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Sydney, NSW 200  
16 December 2011

Dear Commissioners,

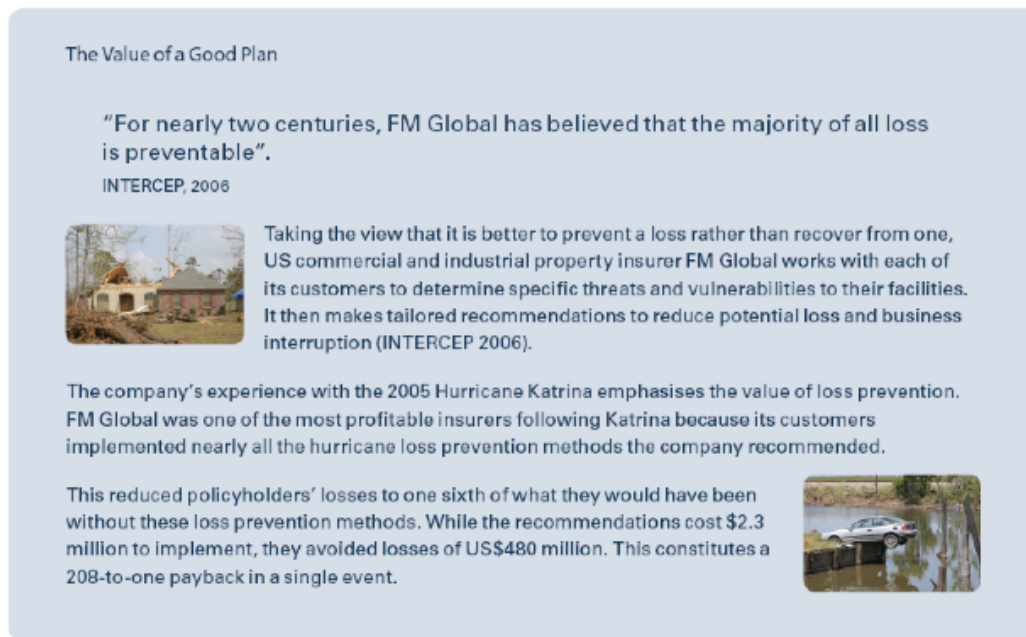
We welcome the Productivity Commission's research into the issue of climate change adaptation and its importance to the Australian economy, society and environment.

As a company which works exclusively on the issue of climate change risk for government, the private sector and civil society we are active in many projects which we think are important for the Commission to consider as it forms its view on climate change adaptation.

We therefore wish to commend a series of documents to the commission of which some are public, some are confidential and some are currently confidential but pending release in early 2012.

