

# Climate Change and the Global Insurance Industry

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Weather and climate are “core business” for the insurance industry. Many extreme weather events such as cyclones, hailstorms, bushfires and floods are projected to increase in either intensity or frequency under climate change. A changing, less predictable climate has the potential to reduce the insurance industry’s capacity to calculate, price and spread this weather-related risk. However, it is important to understand the long term opportunities as well as risks associated with climate change. IAG is committed to undertaking further research to increase the scientific understanding of the impacts of climate change, to identify ways to reduce the impact that climate change is expected to have on society and to identify insurance-based incentives for a reduction in future greenhouse gas emissions. Climate change presents a strong case for the need for business, governments and community groups to work together to find sustainable solutions to this critical challenge. *The Geneva Papers* (2007) 32, 22–28. doi:10.1057/palgrave.gpp.2510112

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## Introduction

Weather and climate are “core business” for the insurance industry. In Australia, 19 out of the 20 most costly natural disasters, in terms of property insurance losses, have been weather related. The most costly was the April 1999 Sydney hailstorms, at AUD \$2.2 billion (in 2006 \$). Therefore, any change to the expected frequency of such an event is of considerable importance to insurance companies.

Australia is exposed to many extreme weather events such as cyclones, flood, severe storms, hailstorms, landslides and bushfire; all of which are projected to increase in frequency and/or intensity under climate change. A changing, less predictable climate has the potential to reduce our capacity to calculate, price and spread this weather-related risk. Increase in population growth occurring within 3 km of the coastline increase the number of communities exposed to extreme weather events, thereby increasing the threat of climate change.

Analysis of the risks associated with climate change provides insurance companies with a working example of the benefits in considering long-term as well as short-term issues. Understanding long-term risks and opportunities enables insurers to ensure our business is sustainable in the long term, while generating enduring shareholder value.

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## IAG’s climate change impact assessment

Insurance Australia Group (IAG) conducts weather research in order to better understand the weather risk today and how quickly and how much we expect it to change. This includes the sponsoring of research at Oklahoma University using cutting-edge global climate models, in order to understand how weather may change at regional levels under enhanced greenhouse conditions.

Table 1 shows how even small changes to mean climate conditions can have as a consequence disproportionate impacts on hazards and damages.

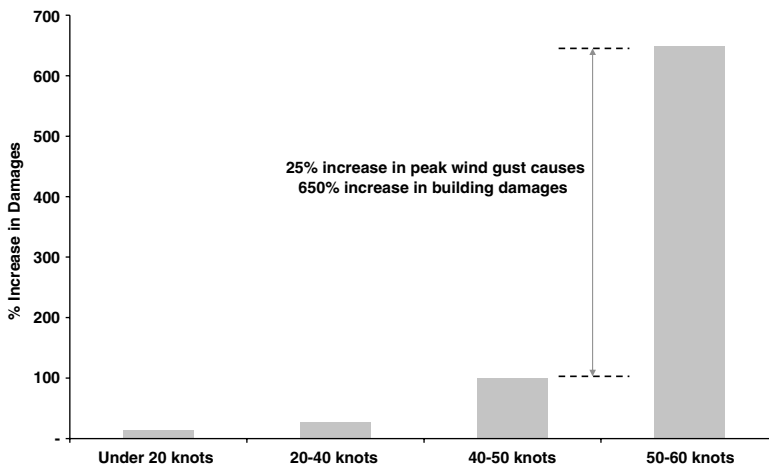
Our research shows that under a medium range greenhouse gas environment, it is expected that there will be an increase in the intensity of tropical cyclones over the Australian region and that these cyclones will move further south. This has serious implications for the heavily populated areas of coastal southeast Queensland and northern New South Wales as it implies that return periods of severe tropical cyclones (Cat 3+) could be halved on average over the 2000–2050 period.

**Table 1** Changes in extremes as a result of changes in hazards<sup>a</sup>

<i>Hazard</i>	<i>Change in climate</i>	<i>Resulting change in damage loss</i>
Windstorm	2.2°C mean temperature increase	Increase of 5–10 per cent in hurricane wind speeds
Windstorm	Doubling of wind speed	Fourfold increase in damages
Floods	25 per cent increase in 30 min precipitation	Flooding return period reduced from 100 years to 17 years
Bushfire	1°C mean summer temperature increase	17–28 per cent increase wildfires

<sup>a</sup>Source: Mills *et al.* (2001).

Example: 1°C mean summer temperature increase could lead to a 17–28 per cent increase in bushfires.



**Figure 1.** Trend in building insurance damages with increasing average wind speed.

Hail damage is one of the most costly extreme weather events in Australia, involved in 10 of the top 20 property insurance losses since 1967, because of their occurrence in high-density areas on coastal seaboard, such as Sydney. Again, our research shows that in a future medium range greenhouse gas scenario between 2000 and 2050, a hailstorm of the magnitude that occurred in Sydney in April 1999 (hail size 9 cm) could become twice as frequent in the greater Sydney region.

