competitors.

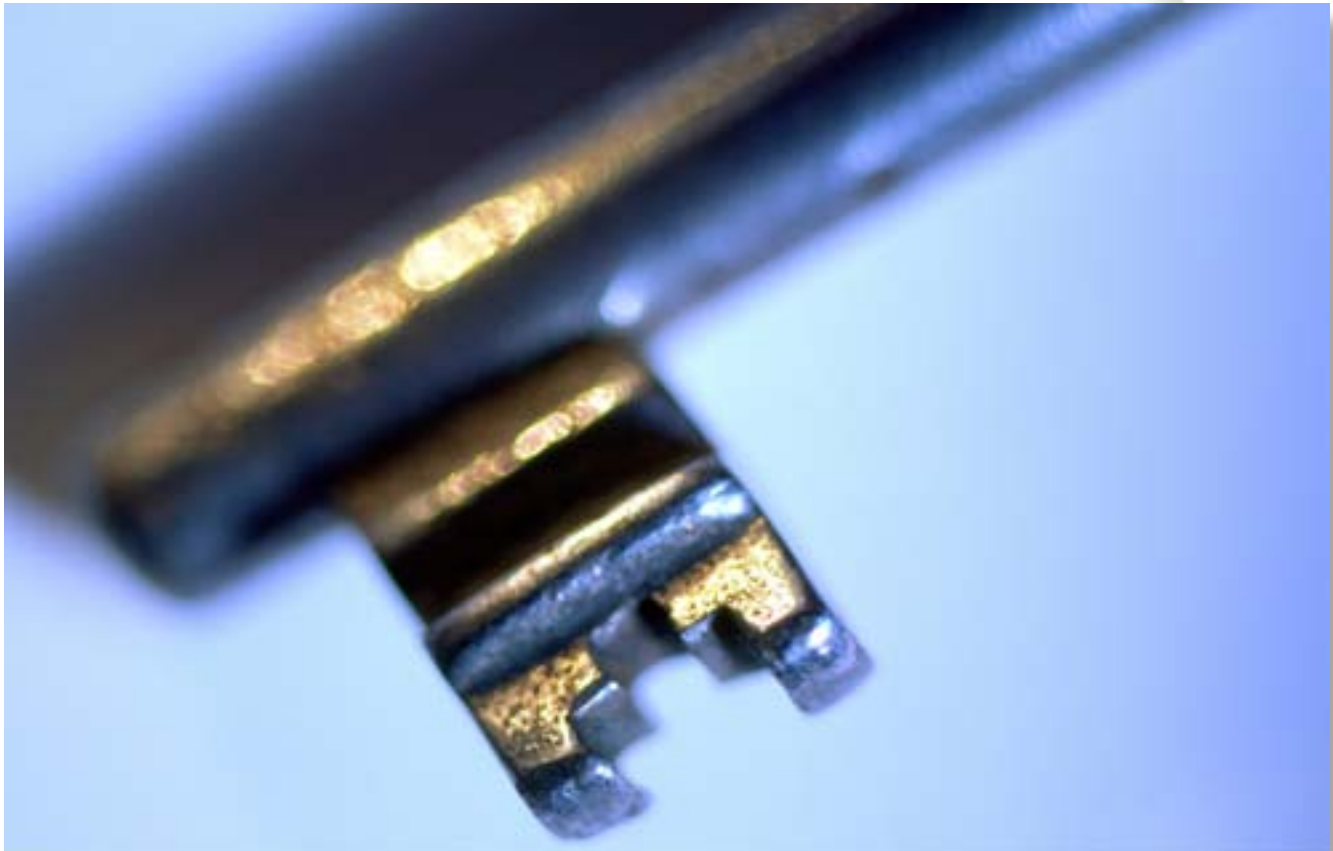
▼ **Anti-Selection**

If consumers believe that others are receiving more than their 'fair share' from the insurance fund, they will not insure willingly. The private insurance market will seek to segment customers, thus eliminating cross-subsidies. However, this may be contrary to public policy in terms of solidarity.

5. Key Strategies to Develop Sustainable Insurance Markets

The analysis in previous sections, particularly the learning points in the case studies, suggests a number of strategies for insurers to implement a campaign of deeper and more proactive engagement in sustainable insurance.

Figure 16: Unlocking Sustainable Insurance



ullstein superclac / Still Pictures

▲ Risk Knowledge

Experience has proven that research and analysis are essential. A thorough understanding of the risks involved and how to manage them effectively is critical and may require special projects and the acquisition of new skills.

▲ Information Technology

This can be employed innovatively to measure risk very accurately. Markets can be segmented and individual risks properly weighted.

▲ Partnering for Distribution

Consumers often view insurance as an unpleasant and occasional duty – even when it relates to savings. If insurers do not have a local presence, it is often vital to partner with other organisations that can access clients and earn their trust. (Internet underwriting is the exception but it is not available or accepted everywhere.)