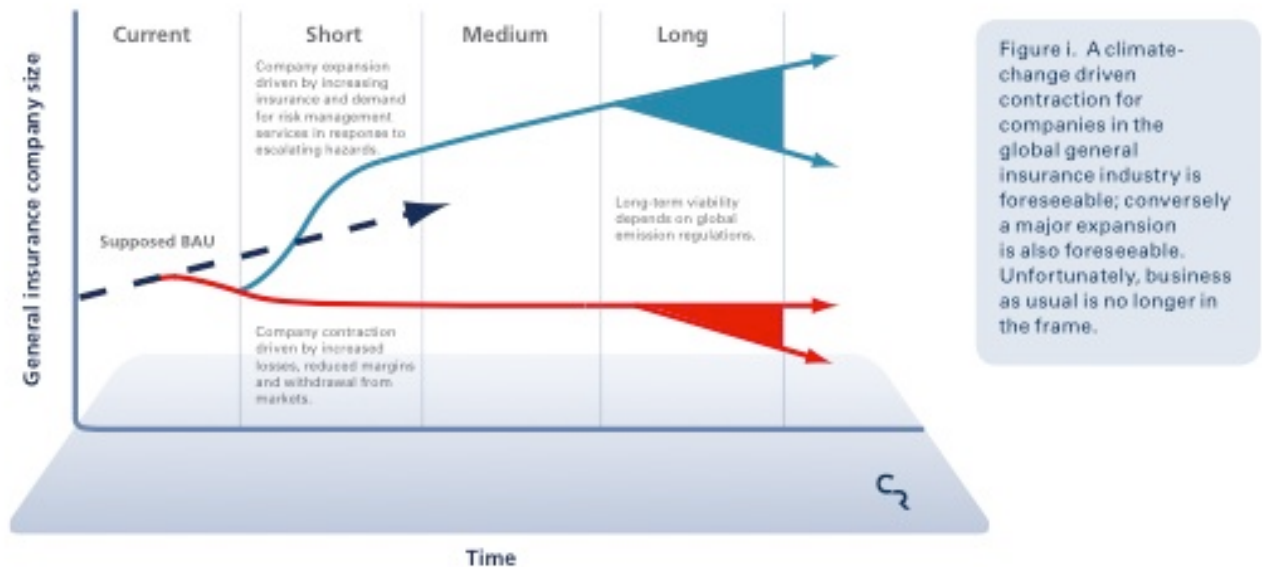
To summarise the many and varied insights we would like to outline to the commission some of the broad scale conclusions we have drawn from this body of work since the formation of Climate Risk in 2005.

1. **Loss Reduction is the Low Hanging Fruit** – The value of adaptation for extreme weather events can be readily quantified in terms of avoided losses based on experiences in the USA. Our work for Zurich insurance (Zurich 2008) provides evidence of returns on investment of 200 to 1 for loss avoidance planning. This suggests that many adaptation measures, especially for small and medium size enterprise are of little or no cost, yet yield major loss avoidance as well as resilience in the private sector, as the figure below indicates.
2. **Regional Economic Impacts** - The economic impact of climate change may be significant, and needs to be considered at a regional level to be properly understood and quantified. Our economic research in conjunction with ACIL Tasman with the councils of Nambucca, Kempsey and Bellingen indicated that (without adaptation) climate change would reduce wages, gross regional product and have a large effect on land values. These impacts were based on detailed evaluation of the impacts of heat, flooding and water availability impacts on agriculture, tourism and manufacturing. Reports placed on public display by these councils are available and are commended to the Commission. We believe this regional scale macro-economic impact analysis is the first of its kind and we would be happy to present to the Commission on this work.



**Figure 1: Excerpt from Zurich 2008 referring to the value of loss avoidance in the face of severe weather events.**

3. **Insurance Can Make or Break Adaptation** - Evidence from the our research indicates that the insurance industry could be both a risk to society and the economy, or a major source of its adaptation and resilience depending both on how it reacts to climate change and how it is treated by government. Evidence from the USA indicates that a failure to recognise that premiums must actively reflect risk can lead to a collapse in the insurance provision, with cascading effects on property value. Indeed, work in the UK indicates that a loss of insurance can lead to a 50 to 80% collapse in asset value. Hundreds of policies have been terminated in the USA though government mismanagement of the insurance sector in the face of escalating natural hazards. This not only leads to government having to step in and establish insurance pools at major cost the tax payer, but also leads to a removal of the market signals about risk and exposure that drive people away from high risk locations and towards spending more on physical and systemic resilience. To this end we commend the Zurich 2008 research to the commission, see figure below.