However, it is not just the “mega-events” that are of concern to us. As an example, localised events linked to wind speeds of 50+ knots are relatively frequent across much of Australia. Our research indicates that for a 25 per cent increase in wind speed beyond 50 knots, insured losses can increase by up to 650 per cent. This is because once wind gusts reach a certain level, entire roof sections are blown off or additional damage is caused by falling trees and flying debris. Yet below this level damage may be minimal. Figure 1 illustrates how the crossing of critical wind thresholds can have a material impact on building insurance damages.

## **Challenges and opportunities for the insurance industry**

### *Reducing the threat of climate change*

IAG’s purpose is to deliver value in four ways: pay claims, understand the price risk, manage our costs and reduce risk in the community. We believe that one of the greatest benefits IAG can provide to our customers and the broader community is to identify the very risks we insure and help to reduce them; one such risk is climate change.

Research by the Association of British Insurers (ABI) shows that, if we do not act immediately to reduce global emissions, the cost of extreme weather events will be significantly more costly to our society. IAG’s own modelling tells a similar story with the increasing risk proportional to the increasing level of greenhouse gases in the atmosphere. Many of these future potential costs of climate change could be avoided by taking action today to ensure we have a low carbon economy.

IAG believes it can assist in the reduction of greenhouse gas emissions in the following ways:

- reduce its own environmental footprint (simultaneously benefitting from reduced operating costs),
- drive public awareness programmes and develop products or policies that aim at reducing emissions and
- encourage its supply chains to reduce their emissions.

As a “barometer” of climate change impacts on society, insurers have a role to play in highlighting the issue to policymakers, community and other business sectors, as well as getting involved in cross-sectoral/multi-stakeholder action. As an example of this, IAG, together with five large Australian businesses and the Australian Conservation Foundation (a leading Australian environmental non-government organisation), formed the Australian Business Roundtable on Climate Change (Roundtable) to undertake new research to improve the understanding of the business risks and opportunities associated with climate change.

The roundtable's recently released report entitled *The Business Case for Early Action* confirms that Australia is particularly vulnerable to climate change. It also includes research that demonstrates that Australia can deliver significant greenhouse gas emission reductions at an affordable cost. The roundtable recommends that business and government work together to frame policies on three fronts: designing a "long loud and legal" framework to establish a carbon price signal; encouraging innovation and investment in emerging and breakthrough technologies; and building national resilience to the impacts of climate change.

IAG also acknowledges the importance of adaptation in the management of future climate risk. We are currently sponsoring work to understand how we can improve the weather resistance of homes to more extreme weather events through, for example, the Townsville cyclone testing station. IAG also operates an internationally recognised Technical Research Centre where we are able to test the actual physical effects of a changing climate on building materials and motor vehicles.

In 2004, our Technical Research team developed a Hail Cannon that fires various-sized hailstones into different types of roofing materials and measures the damage caused. This research allows us to better understand the impact more violent storms will have on buildings in the future.

The research not only assists us in correctly pricing the cost of repairs for different building materials but also allows us to approach manufacturers and discuss possible improvements that will increase durability and in turn reduce the amount of damage caused by future weather events. It also enables us to have early involvement in stakeholder consultations with industry and government on both building codes and planning considerations.

### *Changing claims patterns*

Historical records will become an increasingly less reliable guide to future weather risk, as greenhouse gas concentrations rise. Additional information is needed to understand how current risks are expected to change with global warming. Improvements in risk-based pricing will assist in the increased awareness of risks and the benefits of risk reduction.

Climate change is expected to bring increased damage costs as well as increased variability. Increased variability has a cost; it means that additional capital needs to be set aside to ensure that insurers continue to be able to pay claims during the "hard times". Insurers will look for ways to manage this increasing variability and, therefore, the availability and affordability of reinsurance as well as other risk transfer mechanisms will become increasingly important.

In its report of June 2006, *Climate Change, Adapt or Bust*, Lloyds of London warned that the insurance industry has not taken shifting weather patterns seriously enough and that it will need to start reacting more quickly.

### *Managing risks*

General insurance is a necessary community product and needs to remain available and affordable. A recent report by CERES<sup>1</sup> outlined that catastrophic weather-related insurance losses in the U.S. are rising significantly faster than premiums, population or economic growth. If trends persist, impacts of climate change in the U.S. will inevitably result in more insurance claims and increased costs, in turn leading to higher premiums and deductibles and broader coverage restrictions. The report also stated that climate stresses will place more political and financial burden on federal and local governments as they assume broader exposures and become insurers of last resort.

IAG provides insurance in a region of New Zealand where a high number of flooding events threatened to remove the availability of flood insurance. By working with the local council and community and through our climate modelling, we were able to provide greater information on the likelihood of floods and how these may change under climate change. This helped in getting community approval and funding of flood mitigation work, which will go on over the next few years and result in insurance cover remaining available and affordable, thereby assisting in the long-term viability of the community.