▲ Synergy with Other Operations

Private insurers can gain significant economies of administration if they have a parallel operation that provides other products or economies of scale from existing skill sets in other countries, such as risk modelling capability and policy administration systems. This is particularly important for claims-handling (e.g., resources can be redirected from other lines of business to assist in times of disaster and emergency).

▲ Consumer Education

Many consumers are not financially aware, hence, sceptical. In general, they also demand a clear financial benefit when selecting between insurers. A collaborative programme of consumer education can be effective, especially in conjunction with public sector and NGO partners. It is essential that consumers do not see insurance as a guaranteed handout – they have a duty to be careful.

▲ Added Value

Combining insurance with risk management services provides a more meaningful value proposition to consumers and shifts attention away from price-matching.

▲ UNEP FI Working Groups

The working groups on asset management, biodiversity & ecosystems, climate change, property, sustainability management & reporting, and water are all pertinent and interesting for insurers. By collaborating with them, the IWG could strengthen the relevance of its outputs and accelerate its own research and advocacy work.

▲ Public-Private Partnerships

An important consideration is how to develop insurance for sustainability issues when the circumstances are not attractive for private insurers to offer cover due to the insurability barriers discussed earlier. There can still be advantages to using the private sector for specific elements of an insurance scheme such as a public-private partnership. With profit being a motive, the private sector has the propensity to be more effective in controlling administrative costs and fraud. Hazardous risks are priced correctly – subsidising them encourages risks to escalate. Competition gives an incentive to innovate. Global insurers can rapidly spread best practice. Numerous specialist companies like loss adjusters and catastrophe modellers have evolved so that a variety of solutions can be tested. Further, insurers can provide efficient administration for risks, even in instances when they do not carry the risks. International (re)insurers spread risks globally, reducing the local financial impact of losses and lowering the uncertainty in pricing. Table 10 outlines possible roles for the public and private sectors.

Table 10: Public and Private Sector Roles in Catastrophe Insurance

Insurance Function	Public Sector Role	Private Sector Role
Risk Assessment	Data collection, generic models	Risk modelling
Risk Reduction Measures	Regulation and enforcement	Product-based incentives
Product Design	General regulation, consumer protection	All stages of product design
Risk Financing (Infrequent Events)	Guarantee fund	Risk capital
Distribution/Marketing	Consumer awareness, high-cost sectors	Multi-channel delivery
Claims Handling	Minimal	Major
Administration	Minimal	Major

6. Next Steps

Sustainable insurance reduces risks for everyone, creates new markets and opportunities (to drive growth, increase returns and enhance company value), promotes a long-term perspective and is an integral part of corporate responsibility. However, in such a wide field, it is important for industry players to collaborate on the most pressing sustainability issues together with other stakeholders.

In general, OECD countries have well-developed insurance functions. On the other hand, developing countries are short of resources and research centres. Standards of performance are well below industrialised countries in urban areas, while rural areas could be almost totally lacking in financial services of all kinds. Given this situation, the IWG believes it is only appropriate to look at how insurance can make the development in these countries more sustainable. In countries where its members are represented, the IWG can establish the realities and possibilities quite accurately.

The UN MDGs encapsulate the key sustainability challenges in developing countries. From Table 9 earlier, insurance could directly contribute to achieving five of the eight MDGs (the other three goals could be achieved indirectly):

- Eradicate extreme poverty and hunger
- Reduce child mortality
- Improve maternal health
- Combat HIV/AIDS, malaria and other diseases
- Ensure environmental sustainability

These MDGs can be primarily addressed through microinsurance by delivering products such as weather derivatives for farmers and health insurance for families. Implementation would require supporting programmes of education and employment. The solvency of such schemes could be underpinned by developing natural catastrophe pools, a well-proven mechanism globally, or by forging public-private partnerships. Innovative alternative risk transfer products such as securitisation of risks (e.g., catastrophe bonds) could also be considered. However, regulators and policymakers would need to play their parts in removing structural barriers. Microinsurance will be a major area of work for the IWG.

Secondly, a strategic IWG initiative will be to develop *Principles for Sustainable Insurance*, which is envisioned to be complementary to the UN Principles for Responsible Investment. This landmark project aims to develop sustainability guidelines for the global insurance industry in collaboration with leading players and other stakeholders. The IWG believes that a common framework to embed environmental, social and governance criteria in core processes, products and services is vital to advance the sustainable insurance agenda in a global context. In this vein, the initiative also seeks to establish a global network of insurers proactively addressing sustainability issues by pooling resources, sharing best practices and learning from each other.

Ultimately, an insurance industry committed to sustainability can help realise more stable, thriving insurance markets – and make truly meaningful contributions to global sustainable development.

Listing of Best Practice Case Studies & Learning Points

Loss Prevention – *Avoiding Meltdown*

- Many serious risks can be avoided or minimised by a structured review of loss exposures and by good contingency planning.

Climate Change – *Effective Direction on Climate Change*

- To deal with a major risk, insurers must recognise it at a strategic level and partner with external experts and other stakeholders to understand the risk and develop effective responses.