**Figure 2: Schematic of the response of insurance companies to climate change in the face of natural hazards (Zurich, 2008)**

4. **The Role of Insurance Brokers** - A major issue on adaptation is how to get the adaptation advice and drivers to the sectors which are at risk. One of the hardest sectors to reach is the Small and Medium Size Enterprise (SME) sector, comprising many thousands of companies of vastly different type. However, our work with Zurich has shown that insurance brokers are the natural conduit or adaptation advice for several reasons:
  - a. They are the de facto risk managers for these businesses that do not have dedicated risk staff,
  - b. They have the trust of the businesses they service, and
  - c. They have an aligned incentive to maximise the sale of cover and ensure their businesses are well protected, but also not over sell and effectively price themselves out to business.
5. Following up on our work training brokers on climate change adaptation using a step wise system developed with Zurich, we found that the trained brokers were able to bring new risks to the attention of clients, explain how climate change was affecting risk and secure increased coverage which was often removing existing under-insurance and a lack of business interruption cover. These last two components have time and again been shown to be at the heart of business failure following major disruption. Though the content of this program is confidential, we would commend this work to the commission to consider in its deliberations and can provide a briefing to the Commission on the Zurich National Climate Change Adaptation Broker Training program. We also note that the National Insurance Brokers Association (NIBA) surveys of brokers regarding climate change show an increase recognition that both insurers and government are key players in adapting society and the economy for climate change impacts.

6. **The Katrina Syndrome** - An area of great concern to our company is the lack of attention being paid to the community welfare sector. People who use the services of community welfare organisations are almost by definition without resilience and without adaptive capacity. They may be economically or socially disadvantaged, suffering from mental health issues, be marginalised or vulnerable for other reasons. This means they often rely on community welfare organisations to make it from one day to the next. Despite this correlation, these are the people that are often left to face consequences alone in the aftermath of extreme events. We call this the Katrina Syndrome as none of us will forget how those with options and capacity left New Orleans, leaving those without options or capacity to a situation no individual in a developed society should be expected to endure and with all critical organisations conspicuous by their absence. Yet, how resilient are the organisations that look after these people? Our pro-bono work with the Australian Council of Social Services (ACOSS) revealed that no one has even asked that question and therefore as a society we have no idea. So, for the people most at risk, there is no actual measure of the status of the very organisations that provide a safety net of coping capacity. We have now secured funding from NCCARF to undertake formal research into this issue, which we hope will lead to recommendations on how to develop an adaptation program for this sector. Indeed, it is our view that if well adapted, this sector can in fact become a major part of society's coping capacity to increasingly frequent and more severe extreme events. (NCCARF project scope available upon request).
  
7. **A National Catalogue of Local Risks and Adaptations** – This year Climate Risk undertook a large scale synthesis of the Australian Government's Local Adaptation Pathways Program which involved analysis in 94 local governments around the country. This review identified nearly 7000 individual risk and adaptation citations. These have now been synthesised down to about 250 risks and about 700 unique adaptation actions. This is quite a deep and complex national resources and we commend it the Commission for consideration. Though a public version of the final report will not be published until early 2012, we may be able make the spreadsheet registers and statistical analysis available to the Commission for its deliberations. We would however like to emphasise two points: Firstly, councils clearly consider that climate change provides an array of serious threats - from community health issues, through infrastructure and land use, to direct impacts on financial viability. And secondly, the majority of the adaptation actions identified by councils carry little or no cost, meaning that the barriers to early action of low. We have provided these findings as presented to the Australian Local Government Association earlier this year.