Recent cyclones have shown the importance of having appropriate emergency services. With an increase in the number of expected extreme weather events, it is important to ensure our insurance operations and emergency services are able to cope. Natural disasters have many different impacts – lives are thrown into chaos; houses, businesses and community infrastructure get damaged or destroyed; people's livelihoods are temporarily or permanently disrupted; and there is the potential for injuries or fatalities. It is at this time of extreme hardship where the insurance industry can show its real worth by helping our customers rebuild their communities.

### *Investments*

Insurance companies need to understand the impact of climate change on their investment portfolios as well as determine how their holdings may influence the mitigation and adaptation of climate change itself. There is increasing investor awareness about the financial impacts of climate change on share value and improved corporate disclosure of the risks. The Carbon Disclosure Project, a group of 211 institutional investors with assets of \$31 trillion under management, wrote to 1,800 of the largest quoted companies in the world by market capitalisation asking for the disclosure of investment-relevant information concerning their greenhouse gas environments.

In a recent Goldman Sachs publication,<sup>2</sup> it was observed that climate change may present a host of concerns for individual companies, such as regulatory, reputation

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<sup>1</sup> Source: Mills *et al.* (2005).

<sup>2</sup> Source: Goldman Sachs (2005).

and litigation risks. However, there was also a considerable number of potential opportunities, such as developing new “green” products or obtaining a relative advantage over a competing firm that is not as well positioned to adapt to a carbon-emission constrained world.

### *Reputation*

In times of significant change comes risk. The future reputation of the insurance industry will be dependant on how we manage this issue when dealing with sensitive areas such as the potential for premiums to rise in relation to increasing risk and the sustainability of the industry’s ability to pay in the long term.

The 1998 Wollongong floods in Australia highlighted the problem of having inconsistent risk coverage in home insurance policies between different insurance companies. These inconsistencies lead to bad publicity for the insurance industry as the media uncovered one neighbour being covered and one not for the same event. In order to improve the reputation of our industry and relationship with our customers we need to improve the consistency of risk coverage for our personal line customers.

Within IAG, we believe that building the right culture is critical to sustaining our business for the long term. Our people must act in a way that is consistent with our values – teamwork, honesty, transparency, meritocracy and social responsibility. Our annual survey of all the people across our organisation shows that two of the highest engagement drivers throughout our organisation are:

- our focus on balancing our social, environmental and financial responsibilities; and
- the actions we are taking in the areas of the environment, safety and the community.

These actions will position us for long-term success.

### *New products and customers*

Change brings opportunity. As insurers we will need to respond to our changing customers’ needs through the creation of innovative solutions and the insurance of new risks and assets. These new insurance products and activities can enable us to tackle the causes of climate change as well as the rising weather-related losses. As an example, IAG has just launched an online tool called Climate Help that enables IAG customers to offset the greenhouse gas emissions associated with using their car.

We also believe it is important to improve communities’ understanding of the risks caused by climate change so that they can actively manage and reduce these risks.

## **Conclusion**

IAG is committed to undertaking further research to increase the scientific understanding of the impacts of climate change, to identify ways to reduce the impact that climate change is expected to have on society and to identify insurance-based incentives for a reduction in future greenhouse gas emissions. However, success

in dealing with this global problem requires action across the entire economy. Climate change presents a strong case for the need for business, governments and community groups to work together to find sustainable solutions to this critical challenge of the 21st century.

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## About the Author

**Michael Hawker** was appointed Managing Director and Chief Executive Officer of Insurance Australia Group (IAG) in December 2001. Before joining IAG, he was Group Executive, Business and Consumer Banking at Westpac Banking Corporation. Previous positions include Executive Director of Citibank International PLC in Europe and Deputy Managing Director of Citibank Limited in Australia. He was listed by Euromoney as one of the top 50 bankers under the age of 40, and one of the Australian Financial Review's "True Leaders" in 2004 and 2005. He was awarded the Australian Banking & Finance Magazine Millennium Banker of the Year Award in 2000, and the Best Insurance Executive Award in 2003 and 2004. In 2006, he was awarded Insurance Personality of the Year at the Australian and New Zealand Insurance Industry Awards, and Leader of the Year at the Human Capital Leadership Awards. He is a recipient of an Australian Sports Medal, having played 25 Rugby Union Internationals for the Australian Wallabies. He is President of the Insurance Council of Australia; Member of the Financial Sector Advisory Council; Chairman of the Australian Business in the Community Network; Member of the Business Council of Australia; Member of the Business Roundtable for Sustainable Development; and Member of the Australian Business and Arts Foundation (AbaF); and Advisory Board Member for the Police Commission of NSW. He was previously Chairman of the Australian Financial Markets Association; Director of the Australian Chamber of Commerce and Industry; Member of the Federal Treasurer's Consumer and Financial Literacy Council and an Advisory Board Member of the Australian Graduate School of Management.