Microinsurance – *Microinsurance: A Macro Sustainable Business*

- Distribution is key to establishing a market position in developing countries. Partnering with organisations, which have sustainability as a goal, is a proven route. Client and agent education is a critical first step to embedding insurance in personal risk management.

Lifelong Income – *Building Trust is Worth Every Penny it Costs*

- Trust is a critical part of the insurance deal and a long-term strategy in building markets, even if there is no immediate payoff.

Health – *Backing 'Back to Work'*

- Public sector initiatives can open new market segments for existing skills.

Emerging Manmade Risks – *One Step Ahead: Pharmaceutical Risks*

- The best risk management is the early assessment of risk and risk control. Risk transfer comes afterwards.

Environmental Liability – *Environmental Insurance is a Useful Business Tool*

- Insurance can be the catalyst for many financial transactions – and act as the trigger for good risk management at the same time.

Natural Resources – *Multiple Wins with Mangroves*

- Acting sustainably can result in many desired and unforeseen benefits.

Recycling – *Turning Scrap into Gold*

- Acting sustainably does not cost money – it saves it, and gains reputation.

Internal Efficiency – *'Green Housekeeping' Pays*

- Leading by example is one of the most powerful ways to make others follow. Enlisting staff is very effective in creating a culture of sustainability.

Responsible Investment – *Doing the Right Thing is a Wise Choice for Investors*

- Responsible investments do not prejudice clients' interests and can add greater stability to the portfolio.

Motor Injury Claims Handling – *Bodily Injury Claims: Being There, All the Way*

- Providing accident victims and their families with fast, comprehensive support minimises the social and financial burden to everyone involved – the company's interests do not conflict with the victim's.

Motor Insurance – *Technology Puts You in the Driver's Seat*

- Information technology management can open new underwriting possibilities and reinforce safer behaviour.

Household Insurance – *Lowest Cost in Lowestoft: Thinking Ahead Cuts Flood Damage*

- Insurers can work with other stakeholders to reduce risk, and improve the quality of life.

Personal Finance – *The Sunny Side of the Street*

- Insurers can help consumers manage their finances wisely and avoid unnecessary debt and associated stress by providing expert independent advice.

Health Insurance – *Safety First*

- By focusing on risk management at trade-specific level, insurers can have a strong impact on sustainability in the supply chain and consolidate their own market positions.

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Control
XL Insurance

UNEP Finance Initiative

The United Nations Environment Programme Finance Initiative (UNEP FI) is a strategic public-private partnership between UNEP and the global financial sector. UNEP FI works with over 160 financial institutions that are signatories to the UNEP FI Statements, and a range of partner organisations, to develop and promote linkages between the environment, sustainability and financial performance. Through a comprehensive work programme, regional activities, training and research, UNEP FI carries out its mission to identify, promote and realise the adoption of best environmental and sustainability practice at all levels of financial institution operations.

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UNEP FI Insurance Working Group

Member Institutions:

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AXA	Norwich Union (Aviva)
Folksam	Storebrand
HSBC Insurance Brokers Ltd.	Swiss Reinsurance Company
Insurance Australia Group (IAG)	Tokio Marine & Nichido Fire Insurance Co., Ltd.
Interamerican Hellenic Life Insurance Co.	XL Insurance

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Andlug Consulting

The principal consultant, Dr. Andrew Dlugolecki, was an inaugural committee member of the UNEP Insurance Industry Initiative in the 1990s and has been an advisor to the UNEP FI Climate Change Working Group since its inception. He has over three decades of insurance experience, with expertise in the area of climate change. Dr. Dlugolecki had an extensive insurance career at General Accident of the UK, which became CGU then CGNU (now Aviva), from the early 1970s until December 2000. Prior to becoming a private consultant, he was Director of General Insurance Development at CGNU, responsible for reinsurance, actuarial issues and best practices in general insurance worldwide.

Dr. Dlugolecki is a Fellow of the Chartered Insurance Institute, a Fellow of the Royal Meteorological Society, a Visiting Fellow of the Climatic Research Unit of the University of East Anglia, and is affiliated with the UK Social Investment Forum and the Institute and Faculty of Actuaries. He has executed numerous research studies and projects involving organisations such as the Allianz Group, the Association of British Insurers, the Carbon Disclosure Project, the European Union, the Intergovernmental Panel on Climate Change, the Munich Climate Insurance Initiative, the UK Department of Environment, and the World Bank. Dr. Dlugolecki holds several degrees – Pure Mathematics from the University of Edinburgh, Operational Research from the University of Lancaster and Technological Economics from the University of Stirling.

In his private life, Andrew chooses to spend time with his family in Perth, Scotland in a sustainable way. His grandson, Billy, aged four, shows similar inclinations to helping society, usually in the form of superheroes such as the Power Rangers, Batman and Spiderman. Sometimes, as a real privilege, Andrew gets to be the Incredible Hulk, who is, of course – bright green.

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United Nations Environment Programme

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