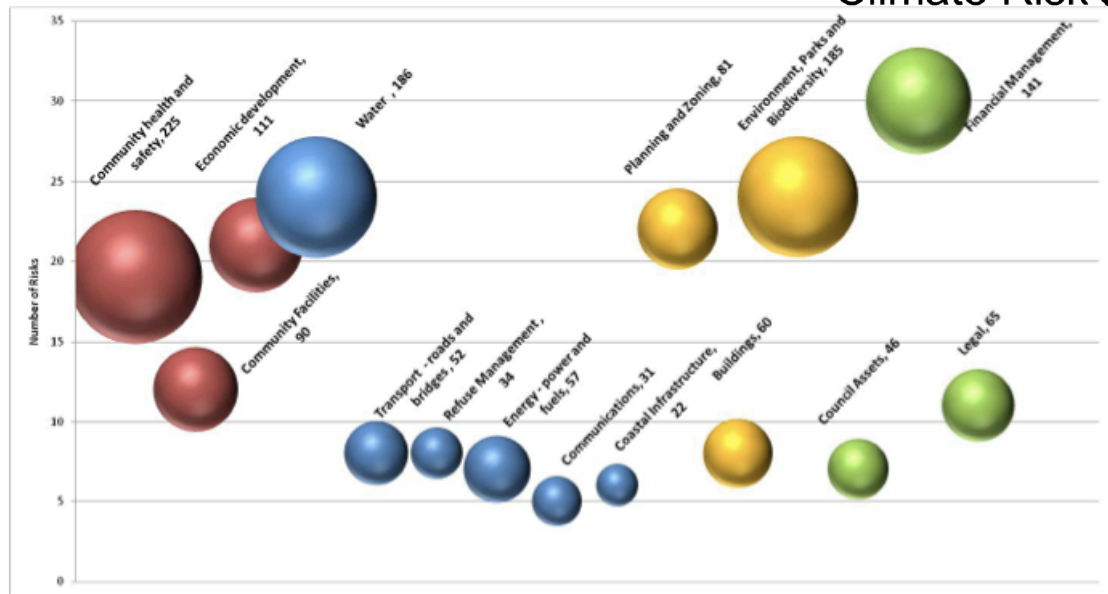


Figure 3: Breakdown of risk citations by areas of council interest, based on synthesis of all Local Adaptation Pathways Project report. As presented at ALGA conference 2011, and due for publication 2012.

8. **Infrastructure Adaptation Needs Quantification** – In our view the efficacy of qualitative adaptation analysis is reaching its limit and quantitative analysis is unavoidable if hard business case decisions are to be made and funded. We would bring to the attention of the Commission detailed economic and financial assessment of climate change impacts and adaptation benefits by the form Queensland Department of Main Roads which assessed changes in patronage levels on proposed roads due to climate change – including the effects on the location of industrial activity and commodity volumes. In this project these effects were coupled with road use models to provide insight into changed road use, see test figure below. Continuing with the theme of infrastructure, Climate Risk is currently working on two new major projects to break-through the methodological barriers to robust cost-benefit analysis. One of which is with the Water Services Association of Australia, whose first module is being conducted in close collaboration with Sydney Water. We are already producing proof of concept results, which show that climate change risk and adaptation assessments can be achieved using spatial data and probabilistic analysis using ground up asset-by-asset analysis techniques. Though still confidential, we would be happy to join with WSA and Sydney Water to explain the workings of the project and our interim findings.



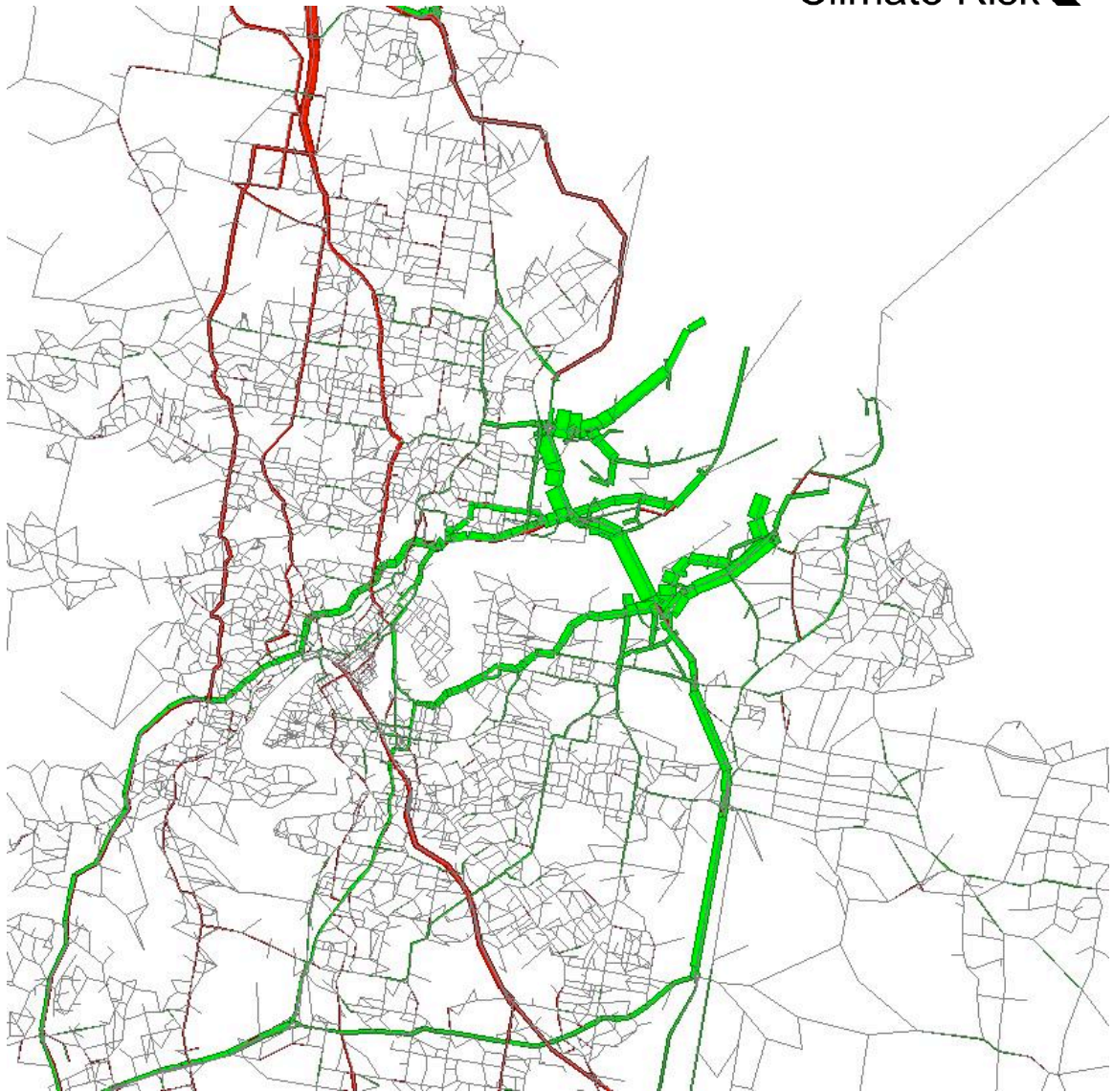


Figure 4: Example of the effects of climate change impacts on road use. 'Dude, where's my road?', Roads Australia special meeting, 2010

9. **Building Resilience Rating** – We would like to bring to the attention of the Commission our analytic work with Edge Environment for the Insurance Council of Australia. We have recently completed a web based building assessment tool which draws on national material resilience data, our own systems analysis techniques and spatial data on flooding (with new hazards to be introduced) to create a simple rating for the resilience of a domestic building which is context sensitive (i.e. a building in a flood zone is assessed on its flood performance). This sophisticated tool is now being tested and trialed, and we will be using it for comparative cost-benefit analysis in the Sunshine Coast. This will compare the effectiveness of increasing resilience requirements for a domestic property versus increased spending on larger scale public protective infrastructure. Based on our research we believe these analytic systems are amongst the first of their kind in the world and can deliver greater value for money in adaptation spending than home owners, councils and insurers acting unilaterally.

10. Finally, we are also happy to share any public risk and adaptation reports from companies and councils which are in the public domain and available on our projects web site.  
[www.climaterisk.com.au/downloads.php](http://www.climaterisk.com.au/downloads.php)

As I hope we have made clear, we are more than keen to provide whatever support and insight we can to the Commission as we believe this work is timely and is of the utmost importance as we come to terms with the gradually increasing effect of climate change.

Your Sincerely

Karl Mallon